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12.0 ABORIGINAL CONSULTATION

12.1 ABORIGINAL INTERESTS

12.1.1 Indigenous Groups

Schedule B of the EAO's Section 11 Order for the Project, issued on August 8, 2017, identifies the following Indigenous Groups for consultation and invitation to participate in the Working Group:

- Cowichan Tribes
- Halalt First Nation
- Katzie First Nation
- Kwantlen First Nation
- Kwikwetlem First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Musqueam Nation
- Penelakut Tribe
- Semiahmoo First Nation
- Squamish Nation
- Stz'uminus First Nation
- Tsawwassen First Nation
- Tseil-Waututh Nation

Schedule C of the EAO's Section 11 Order for the Project identifies the following Indigenous Groups for notification:

- People of the River Referrals Office
 - Soowahlie
 - Shxw'ow'hamel First Nation
 - Skawahlook First Nation
- Seabird Island

While the Proponent is only required to provide information on Schedule B Indigenous Groups in this section (**Part C**), baseline information regarding Schedule C Indigenous Groups has been provided to inform the analysis of potential Project-related effects of a change to the environment on Indigenous peoples, pursuant to CEAA 2012 5(1)(c), including the current use of lands and resources for traditional purposes, as summarized in **Section 11** of this Application.

12.1.2 Consultation Activities with Indigenous Groups

The following section provides a high-level summary of consultation undertaken to date with Aboriginal Groups. It also summarizes consultation planned for the Application Review Phase and, should the Project be approved, post Environmental Assessment Certificate. Aboriginal Group-specific consultation activities are summarized in **Section 12.1.3** of this chapter and more detailed information related to Aboriginal consultation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

12.1.2.1 Capacity Funding

The Proponent provided Pre-Application Phase funding to all Aboriginal Groups to support participation in the EAO process, engagement with the Proponent's Project team and for the completion of Traditional Use and Project-related studies. Funding agreements outlined the respective parties' understandings with respect to planned consultation activities, and participation in review of Project-related documents and materials. Funding agreements are confidential between the Proponent and the Aboriginal Groups.

The Proponent has received requests from Aboriginal Groups for funding to support their continued participation in the Project's EA process and consultation program. The Proponent is currently working with Aboriginal Groups to finalize funding agreements for the Application Review Phase.

12.1.2.2 Consultation Activities

Table 12.1-1 describes the phases of Aboriginal consultation for the Project and provides a timeline for each consultation phase.

Table 12.1-1 Aboriginal Consultation Phases for the Project

Consultation Phase	Description	Timeline / Duration
Initial Consultation	Early engagement including sharing Project-related information, determining specific preferences and details with respect to consultation, identifying Project-related concerns, interests and issues, and obtaining early input regarding the potential for the Project to affect Aboriginal Interests and identifying potential measures to avoid or mitigate any potential effects on these Interests.	Starting in spring 2016 to the issuance of the Section 11 Order in August 2017.
Pre-Application Consultation	Project development and planning, including development of Project Description, AIR development and collection of baseline information.	Issuance of the Section 11 Order on August 8, 2017 to the acceptance of the Application in 2018.

Consultation Phase	Description	Timeline / Duration
Application Review Consultation	Supporting Aboriginal Groups review of the EA Application and providing draft documents for review and comment. Continuing to address Project-related issues and concerns, seeking input from Aboriginal Groups with respect to mitigation, including habitat offsetting and enhancement, identifying and planning for involvement of Aboriginal Groups in any additional fieldwork and monitoring. Project-benefits related discussions and planning for involvement of Aboriginal Groups in Project construction and post-construction.	EAO Acceptance of the Application (spring 2018) to the issuance of an EAC.
Post EA Certification (EAC) Consultation	Continuing consultation to ensure EA Certificate-related commitments are met, and Project-related benefits for Aboriginal Groups are realized.	Post-EAC issuance to a date when all permits are issued.

12.1.2.2.1 Aboriginal Consultation Plan

The Project's Aboriginal Consultation Plan outlines and guides Aboriginal consultation activities to be undertaken by the Proponent, as delegated by the EAO and outlined in the Section 11 Order. It was prepared by the Proponent to meet the requirements identified in the EAO's Section 11 Order, dated August 8, 2017, and the VFPA's Project and Environmental Review Process Aboriginal consultation requirements.

The Proponent invited Aboriginal Groups to review and comment on a draft of the Aboriginal Consultation Plan on September 8, 2017. The Proponent reviewed the comments received on the draft Plan and made revisions to the document to reflect input received. Where revisions to the plan were made based on Aboriginal Groups' feedback and where input had not been incorporated into the revised document, the Proponent provided a written response to Aboriginal Groups along with an offer to meet to discuss any concerns in relation to the Plan and how their feedback had been considered.

The Proponent shared input received from Aboriginal Groups on the draft Plan with EAO. Information shared with EAO also included the Proponent's consideration of feedback received during consultation, and identification of revisions to the Plan resulting from Aboriginal input. The revised Aboriginal Consultation Plan was approved by EAO on November 30, 2017. The Aboriginal Consultation Plan can be found on the EAO website [insert link] and includes additional information regarding engagement with Aboriginal Groups on the development and finalization of the Plan.

The Proponent will continue to work with Aboriginal Groups throughout the environmental review process to ensure engagement outlined in the Aboriginal Consultation Plan continues to reflect the needs and preferences of each group with the aim to implement it in a manner that is considered effective from the perspective of both parties. The commitment to engage Aboriginal Groups on the continued implementation of the Plan is further described in the Application Review Consultation Phase section.

Initial Consultation Phase

Aboriginal consultation commenced in spring 2016 and was focused on sharing of Project-related information, determining specific preferences and details with respect to consultation activities, identifying Project-related concerns, interests and issues, obtaining input from Aboriginal Groups regarding the potential for the Project to affect their Aboriginal Interests and identifying potential measures to avoid or mitigate any potential effects on these Interests. Key consultation activities undertaken during this phase include Aboriginal participation in fieldwork, meetings and presentations, site visits, phone calls and email communication. During the initial consultation phase the Proponent:

- Provided general proponent-related information on the Proponent's structure, organization, and services
- Discussed and confirmed Aboriginal Groups' contacts and communication protocols
- Shared Project information and requested comment from Aboriginal Groups on proposed field programs, and provided Project updates
- Determined preferred consultation methods with each Aboriginal Group
- Sought Traditional Land Use information and Traditional Ecological Knowledge through engagement activities and the provision of funding for Project-related studies
- Entered into capacity funding arrangements with Aboriginal Groups
- Sought input and recommendations on the archaeological field program methodology as well as arranged active participation in the fieldwork
- Offered a variety of opportunities for information sharing between the Project team and Aboriginal Groups, including on-river boat tours of the Project site, tours of the hydraulic modelling facility, workshops and technical presentations
- Sought input with respect to issues, concerns and interests related to the Project, as well as selection of Valued Components for the EA selection, proposed pier locations, environmental studies and Project design
- Offered opportunities to convene community open houses or other activities to facilitate the sharing of Project-related information and for gathering input

Pre-Application Phase Consultation

Pre-application consultation with Aboriginal Groups began in August 2017 with the issuance of the Section 11 Order by EAO and continued through to filing of the EA Application accepted by the EAO for the Project.

The Proponent provided Pre-Application Phase capacity funding for Aboriginal Groups to support active and meaningful participation in consultation activities leading to the submission of the Application and for the preparation and submission of Traditional Use or Project-related studies.

To achieve the consultation objectives outlined in the Project's Aboriginal Consultation Plan, the Proponent undertook a range of activities, including:

- Continued to seek input and consider knowledge and information shared by Aboriginal Groups in meetings, studies and through other means
- Continued to respond to concerns, issues and requests from Aboriginal Groups, to identify potential effects on Aboriginal Interests and to elicit input with respect to measures to avoid and mitigate any potential effects
- Provided draft baseline documents for review and input (i.e. draft heritage report, draft terrestrial wildlife survey, fish and fish habitat Terms of Reference)
- Shared information and requested comment from Aboriginal Groups on proposed field programs, and provided Project updates
- Supported Aboriginal Groups' participation in Working Group meetings
- Attended community meetings to provide Project information and respond to questions
- Provided opportunities for Aboriginal Groups' participation in fieldwork and monitoring
- Requested input into Valued Component selection
- Engaged Aboriginal Groups on the draft Valued Components Document and draft EAC Application Information Requirements (dAIR)
- Shared Project information with respect to field programs, construction, procurement schedule, as well as regular Project updates
- Sought Traditional Land Use information, Traditional Ecological Knowledge and other input from Aboriginal Groups through engagement activities for consideration in the EA
- Identified initial concerns on the potential environmental, economic, social heritage, and health effects of the Project
- Offered and conducted meetings, phone calls and workshops
- Sought comments and input on draft EA baseline studies

Information gathered through the Initial Consultation Phase and Pre-Application Phase has been used to inform the EA Application, and will continue to inform the development of measures to mitigate any potential adverse effects resulting from the Project, including development of management and restoration plans.

Application Review Phase Consultation

The Application Review Phase commences with EAO's acceptance of the environmental assessment Application. Aboriginal consultation will be guided by the Project's Aboriginal Consultation Plan and in accordance with the directives outlined in the Section 11 Order.

During the Application Review Phase, the Proponent will continue to work with Aboriginal Groups with the aim of ensuring that planned activities, as outlined in the Project's Aboriginal Consultation Plan, support meaningful consultation.

The Proponent's key priorities for this phase include, but are not limited to:

- Obtaining input and responding to feedback on the Application
- Continuing to seek information on concerns, issues, and interests
- Working with Aboriginal Groups in the development of strategies to avoid, mitigate, or otherwise address any potential adverse effects of the Project
- Receiving and integrating feedback and Traditional Knowledge into mitigation measures, draft plans, permits and other components of the Project
- Responding to questions, concerns, and comments shared by Aboriginal Groups
- Sharing Project-related information and updates
- Conducting consultation meetings, workshops and other activities that may be requested by Aboriginal Groups
- Planning for Aboriginal involvement in Project construction and post-construction activities, including, but not limited to environmental and archaeological monitoring
- Further identifying and planning for employment, training and contracting opportunities for Aboriginal Groups
- Advancing planning related to cultural recognition and legacy opportunities
- Entering into Project Agreements, where appropriate

The Proponent continues to welcome input from Aboriginal Groups with respect to their consultation priorities for the Application Review Phase.

Key activities planned for this phase and outlined in the Aboriginal Consultation Plan include:

- Notifying Aboriginal Groups of the submission of the Application
- Issuing copies of the Application in preferred format (electronic, hard copy or both) and other draft documents for review and comment (i.e. permit applications, management/other plans)

- Responding to comments and maintaining an ongoing record of issues/responses for submission to EAO
- Communications and correspondence aimed at sharing information and providing updates, addressing concerns and seeking input on measures to avoid, mitigate, or otherwise address any potential adverse effects of the Project
- Meetings with Aboriginal Groups' representatives such as Chief and Council, staff, technical support/consultants, focused on the priorities listed above as well as additional priorities that are identified by Aboriginal Groups
- Presentations, workshops, community meetings and/or other activities that may be requested by Aboriginal Groups
- Preparation and sharing of Draft Aboriginal Consultation Report #3

In addition to working in accordance with the Aboriginal Consultation Plan, the Proponent will seek further input from Aboriginal Groups with respect to proposed consultation activities for the Application Review Phase as well as those planned for Post Environmental Assessment Certificate consultation. The Proponent will work with Aboriginal Groups to identify opportunities to enhance the effectiveness of consultation activities for these phases. Any updates or revisions to the Aboriginal Consultation Plan will be put forward to EAO for approval.

Post Environmental Assessment Certificate Consultation

Should an Environmental Assessment Certificate be issued for the Project, the Proponent will:

- Provide Aboriginal Groups with a notification of the outcome of the Application Review, including requirements of the EAC
- Continue consultation with Aboriginal Groups so that environmental certificate-related obligations can be met and to continue to seek input on Project components such as mitigation, permits, plans, environmental enhancement and other components of known interest
- Fulfill obligations associated with any Project-related benefits agreements between the Proponent and specific Aboriginal Groups
- Continue discussions and planning with Aboriginal Groups regarding Project-related opportunities, such as training, employment and contracting
- Provide regular Project updates through continued communication and engagement with Aboriginal Groups

For a review of consultation activities with each Aboriginal Group, refer to the Group-specific subsections in **Section 12.1.3.3**.

12.1.3 Potential Impacts of the Proposed Project on Aboriginal Interests

12.1.3.1 Assessment Structure and Approach

The Proponent sought input from each Indigenous Group on the nature and scope of their Aboriginal Interests and how these Aboriginal Interests might be impacted by the Project. The identification of Aboriginal Interests was assisted, in part, by the provision of funding by the Proponent to each Indigenous Group to prepare Project-specific studies regarding their past, present, and desired future use of lands and resources for traditional purposes and/or pursuant to Aboriginal Interests.

To help guide the spatial scope of these Project-specific studies, the Proponent suggested a Traditional Use Study Area (TU Study Area) centred on the Project Boundary. This TU Study Area included the Fraser River and adjacent lands from the Port Mann Bridge to the downstream end of Annacis Island. Spatial boundaries adopted in Project-specific studies are described in the Group-specific summaries in **Section 12.1.3.3**.

A generalized summary of the potential impacts of the Project for each category of Aboriginal Interest (i.e., fishing, hunting/trapping, gathering, other traditional and cultural interests, title) is provided below in **Section 12.1.3.2**. Group-specific summaries follow in **Section 12.1.3.3**, and include a review of key issues raised during the EA by each Indigenous Group in relation to their Aboriginal Interests, and the Proponent's consideration of those key issues when determining the level of potential impact of the Project on each Indigenous Group's Aboriginal Interests.

In considering potential impacts of Project-related activities on Aboriginal harvesting rights (including treaty rights), the Proponent also considered the following three components of Aboriginal or treaty rights, following the methods employed by the EAO on other projects to assess potential impacts on Aboriginal Interests:

- **Biophysical factors:** Consideration of potential effects on biophysical factors that are important for, or associated with, the exercise of an Aboriginal harvesting right. This included consideration of VCs relevant to the exercise of the right, the residual and cumulative effects analysis of those VCs, the species harvested by the Indigenous Group, relevant mitigation measures, and the efficacy of such mitigation measures.
- **Specific sites or areas for traditional use (location-specific factors):** Consideration of potential effects on specific sites or areas of importance for traditional use, or sites or areas where the rights are exercised. This included consideration of whether there are any traditional land or marine use sites identified as overlapping or in proximity to the Project area, the number of such sites in relationship to the Project, and effects on access to these sites, including effects on the frequency and timing of access and increased public access, relevant mitigation measures, and the efficacy of such mitigation measures.

- Social, cultural, spiritual, and experiential factors: Consideration of potential effects on social, cultural, spiritual, and experiential aspects of the exercise of the right. This included consideration of potential effects of the Project on the experience of use or exercise rights in the area, community health (e.g., diet), socio-cultural institutions (e.g., governance), teaching and knowledge transfer, ceremonial/spiritual practices associated with the right, and the relative importance of the Project area to the exercise of the right.

In considering potential impacts of Project-related activities on Aboriginal title, the Proponent has also considered the following three components of Aboriginal title, following the methods employed by the EAO to assess potential impacts on Aboriginal Interests:

- Use and occupation: Consideration of potential alienation of an area, the degree of potential disturbance or functional effect of the potential disturbance associated with the Project, how the proposed decision might restrict Indigenous Groups' access to the area, and how the proposed decision might effect Indigenous Groups' enjoyment, experience, and use of the area, now and in the future.
- Decision-making: Consideration of whether the proposed decision would result in a new tenure or transfer of ownership to the area, the extent to which an Indigenous community might be involved in the decision-making process, and whether the activity might be consistent or inconsistent with any cultural or other objectives of the Indigenous Group for management in this area, now and in the future.
- Economic benefits: Consideration of whether the impact of the Project might affect an Indigenous Group's ability to derive direct or indirect economic benefits from the area, and how the proposed decision might affect an Indigenous Group's economic development aspirations for the area, now and in the future.

The above methods are employed below in **Section 12.1.3.2**, which presents general conclusions by Aboriginal Interest, and in **Section 12.1.3.3**, which presents conclusions by Aboriginal Interest for each Schedule B Indigenous Group. Methods that are employed specifically in **Section 12.1.3.3**—such as effect thresholds (i.e., negligible, minor, moderate, serious) used to describe the predicted level of effect, from the Proponent's perspective, on a given Aboriginal Interest of a specific Indigenous Group—are described below in the introduction to that section.

12.1.3.2 General Conclusions by Aboriginal Interest

12.1.3.2.1 Fishing

Indigenous Groups identified several traditionally important fish species, including species of particular importance such as all five species of salmon (with sockeye, Chinook, and coho being the most valued), steelhead, white sturgeon, and eulachon, as important sources of food accessed on the Fraser River in the vicinity of the Project. All of these species were considered in the development of indicators for Key Fish Species in the fish and fish habitat assessment, which integrated ATK regarding Indigenous names for those key species, historical fish populations (and declines), fish use, and fish habitat locations shared by Schedule B Indigenous Groups with the Proponent during Pre-Application (refer to **Section 4.3 Fish and Fish Habitat**).

The Fraser River in the vicinity of the Pattullo Bridge is an important area to many Indigenous Groups for fishing. The area has been described by Indigenous Groups as particularly productive due to a number of critical harvesting conditions that can be found at this location, conditions that have been characterized as increasingly rare. These conditions include favourable hydrologic and river features (e.g., low tides, river bottom contours, back eddies, sandbars), a relative lack of nuisance predators (i.e., seals) this far upstream, and a particular concentration of highly valued species (including all species of salmon, sturgeon, and eulachon).

Several Indigenous Groups participate in commercial fisheries in the lower Fraser River, in the general commercial fishery and under communal commercial licences, deriving economic benefits from fishery revenues and employment-generated income (refer to **Section 6.1 Marine Use**). Indigenous Groups also participate in fisheries for domestic and FSC purposes in the lower Fraser River in the vicinity of the Project, including under FSC licences that allow the sale of fish (economic opportunity or EO fisheries). The primary method of fishing for FSC purposes in the Fraser River at this location is by drift or set net. Indigenous Groups reported that existing breakwaters, piers, and dolphins in the area of the existing bridge are commonly used to set their nets.

The Proponent understands that an Indigenous Group's fishing activities depend, in part, on the status and sensitivity of fish populations within their area of traditional use, the nature and timing of Project-related disturbances, and the effectiveness of the mitigation to address such disturbances, as well as the extent to which the Project could affect an Indigenous Group's access to and use of the area. The assessment of potential effects of the Project on Indigenous Groups' Aboriginal Interests associated with fishing is informed by the analysis of assessment conclusions for relevant ICs and VCs assessed in earlier (**Part B**) sections of this Application. Potential effects proposed mitigation, and residual and cumulative effects of relevance to fishing by Indigenous Groups are presented in **Section 4.1 Fraser River Hydraulics and Morphology**, **Section 4.3 Fish and Fish Habitat**, **Section 6.1 Marine Use** (including navigation), **Section 6.4 Visual Quality** (including lighting, shading), and **Section 8.0** regarding human health (including air quality, noise, vibration) of this Application.

The Proponent considered the following key factors in assessing the potential impacts of the Project on an Indigenous Group's Aboriginal Interests associated with fishing:

Biophysical factors in relation to fishing:

- **Section 4.1 River Hydraulics and Morphology** and **Section 4.3 Fish and Fish Habitat** took into account concerns expressed by Indigenous Groups regarding the potential for changes in river hydraulics and morphology to affect fish habitat or fish behaviour.
- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels. Residual effects are expected after the application of mitigation (i.e., scour protection, pier location and configuration) to address potential bed level increases in the downstream navigation channel and downstream of the North and South pylons, and a bed level decrease between existing Pattullo Piers 5 and 6. The magnitude and likelihood of the residual effects on bed levels are predicted as moderate to high,

and are expected to persist over the operational life of the Project. Cumulative effects with the New Westminster Railway Bridge (NWRB) are considered possible, and could include local bed level changes and increased sediment deposition downstream of the NWRB piers. Regular monitoring and future modelling have been proposed to evaluate the accuracy of the effects prediction and the effectiveness of proposed mitigation measures. In this regard, the Proponent acknowledges Indigenous Groups' concerns with bed lowering at key fishing sites, and the potential effect of such a change in harvesting conditions (fishability) at those sites (i.e., fish having more room to evade nets).

- Project-related changes in river hydraulics and morphology were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect, with no residual or cumulative effects.
- **Section 4.3 Fish and Fish Habitat** considered Indigenous Group concerns with the effects of Project-related changes in light quantity or quality on fish and fish habitat. Based on the results of **Section 6.5 Lighting**, the fish and fish habitat assessment concluded there are no Project-related lighting interactions with fish and fish habitat.
- **Section 4.3 Fish and Fish Habitat** identifies a combination of avoidance, minimization, on-site restoration, and off-setting measures that, along with monitoring, will be incorporated into the CEMP (refer to **Section 14.0 Management Plans**). These measures relate to Project design features, erosion and sediment control, spill contingency measures, stormwater management, noise reduction, and on-site restoration opportunities to help mitigate Project-specific effects to the Fish and Fish Habitat VC. For example, steps will be taken to avoid potential effects on fish and fish habitat in upland tributaries, which remain important to Indigenous Groups, and the removal of the existing Pattullo Bridge deck will allow more sunlight into the riparian area, facilitating the restoration of riparian vegetation and improving fish and fish habitat in a zone that is currently shaded. The Proponent has indicated that it will prepare revegetation plans for these areas in consultation with Indigenous Groups (see **Section 4.4.4.4 Vegetation**).
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.

- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species.
- The Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of what Indigenous Groups consider to be already significantly reduced fish populations of cultural importance. To address this concern, the Proponent has proposed measures at the end of this section that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests.

Location-specific factors related to fishing:

- Key fishing sites identified by Indigenous Groups that overlap or are in proximity to the Project were considered in relation to past, present, and anticipated future use of the area for fishing, including access and navigation to those sites. Key sites for specific Indigenous Groups are identified in the Group-specific subsections within **Section 12.1.3.3**.
- **Section 1.1.4 Phases of the Proposed Project** defines the construction period (including removal of the existing bridge) as 2019-2024. Construction activities and sequencing of construction work will be established after award of the design-build-finance contract. All construction activities at the site will be limited to the Project Boundary. The new bridge is expected to be in service in 2023.
- **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such

as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.

- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river. A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on marine use will be monitored through ongoing Project consultation with marine users and Indigenous Groups.
- The Proponent recognizes that Indigenous Groups' access to key fishing sites in the Project Boundary area of the Fraser River for domestic or food, social and ceremonial (FSC) purposes may be affected in similar ways to those described in the marine use assessment during Project construction (2019-2023) and demolition (2024), but acknowledges that domestic or FSC fishing may be occurring in this area more frequently than commercial or recreational fishing.
- The Proponent understands from Indigenous Groups that DFO licence openings, including EO openings, can be narrow and restrictive (e.g., as little as 6 hours, with only a few hours advance notice), and that there are potential cultural and socio-economic costs when fishing access is impeded (spatially or temporally), particularly in the context of short and last-minute openings that require particular efficiency.

- The Proponent understands that, irrespective of the Project, Indigenous Groups are already concerned about existing navigational safety conditions while accessing key fishing sites and other areas of traditional use along the Fraser River. The Proponent understands the potential safety risks that Indigenous Groups have identified when fishing with nets in areas of increased construction activity and vessel traffic and the potential obstructions to nets and/or gear.
- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes.

Social, cultural, spiritual, and experiential factors considered in relation to fishing:

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations on and near the waters of the Fraser River have been identified by Indigenous Groups as used for fishing, harvesting, teaching, and learning. These include on-water locations under, and downstream of, the existing bridge, as well as on-land locations along the south shoreline, particularly in Brownsville Bar Park. Locations for baseline monitoring were selected by Musqueam Nation as representative for on-river activities. The zone of influence of bridge traffic noise will shift upstream, where noise levels on the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- **Section 8.1 Physical Determinants of Human Health** predicts that potential Project-related health effects on human receptors (i.e., potential annoyance, sleep disturbance, effects on speech comprehension) from construction noise and vibration can be effectively mitigated with the implementation of measures identified in **Section 4.7 Noise and Vibration** (e.g., limiting hours of construction, approaches to avoid or mitigate construction noise at the source,

consulting with the community regarding the scheduling of noisy activities, ongoing monitoring in critical areas). Operation-phase noise monitoring will also be carried out. With the implementation of appropriate mitigation measures, residual effects on human health as a result of Project-related changes to noise and vibration have been determined by the Proponent in **Section 8.1** to be negligible.

- As reviewed in **Section 8.1 Physical Determinants of Human Health**, with the implementation of mitigation measures identified in **Section 4.8 Air Quality** (e.g., implementation of approaches to avoid or minimize air emissions during construction, real-time monitoring of particulate matter and adaptive management), changes in air quality during construction are not expected to affect human health; however, potential Project-related changes in air quality during operations (i.e., from vehicle traffic using the bridge) may have an effect on commuters, residents, or temporary users of the area. With improved vehicle emission technologies and an overall reduction in air emissions, an overall improvement in human health effects stemming from changes in air quality is expected compared to existing conditions. Residual effects on human health as a result of Project-related changes to air quality have been determined by the Proponent in **Section 8.1** to be negligible.
- In **Section 8.1 Physical Determinants of Human Health**, the Proponent took into account Indigenous Groups' concerns with health effects from exposure to contaminants through consumption of edible aquatic foods, including Key Fish Species, and identified this as a subcomponent to the human health VC. Considering the results of **Section 4.2 Surface Water and Sediment Quality**, which considered ATK regarding water and sediment quality, trends, and historic activities related to the IC, including but not limited to what Indigenous Groups have characterized as profound impacts to water quality near the Project area, especially since the early twentieth century. These cumulative impacts have been attributed by Indigenous Groups to development in the Lower Fraser River and its watershed, particularly point- and non-point pollution, caused by industrialization, urbanization, and agriculture. The surface water and sediment quality assessment indicates that, overall, there is sufficient information to conclude that water quality in upland tributaries near the Project area (i.e., Brunette Creek, Glenbrook Creek, Manson Drainage Canal, and Pattullo Canal) has historically and recently been relatively low. With regard to sediment quality, the results of the surface water and sediment quality assessment suggest that while contaminant concentrations in sediments near the Pattullo Bridge may not locally exceed corresponding guideline values, there is potential for temporal or spatial variability and localized exceedances. Project-related effects were identified as potentially resulting from accidental spills of toxic or hazardous materials, construction and decommissioning of piers in the Fraser River, ground disturbance (of sites of current or historic contamination), and runoff from new road surfaces. With avoidance and minimization measures, including several management plans included within the CEMP (refer to **Section 14.0 Management Plans**), no residual effects on surface water or sediment quality are expected. Accordingly, and in conjunction with an analysis of potential exposure to aquatic contaminants conducted in **Appendix 18.16 Physical Determinants of Human Health Technical Report**, the human health assessment concludes that there is likely no risk to human health, and no related potential Project interactions are anticipated.

- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As described in the visual assessment, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- **Section 8.2 Social Determinants of Human Health (SDOH)** concludes that the Project is not expected to have residual or cumulative effects on SDOH. Notwithstanding this conclusion, the assessment indicates (**Section 8.2.7**) that the mitigation measures proposed to manage disruptions in access (i.e., to needed health and social services; to friends, family, neighbours, and public places; for customers and suppliers to business establishments; and for active living)

from road closures, demolition, and Project traffic – specifically, through a Traffic Management Plan and Business Liaison Program/Committee – will effectively provide a follow-up strategy that will help confirm the accuracy of the original effects prediction and, in the course of being carried out, will also provide opportunity to assess the effectiveness of the mitigation measures. The measures are said to be based on an adaptive management framework that will enable the Proponent to work with Indigenous Groups, key stakeholders, and government agencies to make appropriate adjustments in measures, if there should prove to be substantial variance in health outcomes related to changes in SDOH from what has been presented in the assessment.

- The SDOH assessment considered Indigenous Group perspectives that connected most of their Project-related health concerns with environmental concerns, in relation to which Indigenous Groups cite the deeply ingrained historical relationships they have with the lands and resources around the Project area.
- The Proponent recognizes that, for Indigenous Groups, the ability to effectively engage in cultural use and achieve the intended cultural objectives—the state of cultural health (or cultural stress)—is a determinant of health for Indigenous Groups and their members. Project-related effects on the use of lands and resources for traditional purposes (cultural use), regardless of the source of the effect (i.e., biophysical factors affecting the resource, site-specific factors affecting access to or use of valued locations, or factors connected to changes in the sensory experience), have the potential to specifically affect Indigenous health if remaining available and healthy resources, relative ease of access (in terms of time, costs) to critical harvesting locations, and environmental conditions that are conducive to cultural pursuits and objectives (e.g., sense of safety, sense of place, cultural continuity) are further impeded. The Proponent has proposed measures at the end of this section that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including cultural health.

As reviewed above, the Proponent has proposed mitigation to avoid or reduce potential Project-related effects on fish, fish habitat, navigation (i.e., NPZ, APZ), and fishing, including the development of management plans and monitoring and follow-up programs. The Proponent has also committed to the following measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests associated with navigation and fishing, including:

- Ongoing consultation with Indigenous Groups on design of infrastructure for the Project, including drainage, landscaping, lighting, and other visual and environmental considerations
- Continued consultation by the Proponent with Indigenous Groups regarding the development of the CEMP generally and specific management plans within the CEMP (refer to **Section 14.0 Management Plans** for details on the CEMP and associated plans), including:
 - Development of a Contaminated Sites Management Plan
 - Development of an Emergency Response and Spill Prevention Plan
 - Development of a Hazardous Materials Management Plan

- Development of a Non-Hazardous Waste Management Plan
 - Development of a Stormwater Management and Pollution Prevention Plan
 - Development of an Erosion and Sediment Control Plan
 - Development of a Fish and Fish Habitat Management Plan, including compensation and restoration works (e.g., planting) proposed to offset unavoidable adverse impacts to aquatic and riparian habitats, as well as associated monitoring requirements
 - Development of an Underwater Noise Mitigation and Management Plan
 - Development of a Vegetation Protection (Management) Plan, which will include a description of how native plants will be incorporated into post-construction revegetation to support aquatic, riparian, and terrestrial values
 - Development of a Construction Staging Plan
 - Development of a Demolition Staging Plan
 - Development of a Marine Access Management Plan
 - Development of a Marine Communications Plan, in consultation with a marine users group, including Indigenous Groups, who will be consulted on how they wish to engage in this marine communications process during construction, and the development of protocols and procedures relating to access, navigation, and emergency preparedness
 - Development of a Noise and Vibration Management Plan
 - Development of an Air Quality Management Plan
 - Development of a Landscape (Management) Plan
 - Development of a Lighting Plan
 - Development of an Environmental Monitoring Plan, with oversight by an Independent Environmental Monitor and monitoring of mitigation effectiveness potentially extending into the operation phase if necessary
- Involvement of Indigenous Groups by the Proponent in the selection of the Independent Environmental Monitor
 - Continued consultation by the Proponent with Indigenous Groups regarding the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects (refer to **Section 15.0 Monitoring and Follow-up Programs**) that are mostly temporary in nature and associated with the Project's construction phase, and proposed follow-up strategies for the post-construction phase for River Hydraulics and Morphology (**Section 4.1**), Fish and Fish Habitat (**Section 4.3**), Noise and Vibration (**Section 4.7**), Air Quality (**Section 4.8**), Economic Activity and Land Use (as they relate to noise and vibration, **Section 5.1** and **Section 5.2**), Heritage Resources (**Section 7.1**), and Social Determinants of Human Health (**Section 8.2**)

- Provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies
- Provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values
- Participation by the Proponent in initiatives related to the monitoring, assessment, or management of cumulative environmental effects, if requested by federal, provincial, or regional government agencies
- Ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the cultural stress and associated health effects reported by Indigenous Groups

The potential impact of the Project on Aboriginal Interests associated with fishing for each Indigenous Group is described below in the Group-specific assessments in **Section 12.1.3.3**.

12.1.3.2.2 Hunting and Trapping

Indigenous Groups identified a number of wildlife species, such as waterfowl and deer, as traditionally harvested in the Project area. Species of interest to Indigenous Groups were considered in the development of the key indicators for the wildlife assessment, which integrated ATK regarding Indigenous names for those species of interest (e.g., water birds and mammals), historical wildlife populations (and declines), wildlife use, and wildlife habitat locations shared by Schedule B Indigenous Groups with the Proponent during Pre-Application (refer to **Section 4.5 Wildlife**).

The wildlife assessment notes that many of the water birds of interest to Indigenous Groups may have occurred in the LSA south of the Fraser River historically, based on evidence of peat below ground level; however, according to the wildlife assessment, there are no longer waterbodies in the LSA large enough to support nesting or spring/fall staging by these species, even though they may still occur in the LSA in passing. With regard to mammals, the wildlife assessment lists the species historically observed by Indigenous Groups in the vicinity of the existing bridge (e.g., striped and spotted skunk, beaver, red fox, black-tailed deer, elk, eastern cottontail, coyote, Douglas squirrel, muskrat, river otter, mink, black bear). The wildlife assessment reports that only 28% of the LSA is currently vegetated, mainly in small isolated patches embedded within a highly developed urban matrix, patches that likely still support smaller mammal species (e.g., skunks, squirrels). Habitat patches large enough to support ungulates and carnivores have been eliminated, with the exception of Queen's Park, which is managed as a recreational area.

The Proponent understands that an Indigenous Group's hunting/trapping activities depend, in part, on the status and sensitivity of wildlife populations within their area of traditional use, the nature and timing of Project-related disturbances, and the effectiveness of the mitigation to address such disturbances, as well as the extent to which the Project could affect an Indigenous Group's access to and use of the area.

The assessment of potential effects of the Project on Indigenous Groups' Aboriginal Interests associated with hunting/trapping is informed by the analysis of assessment conclusions for relevant ICs and VCs assessed in earlier (**Part B**) sections of this Application. Potential effects, proposed mitigation, and residual and cumulative effects of relevance to hunting/trapping by Indigenous Groups are presented in **Section 4.5 Wildlife**, **Section 6.2 Land Use**, **Section 6.4 Visual Quality** (including lighting, shading), and **Section 8.0** regarding human health (including air quality, noise, vibration) of this Application.

The Proponent considered the following key factors in assessing the potential impacts of the Project on an Indigenous Group's Aboriginal Interests associated with hunting/trapping:

Biophysical factors in relation to hunting/trapping:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- Potential Project effects are identified in the wildlife assessment for songbirds, raptors, and small mammals (i.e., Pacific water shrew). In relation to these species, the potential for habitat loss, habitat degradation, sensory disturbance (noise, light), direct mortality, and movement patterns during construction and operation is assessed.
- The wildlife assessment explains that the Project has been designed to overlap with existing roadways and intersections to reduce the risk of affecting wildlife habitat in the LSA. Other avoidance measures identified in the wildlife assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches) where feasible and with appropriate setbacks. The wildlife assessment also notes that disturbance to breeding migratory birds and raptors, which are of importance to Indigenous Groups, will be avoided as much as possible by conducting Project works outside of critical breeding periods.
- **Section 4.5 Wildlife** also identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. The Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.

Location-specific factors in relation to hunting/trapping:

- Key hunting/trapping sites identified by Indigenous Groups that overlap or are in proximity to the Project were considered in relation to past, present, and anticipated future use of the area for hunting/trapping, including access to those sites. Key sites for specific Indigenous Groups are identified in the Group-specific subsections within **Section 12.1.3.3**.
- **Section 1.1.4 Phases of the Proposed Project** defines the construction period (including removal of the existing bridge) as 2019-2024. Construction activities and sequencing of construction work will be established after award of the design-build-finance contract. All construction activities at the site will be limited to the Project Boundary. The new bridge is expected to be in service in 2023.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed. Refer to the “Social, cultural, spiritual, experiential factors in relation to hunting/trapping” section below for further consideration of environmental conditions related to hunting/trapping.

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).

Social, cultural, spiritual, experiential factors in relation to hunting/trapping:

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for wildlife harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- **Section 8.1 Physical Determinants of Human Health** predicts that potential Project-related health effects on human receptors (i.e., potential annoyance, sleep disturbance, effects on speech comprehension) from construction noise and vibration can be effectively mitigated with the implementation of measures identified in **Section 4.7 Noise and Vibration** (e.g., limiting hours of construction, approaches to avoid or mitigate construction noise at the source, consulting with the community regarding the scheduling of noisy activities, ongoing monitoring in

critical areas). Operation-phase noise monitoring will also be carried out. With the implementation of appropriate mitigation measures, residual effects on human health as a result of Project-related changes to noise and vibration have been determined by the Proponent in **Section 8.1** to be negligible.

- As reviewed in **Section 8.1 Physical Determinants of Human Health**, with the implementation of mitigation measures identified in **Section 4.8 Air Quality** (e.g., implementation of approaches to avoid or minimize air emissions during construction, real-time monitoring of particulate matters and adaptive management), changes in air quality during construction are not expected to affect human health; however, potential Project-related changes in air quality during operations (i.e., from vehicle traffic using the bridge) may have an effect on commuters, residents, or temporary users of the area. With improved vehicle emission technologies and an overall reduction in air emissions, an overall improvement in human health effects stemming from changes in air quality is expected compared to existing conditions. Residual effects on human health as a result of Project-related changes to air quality have been determined by the Proponent in **Section 8.1** to be negligible.
- In **Section 8.1 Physical Determinants of Human Health**, the Proponent took into account Indigenous Groups' concerns with health effects from exposure to contaminants through consumption of edible aquatic foods, including Key Fish Species, and identified this as a subcomponent to the human health VC. Effects to terrestrial resources, including wildlife, from adverse changes in air quality resulting from exposure to airborne contaminants was not specifically assessed; however, given the results of the air quality assessment, which predicts an overall improvement in air emissions with the Project, human exposure to contaminants through the consumption of edible terrestrial resources is not anticipated as result of the Project.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into

the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- The Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- **Section 8.2 Social Determinants of Human Health (SDOH)** concludes that the Project is not expected to have residual or cumulative effects on SDOH. Notwithstanding this conclusion, the assessment indicates (**Section 8.2.7**) that the mitigation measures proposed to manage disruptions in access (i.e., to needed health and social services; to friends, family, neighbours, and public places; for customers and suppliers to business establishments; and for active living) from road closures, demolition, and Project traffic – specifically, through a Traffic Management Plan and Business Liaison Program/Committee – will effectively provide a follow-up strategy that will help confirm the accuracy of the original effects prediction and, in the course of being carried out, will also provide opportunity to assess the effectiveness of the mitigation measures. The measures are said to be based on an adaptive management framework that will enable the Proponent to work with Indigenous Groups, key stakeholders, and government agencies to make appropriate adjustments in measures, if there should prove to be substantial variance in health outcomes related to changes in SDOH from what has been presented in the assessment.
- The SDOH assessment considered Indigenous Group perspectives that connected most of their Project-related health concerns with environmental concerns, in relation to which Indigenous Groups cite the deeply ingrained historical relationships they have with the lands and resources around the Project area.
- The Proponent recognizes that, for Indigenous Groups, the ability to effectively engage in cultural use and achieve the intended cultural objectives—the state of cultural health (or cultural stress)—is a determinant of health for Indigenous Groups and their members. Project-related effects on the use of lands and resources for traditional purposes (cultural use), regardless of the source of

the effect (i.e., biophysical factors affecting the resource, site-specific factors affecting access to or use of valued locations, or factors connected to changes in the sensory experience), have the potential to specifically affect Indigenous health if remaining available and healthy resources, relative ease of access (in terms of time, costs) to critical harvesting locations, and environmental conditions that are conducive to cultural pursuits and objectives (e.g., sense of safety, sense of place, cultural continuity) are further impeded. The Proponent has proposed measures at the end of this section that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including cultural health.

As reviewed above, the Proponent has proposed mitigation to avoid or reduce potential Project-related effects on wildlife, wildlife habitat, and wildlife harvesting, including the development of management plans and monitoring and follow-up programs. The Proponent has also committed to the following measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests associated with hunting and trapping, including:

- Ongoing consultation with Indigenous Groups on design of infrastructure for the Project, including drainage, landscaping, lighting, and other visual and environmental considerations
- Continued consultation by the Proponent with Indigenous Groups regarding the development of the CEMP generally and specific management plans within the CEMP (refer to **Section 14.0 Management Plans** for details on the CEMP and associated plans), including:
 - Development of a Contaminated Sites Management Plan
 - Development of an Emergency Response and Spill Prevention Plan
 - Development of a Hazardous Materials Management Plan
 - Development of a Non-Hazardous Waste Management Plan
 - Development of a Stormwater Management and Pollution Prevention Plan
 - Development of a Soil and Groundwater Management Plan
 - Development of an Erosion and Sediment Control Plan
 - Development of a Wildlife Management Plan
 - Development of a Vegetation Protection (Management) Plan, which will include a description of how native plants will be incorporated into post-construction revegetation to support aquatic, riparian, and terrestrial values
 - Development of a (Construction) Traffic Management Plan, which the Proponent is of the view will avoid or mitigate any disruption caused by the Project to access for the purposes of harvesting plants or to carry out other land-based traditional use activities
 - Development of a Noise and Vibration Management Plan

- Development of an Air Quality Management Plan
 - Development of a Landscape (Management) Plan
 - Development of a Lighting (Management) Plan
 - Development of an Environmental Monitoring Plan, with oversight by an Independent Environmental Monitor and monitoring of mitigation effectiveness potentially extending into the operation phase if necessary
- Involvement of Indigenous Groups by the Proponent in the selection of the Independent Environmental Monitor
 - Continued consultation by the Proponent with Indigenous Groups regarding the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects (refer to **Section 15.0 Monitoring and Follow-up Programs**) that are mostly temporary in nature and associated with the Project's construction phase, and proposed follow-up strategies for the post-construction phase for River Hydraulics and Morphology (**Section 4.1**), Fish and Fish Habitat (**Section 4.3**), Noise and Vibration (**Section 4.7**), Air Quality (**Section 4.8**), Economic Activity and Land Use (as they relate to noise and vibration, **Section 5.1** and **Section 5.2**), Heritage Resources (**Section 7.1**), and Social Determinants of Human Health (**Section 8.2**)
 - Provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies
 - Provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values
 - Participation by the Proponent in initiatives related to the monitoring, assessment, or management of cumulative environmental effects, if requested by federal, provincial, or regional government agencies
 - Ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the cultural stress and associated health effects reported by Indigenous Groups

The potential impact of the Project on Aboriginal Interests associated with hunting/trapping for each Indigenous Group is described below in the Group-specific assessments in **Section 12.1.3.3**.

12.1.3.2.3 Gathering

Indigenous Groups identified a number of plant species traditionally harvested for food, medicinal, or other cultural purposes in the Project area. Species of interest to Indigenous Groups were considered in the development of the key indicators for the vegetation assessment, which integrated ATK regarding

Indigenous names for those species of interest, historical plant populations and composition (and changes over time), plant use, and plant habitat locations shared by Schedule B Indigenous Groups with the Proponent during Pre-Application (refer to **Section 4.4 Vegetation**).

As **Section 4.4 Vegetation** describes that, due to intense post-contact development in New Westminster and Surrey, few areas of intact vegetation remain in the vicinity of the Project. Existing vegetation cover is characterized in the vegetation assessment as already severely fragmented and dominated by invasive species, albeit with some consolidated patches of riparian habitat and forest cover remaining on the Surrey side of the Fraser River that may offer suitable habitat for rare plant species or comprise at-risk plant communities.

The Proponent understands that an Indigenous Group's gathering activities depend, in part, on the status and sensitivity of native plant populations within their area of traditional use, the nature and timing of Project-related disturbances (including the potential for introduction and spread of invasive species), and the effectiveness of the mitigation to address such disturbances, as well as the extent to which the Project could affect an Indigenous Group's access to and use of the area.

The assessment of potential effects of the Project on Indigenous Groups' Aboriginal Interests associated with gathering is informed by the analysis of assessment conclusions for relevant ICs and VCs assessed in earlier (**Part B**) sections of this Application. Potential effects, proposed mitigation, and residual and cumulative effects of relevance to gathering by Indigenous Groups are presented in **Section 4.4 Vegetation**, **Section 6.2 Land Use**, **Section 6.4 Visual Quality** (including lighting, shading), and **Section 8.0** regarding human health (including air quality, noise, vibration) of this Application.

The Proponent considered the following key factors in assessing the potential impacts of the Project on an Indigenous Group's Aboriginal Interests associated with gathering:

Biophysical factors in relation to gathering:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and

waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.

Location-specific factors in relation to gathering:

- Key plant gathering sites identified by Indigenous Groups that overlap or are in proximity to the Project were considered in relation to past, present, and anticipated future use of the area for plant gathering, including access to those sites. Key sites for specific Indigenous Groups are identified in the Group-specific subsections within **Section 12.1.3.3**.
- **Section 1.1.4 Phases of the Proposed Project** defines the construction period (including removal of the existing bridge) as 2019-2024. Construction activities and sequencing of construction work will be established after award of the design-build-finance contract. All construction activities at the site will be limited to the Project Boundary. The new bridge is expected to be in service in 2023.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed. Refer to the “Social, cultural, spiritual, experiential factors in relation to gathering” section below for further consideration of environmental conditions related to gathering.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions (except Musqueam), but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed native plant habitat enhancement and restoration during and after the construction/demolition period.

Social, cultural, spiritual, experiential factors related to gathering:

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for plant gathering, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding

locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- **Section 8.1 Physical Determinants of Human Health** predicts that potential Project-related health effects on human receptors (i.e., potential annoyance, sleep disturbance, effects on speech comprehension) from construction noise and vibration can be effectively mitigated with the implementation of measures identified in **Section 4.7 Noise and Vibration** (e.g., limiting hours of construction, approaches to avoid or mitigate construction noise at the source, consulting with the community regarding the scheduling of noisy activities, ongoing monitoring in critical areas). Operation-phase noise monitoring will also be carried out. With the implementation of appropriate mitigation measures, residual effects on human health as a result of Project-related changes to noise and vibration have been determined by the Proponent in **Section 8.1** to be negligible.
- As reviewed in **Section 8.1 Physical Determinants of Human Health**, with the implementation of mitigation measures identified in **Section 4.8 Air Quality** (e.g., implementation of approaches to avoid or minimize air emissions during construction, real-time monitoring of particulate matters and adaptive management), changes in air quality during construction are not expected to affect human health; however, potential Project-related changes in air quality during operations (i.e., from vehicle traffic using the bridge) may have an effect on commuters, residents, or temporary users of the area. With improved vehicle emission technologies and an overall reduction in air emissions, an overall improvement in human health effects stemming from changes in air quality is expected compared to existing conditions. Residual effects on human health as a result of Project-related changes to air quality have been determined by the Proponent in **Section 8.1** to be negligible.
- In **Section 8.1 Physical Determinants of Human Health**, the Proponent took into account Indigenous Groups' concerns with health effects from exposure to contaminants through consumption of edible aquatic foods, including Key Fish Species, and identified this as a subcomponent to the human health VC. Effects to terrestrial resources, including vegetation, from adverse changes in air quality resulting from exposure to airborne contaminants was not

specifically assessed; however, given the results of the air quality assessment, which predicts an overall improvement in air emissions with the Project, human exposure to contaminants through the consumption of edible terrestrial resources is not anticipated as result of the Project.

- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in the visual assessment, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- **Section 8.2 Social Determinants of Human Health (SDOH)** concludes that the Project is not expected to have residual or cumulative effects on SDOH. Notwithstanding this conclusion, the assessment indicates (**Section 8.2.7**) that the mitigation measures proposed to manage disruptions in access (i.e., to needed health and social services; to friends, family, neighbours, and public places; for customers and suppliers to business establishments; and for active living) from road closures, demolition, and Project traffic – specifically, through a Traffic Management Plan and Business Liaison Program/Committee – will effectively provide a follow-up strategy that will help confirm the accuracy of the original effects prediction and, in the course of being carried out, will also provide opportunity to assess the effectiveness of the mitigation measures. The measures are said to be based on an adaptive management framework that will enable the Proponent to work with Indigenous Groups, key stakeholders, and government agencies to make appropriate adjustments in measures, if there should prove to be substantial variance in health outcomes related to changes in SDOH from what has been presented in the assessment.
- The SDOH assessment considered Indigenous Group perspectives that connected most of their Project-related health concerns with environmental concerns, in relation to which Indigenous Groups cite the deeply ingrained historical relationships they have with the lands and resources around the Project area.
- The Proponent recognizes that, for Indigenous Groups, the ability to effectively engage in cultural use and achieve the intended cultural objectives—the state of cultural health (or cultural stress)—is a determinant of health for Indigenous Groups and their members. Project-related effects on the use of lands and resources for traditional purposes (cultural use), regardless of the source of the effect (i.e., biophysical factors affecting the resource, site-specific factors affecting access to or use of valued locations, or factors connected to changes in the sensory experience), have the potential to specifically affect Indigenous health if remaining available and healthy resources, relative ease of access (in terms of time, costs) to critical harvesting locations, and environmental conditions that are conducive to cultural pursuits and objectives (e.g., sense of safety, sense of place, cultural continuity) are further impeded. The Proponent has proposed measures at the end of this section that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including cultural health.

As reviewed above, the Proponent has proposed mitigation to avoid or reduce potential Project-related effects on vegetation/ecosystems of concern and plant gathering, including the development of management plans and monitoring and follow-up programs. The Proponent has also committed to the following measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests associated with gathering, including:

- Ongoing consultation with Indigenous Groups on design of infrastructure for the Project, including drainage, landscaping, lighting, and other visual and environmental considerations
- Continued consultation by the Proponent with Indigenous Groups regarding the development of the CEMP generally and specific management plans within the CEMP (refer to **Section 14.0 Management Plans** for details on the CEMP and associated plans), including:

- Development of a Contaminated Sites Management Plan
 - Development of an Emergency Response and Spill Prevention Plan
 - Development of a Hazardous Materials Management Plan
 - Development of a Non-Hazardous Waste Management Plan
 - Development of a Stormwater Management and Pollution Prevention Plan
 - Development of a Soil and Groundwater Management Plan
 - Development of an Erosion and Sediment Control Plan
 - Development of a Vegetation Protection (Management) Plan, which will include a description of how native plants will be incorporated into post-construction revegetation to support aquatic, riparian, and terrestrial values
 - Development of an Invasive Species Management Plan
 - Development of a (Construction) Traffic Management Plan, which the Proponent is of the view will avoid or mitigate any disruption caused by the Project to access for the purposes of harvesting plants or to carry out other land-based traditional use activities
 - Development of a Noise and Vibration Management Plan
 - Development of an Air Quality Management Plan
 - Development of a Landscape (Management) Plan
 - Development of a Lighting (Management) Plan
 - Development of an Environmental Monitoring Plan, with oversight by an Independent Environmental Monitor and monitoring of mitigation effectiveness potentially extending into the operation phase if necessary
- Involvement of Indigenous Groups by the Proponent in the selection of the Independent Environmental Monitor
 - Continued consultation by the Proponent with Indigenous Groups regarding the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects (refer to **Section 15.0 Monitoring and Follow-up Programs**) that are mostly temporary in nature and associated with the Project's construction phase, and proposed follow-up strategies for the post-construction phase for River Hydraulics and Morphology (**Section 4.1**), Fish and Fish Habitat (**Section 4.3**), Noise and Vibration (**Section 4.7**), Air Quality (**Section 4.8**), Economic Activity and Land Use (as they relate to noise and vibration, **Section 5.1** and **Section 5.2**), Heritage Resources (**Section 7.1**), and Social Determinants of Human Health (**Section 8.2**)
 - Provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies

- Provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values
- Participation by the Proponent in initiatives related to the monitoring, assessment, or management of cumulative environmental effects, if requested by federal, provincial, or regional government agencies
- Ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the cultural stress and associated health effects reported by Indigenous Groups

The potential impact of the Project on Aboriginal Interests associated with gathering for each Indigenous Group is described below in the Group-specific assessments in **Section 12.1.3.3**.

12.1.3.2.4 Other Traditional and Cultural Interests

Indigenous Groups identified tangible and intangible cultural heritage sites and places in the immediate Project area and surrounds linked to the exercise of Aboriginal Interests, including the Fraser River itself. Indigenous Groups have expressed an important historical connection to, and continued or desired use of sites or places, in the vicinity of the Project, including the use of the Fraser River as a transportation corridor, for a range of cultural purposes, including cultural continuity and revitalization.

Given that the Project area has had a long history of relatively intense human occupation and use (i.e., at least 1,000 years), **Section 7.1** Heritage reports that the archaeological and heritage potential in the area is very high. Sources of information drawn upon in the heritage assessment to model this potential includes ATK, known archaeological sites, information about named places, and ethnographic and historical sources including letters and gazetteers. Subcomponents to the heritage assessment include archaeological resources and historical heritage resources, each with tangible and intangible attributes that were informed by Indigenous Group concerns and perspectives regarding cultural heritage, including but not limited to the understanding that embedded cultural associations with landscape contribute to a sense of place and identity. This understanding is also applied in **Section 6.4 Visual Quality**, which took into account Indigenous concerns and perspectives in selecting viewpoints for the assessment of visual change that included locations associated with Indigenous cultural use and values (e.g., cultural continuity, sense of place).

The Proponent understands that an Indigenous Group's traditional and cultural interests depend, in part, on the status and sensitivity of culturally important locations within their area of traditional use, the nature and timing of Project-related disturbances to those locations, and the effectiveness of the mitigation to address such disturbances, as well as the extent to which the Project could affect an Indigenous Group's access to and experience at of those locations in order to fulfill cultural purposes.

The assessment of potential effects of the Project on Indigenous Groups' other traditional or cultural interests is informed by the analysis of assessment conclusions for relevant ICs and VCs assessed in

earlier (**Part B**) sections of this Application. Potential effects, proposed mitigation, and residual and cumulative effects of relevance to other traditional and cultural interests of Indigenous Groups are presented in **Section 4.1 River Hydraulics and Morphology**, **Section 6.1 Marine Use**, **Section 6.2 Land Use**, **Section 6.4 Visual Quality** (including lighting, shading), **Section 7.0** regarding heritage resources (archaeological heritage, historical heritage), and **Section 8.0** regarding human health (air quality, noise, vibration) of this Application.

The Proponent considered the following key factors in assessing the potential impacts of the Project on an Indigenous Group's other traditional or cultural interests (including cultural continuity and sense of place):

- Key traditional/cultural sites identified by Indigenous Groups that overlap or are in proximity to the Project were considered in relation to past, present, and anticipated future use of the area for cultural purposes, including access to, and experience while at, those sites. Key sites for specific Indigenous Groups are identified in the Group-specific subsections within **Section 12.1.3.3**.
- **Section 1.1.4 Phases of the Proposed Project** defines the construction period (including removal of the existing bridge) as 2019-2024. Construction activities and sequencing of construction work will be established after award of the design-build-finance contract. All construction activities at the site will be limited to the Project Boundary. The new bridge is expected to be in service in 2023.
- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for plant gathering, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- **Section 8.1 Physical Determinants of Human Health** predicts that potential Project-related health effects on human receptors (i.e., potential annoyance, sleep disturbance, effects on speech comprehension) from construction noise and vibration can be effectively mitigated with the implementation of measures identified in **Section 4.7 Noise and Vibration** (e.g., limiting hours of construction, approaches to avoid or mitigate construction noise at the source, consulting with the community regarding the scheduling of noisy activities, ongoing monitoring in critical areas). Operation-phase noise monitoring will also be carried out. With the implementation of appropriate mitigation measures, residual effects on human health as a result of Project-related changes to noise and vibration have been determined by the Proponent in **Section 8.1** to be negligible.
- As reviewed in **Section 8.1 Physical Determinants of Human Health**, with the implementation of mitigation measures identified in **Section 4.8 Air Quality** (e.g., implementation of approaches to avoid or minimize air emissions during construction, real-time monitoring of particulate matters and adaptive management), changes in air quality during construction are not expected to affect human health; however, potential Project-related changes in air quality during operations (i.e., from vehicle traffic using the bridge) may have an effect on commuters, residents, or temporary users of the area. With improved vehicle emission technologies and an overall reduction in air emissions, an overall improvement in human health effects stemming from changes in air quality is expected compared to existing conditions. Residual effects on human health as a result of Project-related changes to air quality have been determined by the Proponent in **Section 8.1** to be negligible.
- **Section 8.2 Social Determinants of Human Health (SDOH)** concludes that the Project is not expected to have residual or cumulative effects on SDOH. Notwithstanding this conclusion, the assessment indicates (**Section 8.2.7**) that the mitigation measures proposed to manage disruptions in access (i.e., to needed health and social services; to friends, family, neighbours, and public places; for customers and suppliers to business establishments; and for active living) from road closures, demolition, and Project traffic – specifically, through a Traffic Management Plan and Business Liaison Program/Committee – will effectively provide a follow-up strategy that will help confirm the accuracy of the original effects prediction and, in the course of being carried out, will also provide opportunity to assess the effectiveness of the mitigation measures. The measures are said to be based on an adaptive management framework that will enable the Proponent to work with Indigenous Groups, key stakeholders, and government agencies to make appropriate adjustments in measures, if there should prove to be substantial variance in health outcomes related to changes in SDOH from what has been presented in the assessment.
- The SDOH assessment considered Indigenous Group perspectives that connected most of their Project-related health concerns with environmental concerns, in relation to which Indigenous Groups cite the deeply ingrained historical relationships they have with the lands and resources around the Project area.

- The Proponent recognizes that, for Indigenous Groups, the ability to effectively engage in cultural use and achieve the intended cultural objectives—the state of cultural health (or cultural stress)—is a determinant of health for Indigenous Groups and their members. Project-related effects on the use of lands and resources for traditional purposes (cultural use), regardless of the source of the effect (i.e., biophysical factors affecting the resource, site-specific factors affecting access to or use of valued locations, or factors connected to changes in the sensory experience), have the potential to specifically affect Indigenous health if remaining available and healthy resources, relative ease of access (in terms of time, costs) to critical harvesting locations, and environmental conditions that are conducive to cultural pursuits and objectives (e.g., sense of safety, sense of place, cultural continuity) are further impeded. The Proponent has proposed measures at the end of this section that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including cultural health.

As reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**, the Proponent has proposed mitigation to avoid or reduce potential Project-related effects on fish, wildlife, and vegetation that are important for, or associated with, the exercise of asserted or determined harvesting rights at specific locations. As reviewed above within this section (**Section 12.1.3.2.4**), the Proponent has proposed mitigation to avoid or reduce potential Project-related effects on traditional and cultural interests in the Project area, including the development of management plans and monitoring and follow-up programs. The Proponent has also committed to the following measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on other traditional and cultural interests, such as access to, and appropriate environmental conditions while engaging in traditional and cultural activities at, culturally important sites and places, including:

- Ongoing consultation with Indigenous Groups on design of infrastructure for the Project, including drainage, landscaping, lighting, and other visual and environmental considerations
- Continued consultation by the Proponent with Indigenous Groups regarding the development of the CEMP generally and specific management plans within the CEMP (refer to **Section 14.0 Management Plans** for details on the CEMP and associated plans), including:
 - Development of a Contaminated Sites Management Plan
 - Development of an Emergency Response and Spill Prevention Plan
 - Development of a Hazardous Materials Management Plan
 - Development of a Non-Hazardous Waste Management Plan
 - Development of a Stormwater Management and Pollution Prevention Plan
 - Development of a Soil and Groundwater Management Plan
 - Development of an Erosion and Sediment Control Plan

- Development of a Fish and Fish Habitat Management Plan, including compensation and restoration works (e.g., planting) proposed to offset unavoidable adverse impacts to aquatic and riparian habitats, as well as associated monitoring requirements
- Development of an Underwater Noise Mitigation and Management Plan
- Development of a Wildlife Management Plan
- Development of a Vegetation Protection (Management) Plan, which will include a description of how native plants will be incorporated into post-construction revegetation to support aquatic, riparian, and terrestrial values
- Development of an Invasive Species Management Plan
- Development of a Construction Staging Plan
- Development of a Demolition Staging Plan
- Development of a Marine Access Management Plan
- Development of a Marine Communications Plan, in consultation with a marine users group, including Indigenous Groups, who will be consulted on how they wish to engage in this marine communications process during construction, and the development of protocols and procedures relating to access, navigation, and emergency preparedness
- Development of a (Construction) Traffic Management Plan, which the Proponent is of the view will avoid or mitigate any disruption caused by the Project to access for the purposes of harvesting plants or to carry out other land-based traditional use activities
- Development of an Archaeological and Historical Heritage Resources Management Plan, including an Ancestral Remains Policy and a Chance Find Protocol
- Development of a Noise and Vibration Management Plan
- Development of an Air Quality Management Plan
- Development of a Landscape (Management) Plan
- Development of a Lighting (Management) Plan
- Development of an Environmental Monitoring Plan, with oversight by an Independent Environmental Monitor and monitoring of mitigation effectiveness potentially extending into the operation phase if necessary
- Involvement of Indigenous Groups by the Proponent in the selection of the Independent Environmental Monitor

- Continued consultation by the Proponent with Indigenous Groups regarding the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects (refer to **Section 15.0 Monitoring and Follow-up Programs**) that are mostly temporary in nature and associated with the Project's construction phase, and proposed follow-up strategies for the post-construction phase for River Hydraulics and Morphology (**Section 4.1**), Fish and Fish Habitat (**Section 4.3**), Noise and Vibration (**Section 4.7**), Air Quality (**Section 4.8**), Economic Activity and Land Use (as they relate to noise and vibration, **Section 5.1** and **Section 5.2**), Heritage Resources (**Section 7.1**), and Social Determinants of Human Health (**Section 8.2**)
- Provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies
- Provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values
- Participation by the Proponent in initiatives related to the monitoring, assessment, or management of cumulative environmental effects, if requested by federal, provincial, or regional government agencies
- Ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the cultural stress and associated health effects reported by Indigenous Groups

The potential impact of the Project on other traditional and cultural interests for each Indigenous Group is described below in the Group-specific assessments in **Section 12.1.3.3**.

12.1.3.2.5 Aboriginal Title

The Project, primarily through activities associated with construction, including decommissioning of the existing bridge, has the potential to affect asserted Aboriginal title. The Proponent considered how the Project may impact each of the following three components of asserted Aboriginal title overlapping the Project area: use and occupation, decision-making, and economic benefits. Mitigation measures relevant to address impacts to each component of asserted Aboriginal title are also considered and described in the paragraphs that follow.

In considering potential Project impacts on the use and occupancy component of asserted Aboriginal title, the Proponent considered the following factors:

- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. In particular, residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

In considering potential Project impacts on the decision-making component of asserted Aboriginal title, the Ministry considered the following factors:

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Indigenous Groups have been consulted on the Project and consultation with Indigenous Groups will continue, should the Project receive an EAC, on the development and implementation of environmental management plans and monitoring and follow-up programs.

- The change in governance of the Project from TransLink to the Ministry, which facilitates a government-to-government approach with Indigenous Groups in relation to Project implementation, should an EAC be granted.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- As described in **Section 12.1.2** above and in the Group-specific sections (**Section 12.1.3.3**) below, the Proponent has attempted to undertake a principled and responsive consultation process with each Indigenous Group, characterized by genuine efforts to integrate ATK into the Application, and to acknowledge, document, and demonstrably address Indigenous Groups' concerns as part of Project planning and decision-making, including by undertaking the following:
 - Indigenous Groups were provided opportunities to describe their views on the nature and scope of potential impacts of the Project on their Aboriginal Interests, and on proposed mitigation or accommodation measures that could be applied to address those potential impacts.
 - Indigenous Groups were provided an opportunity to provide their perspective on the extent to which the Project affects their ability to manage and make decisions over areas impacted by the Project.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

In considering potential Project impacts on the economic benefits component of asserted Aboriginal title, Proponent considered the following factors:

- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters).

- Indigenous Groups' concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups' concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Interest by Indigenous Groups in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved.
- Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

Based on the nature of the Project, which has few characteristics that would preclude access or other uses for the life of the Project that are not already precluded, and in consideration of concerns raised by Indigenous Groups during consultation, the Proponent has proposed measures that would help support the avoidance or reduction of potential impacts to the asserted Aboriginal title of Indigenous Groups, including:

- Measures that provide for greater opportunity for the ongoing participation of Indigenous Groups in informing the development and implementation of the Project
- Measures that provide for the ongoing consideration and integration of Indigenous use (past, present, desired future use) and knowledge to help avoid or reduce impacts of the Project, particularly when specific construction and operational details have been established

The potential impacts of Project-related activities on asserted Aboriginal title for each applicable Indigenous Group are discussed in **Section 12.1.3.3** below.

12.1.3.3 Group-Specific Conclusions

Potential impacts of the Project on Aboriginal Interests are characterized in general terms above in **Section 12.1.3.2** of the Application. In the subsections that follow, the Proponent summarizes, for each Indigenous Group, background information specific to the past, present, and desired future use of lands

and resources for traditional purposes that may be affected by the Project according to each Aboriginal Interest category (i.e., fishing, hunting and trapping, plant gathering, other traditional and cultural interests, Aboriginal title),³ issues identified by each Indigenous Group generally in relation to the Project and in relation to specific Aboriginal Interests, and considerations and conclusions, from the Proponent's perspective, on the predicted seriousness of potential impacts to the Aboriginal Interests of each Indigenous Group.

Potential impacts on Aboriginal Interests are assessed for each category of right for each Indigenous Group. These impacts are described based on the level of seriousness of potential impacts, from negligible to serious, defined as follows based on thresholds employed by EAO on other projects:

- Negligible impact – ability to exercise the Aboriginal Interest is consistent with current conditions
- Minor impact – ability to exercise the Aboriginal Interest may be minimally disrupted compared to current conditions
- Moderate impact – ability to exercise the Aboriginal Interest may be diminished or disrupted compared to current conditions
- Serious impact – ability to exercise the Aboriginal Interest may be considerably diminished compared to current conditions

In some cases, the Proponent has used ranges between these impact levels (e.g., negligible-to-minor) to indicate that an impact may range in seriousness between categories given certain spatial and temporal considerations. For example, the seriousness of a given impact in one area of an Indigenous Group's territory is not necessarily equivalent to the seriousness of the same impact if it were to occur in another area of the territory, or the seriousness of impacts during construction (which may be more temporary) is not necessarily equivalent to the seriousness of impacts during operation (which may be more permanent). For each Aboriginal Interest, the greatest assessed degree of seriousness as a result of routine Project construction and operation is the impact level provided.

In deriving a conclusion on level of impact, the Proponent considers the information presented below for each Indigenous Group regarding their past, present, and desired future use in the Project area for each Aboriginal Interest category, the analysis in **12.1.3.2.1** through **12.1.3.2.5** related to each category of Aboriginal Interest that takes into account potential effects, proposed mitigation, and residual and cumulative effects on ICs and VCs that are associated with the exercise of Aboriginal Interests, and assessed in earlier (**Part B**) sections of this Application, as well as specific measures proposed by the Proponent to specifically address the concerns of Indigenous Groups related to potential Project effects on each category of Aboriginal Interest. The characterization of residual adverse effects on Aboriginal Interests after the consideration of mitigation, as well as the likelihood and confidence associated with those residual effects, generally follows the methods described in **Section 3.0** of this Application.⁴

³ "Cultural Continuity" and "Sense of Place and Spirituality" were assessed in place of "Other Traditional and Cultural Interests" for Musqueam Nation, per their request (see **Section 12.1.3.3.8 Musqueam Nation**).

⁴ For Aboriginal Interests, neither the significance of identified residual effects, nor an assessment of the contribution of those residual effects to cumulative effects, is required.

12.1.3.3.1 Cowichan Tribes

Context

Cowichan Tribes are Central Coast Salish and speak the *Hul'q'umi'num* (or Island) dialect of Halkomelem (EAO 2017: 198).

The main Cowichan Tribes community is based on Cowichan 1, located in Duncan, on the southeast coast of Vancouver Island, about 50 km south of Nanaimo (INAC 2017). Four other reserves are located west of Duncan, along the Cowichan River, while another four are located to the south of Cowichan 1, clustered around Cowichan Bay (INAC 2017). The Cowichan Tribes is the largest First Nation in BC with 4,998 registered members, 2,509 of which live on Cowichan reserves (INAC 2017). The Project Boundary does not overlap the reserve lands of the Cowichan Tribes (**Figure 12.1-A-1**).

Cowichan Tribes territory is understood to be represented by the Hul'qumi-num Treaty Group (HTG) Statement of Intent (SOI). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation,⁵ formed in 1993 for the purposes of treaty negotiations with Canada and BC. The HTG SOI is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island (EAO 2017: 198). The Project Boundary lies within this territory (**Figure 12.1-A-2**).

Cowichan Tribes, Halalt First Nation, Penelakut Tribe, and Stz'uminus First Nation have advised the Proponent that they have come together as the Cowichan Nation Alliance (CNA) to advance their common rights and title interests in the lower mainland region (CNA 2017: 4). The CNA explain that prior to colonization and the subsequent reserve creation process (when they were compartmentalized as a function of the *Indian Act* into their present-day individual bands and reserves), CNA communities were a distinct, trans-Georgia Strait, Coast Salish nation that held rights in their traditional territory, extending from southeastern Vancouver Island, eastward through the Gulf Islands and across the Salish Sea, to encompass the Fraser Delta, its South Arm, and all the way to the vicinity of present-day Yale (CNA 2017: 4). As modern-day successors of this pre-contact Cowichan Nation, the CNA communities report that they also claim Aboriginal title in the lower Fraser River area, including the village site and surrounding lands of *Tl'uq'tinus*, which they describe as a substantial Cowichan Nation village on the lower South Arm of the Fraser River, from where traditional fishing, hunting, gathering, and cultural activities had taken place since time immemorial (CNA 2017: 4). This area is located approximately 10 km downstream of the Project Boundary (CNA 2017: 29).

Cowichan Nation Alliance prepared the following Project-specific study (CNA Study) regarding their Aboriginal Interests in the area of the Project:

- Pattullo Bridge Replacement Project, Cowichan Nation Alliance Strength of Claim Report (CNA Study 2017)

⁵ The CNA has advised the Proponent that Stz'uminus First Nation is no longer a member of the HTG. To the Proponent's knowledge, the Stz'uminus do not assert a traditional territory that is different from that asserted by the HTG, as presented in **Figure 12.1-A-2**.

The spatial area for the identification of Aboriginal Interests in the CNA Study is referred to as the geographical area that will be affected by the construction of the new bridge across the Fraser River (CNA 2017: 2).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Cowichan Tribes. Additional information regarding consultation with Cowichan Tribes can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

For the Pattullo Bridge Replacement Project, Cowichan Tribes participated in consultation independently and also with the other Cowichan Nation Alliance member communities which include Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation. While the Proponent provided Project information and funding directly to Cowichan Tribes, feedback and participation in meetings occurred through the Cowichan Nation Alliance.

Table 12.1-2 Overview of key consultation activities – Cowichan Tribes

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Cowichan Tribes about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 27, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation and Penelakut Tribe to introduce the Project.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
July 14, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss capacity funding.
October 20, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes to discuss the Project's current status and the preparation of a Traditional Use Study.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
September 29, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
May 15, 2017	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 15, 2017	Meeting	Project update meeting between the Proponent and Cowichan Tribes to discuss procurement opportunities, upcoming geotechnical investigations and the preparation of a Traditional Use Study.
June 22, 2017	Working Group Meeting	Cowichan Tribes did not attend the Working Group meeting.

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Date	Type of Engagement	Summary
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2018	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Cowichan Nation Alliance for review and comment.
September 21, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 16, 2017	Report	Cowichan Nation Alliance submitted a Strength of Claim Report in relation to the Pattullo Bridge Replacement Project.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Cowichan Tribes attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	Cowichan Tribes submitted comments on the Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies, on behalf of Cowichan Nation Alliance.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 26, 2017	Email	Cowichan Tribes advised that Cowichan Nation Alliance has no comments on the draft Aboriginal Consultation Plan.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 2, 2017	Letter	The Proponent shared a response to Cowichan Nation Alliance's comments on the Phase B Geotechnical Investigation, Environmental Management Plan and environmental assessment studies.

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Date	Type of Engagement	Summary
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 12 2018	Call	Project update provided to Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
January 16, 2018	Email	<p>Cowichan Nation Alliance shared the following documents with the Proponent, for consideration in the preparation of the Application:</p> <ul style="list-style-type: none"> ▪ Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010) ▪ Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011) ▪ Traditional Marine Use and Occupancy Study – Halalt (2013) ▪ Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013) ▪ Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014) ▪ Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014)

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Date	Type of Engagement	Summary
		<ul style="list-style-type: none"> ▪ Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014) ▪ Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014) ▪ National Energy Board - Hearings Stz'uminus and Olsen (2014) ▪ George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015) ▪ British Columbia Supreme Court - Affidavit of Randy Bouchard (2016) ▪ Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016) ▪ Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998) ▪ Past Harvesting Practices and Current Harvesting Needs (date unknown) ▪ Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 26, 2018	Email	The Proponent requested marine use information from Cowichan Tribes.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 23, 2018	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss the Project schedule, request for comment on the draft Aboriginal Interests Summary and draft baseline studies, Project governance and funding and other Project-related matters.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
March 8, 2018	Email	Cowichan Tribes provided comments on the draft Aboriginal Interests Summary.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 7, 2018	Letter	Cowichan Tribes provided comments, on behalf of Cowichan Nation Alliance, on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Cowichan Tribes identified other issues and concerns during Initial and Pre-Application consultation phase. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Cowichan Tribes during consultation and where possible, worked with Cowichan Tribes to address and resolve issues and concerns. A table of issues and concerns, previously provided to Cowichan Tribes for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Cowichan Tribes' Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Cowichan Tribes' Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Cowichan Tribes' ability to practice Aboriginal Interests. Based on the CNA Study (CNA 2017) and key issues and concerns raised by Cowichan Tribes during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Cowichan Tribes' past, present, and desired future use, as communicated to the Proponent by Cowichan Tribes or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the CNA Study (CNA 2017).

In mid-January 2018, the CNA also provided several other documents to the Proponent for consideration:

- Past Harvesting Practices and Current Harvesting Needs [no date, no identified author]
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley – Summary Report, prepared by Precision Identification Biological Consultants, June 1, 1998
- BC Supreme Court – Affidavit of Barbara Lane (*Cowichan Tribes v. Minister of Aboriginal Relations and Reconciliation*), September 12, 2007
- Historical Geography of Cowichan Land Use and Occupancy, Lower Fraser River – Map Series and Report, prepared by K. Brealey, May 31, 2010
- Analysis of Cartographic and Archaeological Evidence to locate Tl'Eqtinus, 19th Century Cowichan Village on Lulu Island, prepared by John Dewhirst, November 22, 2010

- Pre-Consultation Analysis of Potential Aboriginal Interests – Fraser Richmond Lands, Lulu Island, prepared by John Dewhirst, September 27, 2011
- Traditional Marine Use and Occupancy Study – Halalt, prepared by Halalt First Nation, Loraine Littlefield, and Darlene August, October 31, 2013
- Traditional Marine Use and Occupancy Study – Cowichan Final Report (Draft), prepared by Cowichan Tribes Traditional Marine Use Study Team and Traditions Consulting Services Inc., November 28, 2013
- Fraser River Head Lease Transition Area – Cowichan Nation Alliance – FLNRO Map of CNA Use and Occupancy, prepared by the Ministry of Forests, Lands and Natural Resource Operations, May 7, 2014
- Fraser River Head Lease Areas – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, July 10, 2014
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use – Final Report, prepared by D. Kennedy, Bouchard and Kenndy Research Consultants, September 22, 2014
- Qualitative Fisheries Impact Study – Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report), prepared by Inlailwatash Natural Resources Services and AquaTerra Environmental Ltd., October 6, 2014
- National Energy Board – Hearings (Trans Mountain Expansion Project), Stz'uminus First Nation, November 25, 2014
- George Massey Tunnel Replacement Project – Cowichan Occupation and Use of the Project Lands Report, prepared by D. Kennedy, Bouchard and Kennedy Research Consultants, August 25, 2015
- BC Supreme Court – Affidavit of Randy Bouchard (*Cowichan Tribes v. Canada*), April 1, 2016
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, May 17, 2016

Having reviewed this additional material, the Proponent is satisfied that the CNA Study (CNA 2017) has captured the salient information regarding the Aboriginal Interests of the Cowichan Tribes in relation to the Project.

Impacts on Fishing

The CNA Study explains that salmon is fundamental to the life of Central Coast Salish peoples, both as a resource and spiritually, and that salmon of any sort found in the waters of the lower Fraser River region have, and continue to be, absolutely integral to the Cowichan Nation (CNA 2017: 18).

Salmon harvesting coincided with the runs in the Fraser River: Chinook (June into November), sockeye (*Thuqi'*; late June well into September), pink (*Haan'*; mid-August into mid-October), chum (mid-September well into November), and coho (late September to early November) (CNA 2017: 14, 15, 32). Steelhead (rainbow trout) were available May through July and again in October through to mid-November, while cutthroat trout could be found at tributary mouths in August and September (CNA 2017: 14-15). The predictability and abundance of the runs allowed Central Coast Salish to maintain permanent villages, as they could return annually to the same fisheries, at a specific time (more or less), and depending on the technology, harvest thousands of fish in a day (CNA 2017: 18-19).

The CNA Study indicates that the Fort Langley journals for the 1827-1830 period note that the “Cowichan people travelled back and forth between southeastern Vancouver Island, the Gulf Islands, and the lower Fraser River throughout the year, including at times when the journals report salmon and sturgeon being plentiful,” and being harvested in large quantities (CNA 2017: 14). For example, “an immense amount” of sockeye salmon was documented as having been dried and bundled before the Cowichan left the Fraser River in fall (CNA 2017: 14).

A Hudson’s Bay Company official had also documented that the Cowichan “who prized [sturgeon] highly, were loath to part with sturgeon in trade” (CNA 2017: 15). The Cowichan are described in the Fort Langley journals as having been harvesting sturgeon (*Qw-taythun*) on the Fraser River near the establishment in November 1827 and April 1829, or as having been present on the river when sturgeon would have been available (i.e., late April and early May 1828) (CNA 2017: 15-16, 32).

Sturgeon follow eulachon (*Sh-wi’wi*), and eulachon spawning season on the Fraser River is typically between March and May, lasting for upwards of three weeks (CNA 2017: 16-17, 32). These fish (and their roe) would be gathered by rake or dip nets (CNA 2017: 17).

The CNA Study reports that sockeye and pink salmon, sturgeon, eulachon, and flounder (*P’uwi*) were predominantly obtained in the lower Fraser River as an integral part of the Cowichan Nation’s traditional economy, as they were not available in any abundance in other parts of their traditional territory (CNA 2017: 21, 32).

In addition to *Tl’uq̓tinus* as a fishing base, the CNA Study explains that Cowichan oral history refers to a number of sites along the Fraser River in the vicinity of the Project Boundary that were likely seasonal occupations and located primarily in close proximity to other communities (i.e., Katzie), to whom Cowichan were allied. The CNA Study also identifies a “rich [sockeye] fishing ground where the river narrows...adjacent to the Squamish village of *Q’iq’uyht*,” near the present-day Pattullo Bridge, where Cowichan, “through arrangements,” likely fished on their trading journeys up to Fort Langley (CNA 2017: 30).

Cowichan Nation’s traditional use of the Fraser River fisheries continued throughout the colonial period and well after Confederation (1871). In 1878, the reserve commissioner remarked about the Cowichan Nation’s “continued practice of occupying their Lulu Island village, while fishing salmon during the summer and early fall runs up the Fraser River, as they had always done” (CNA 2017: 18).

The CNA has advised that they were accustomed to fish along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30). The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of fishing were not provided to the Proponent.

Information pertaining to where CNA member First Nations currently fish for FSC purposes outside the Fraser River, the timing, frequency, and duration of that fishing, number of fish caught, or participation levels of community boats and members in FSC fishing, was not provided to the Proponent.

Member communities of the CNA fish for commercial purposes in the Fraser River under licences held by the Hul'q'umi'num Fisheries Limited Partnership. Details regarding their commercial fishing may be found in **Section 6.1 Marine Use**.

Cowichan Tribes/CNA have expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Cowichan Nation Alliance has fishing rights in the area and is concerned with any impacts to these rights.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings.
- Concern regarding potential interference with Aboriginal fisheries (access and use).
- Concern regarding potential Project-related impacts to fish and fish habitat and interest in opportunities for habitat enhancement/restoration.
- Concern regarding water flow changes and impacts on fisheries and fishing.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Cowichan Tribes/CNA's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.

- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1 Marine Use**, Cowichan Tribes hold two Seine Net Area B licences that can be fished in the LSA through Quw'utsun Kw'at'l'kwa Enterprises Limited; however, seine nets are primarily used for commercial fishing in open waters outside the LSA.
- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.

- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Cowichan Tribes, the Proponent understands that Cowichan Tribes were accustomed to fishing along the banks of the Fraser River, including within the Project Boundary, from pre-contact into the historical period, and that Cowichan Tribes are demanding to resume harvesting fish for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to fish. While Cowichan Tribes do not appear to fish in the area for FSC purposes at present, the Proponent acknowledges the potential for the resumption of that fishing in the future.

In consideration of the available information regarding fishing by Cowichan Tribes/CNA for traditional (FSC) purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.1**), and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Cowichan Tribes' asserted Aboriginal rights to fish including the ability of Cowichan Tribe to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

The CNA has advised that they were accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were wildlife resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*) (CNA 2017: 21, 32).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting wildlife were not provided to the Proponent.

Cowichan Tribes/CNA have expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related effects to terrestrial wildlife, including effects from noise and light

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Cowichan Tribes/CNA's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are

identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).
- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of

interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Cowichan Tribes, the Proponent understands that Cowichan Tribes were accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Cowichan Tribes are demanding to resume harvesting of wildlife for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to hunt and trap. As reported by the Cowichan Tribes/CNA, some of the wildlife resources formerly harvested on the Fraser River included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*), which were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Cowichan Tribes do not appear to hunt or trap in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Cowichan Tribes/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Cowichan Tribes' asserted Aboriginal rights to hunt and trap including the ability of Cowichan Tribe to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

The CNA has advised that they were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were plant resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp

(*Tth'uxth'ux*), Labrador tea (*Me'uhwulhp*), and thule (CNA 2017: 21, 32). At *Tl'uqtinus*, in addition to the village and “fishermen’s camp,” colonial surveyors (ca. 1859) had noted trails that connected “stretches of blueberry bushes” (CNA 2017: 24).

According to the CNA Study, it is estimated that at least 10% of the diet was likely made up of fruits and vegetables, and some of the most sought after fruits and vegetables, such as berries (as an example), were only available to the Cowichan Nation on the east side of the Salish Sea (e.g., Lulu Island) (CNA 2017: 22). Cattails, which was not a food source but an important weaving material for baskets, were harvested from certain areas of the Fraser River because of their high quality (CNA 2017: 22). According to an 1865 account, “Fraser river hemp” was also used by Cowichan to make lines and nets for salmon fishing (CNA 2017: 25).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting plants were not provided to the Proponent.

Cowichan Tribes/CNA have expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern that storm water runoff from drill pads, and plans to direct it into vegetated areas will potentially impact vegetation or result in deleterious substances leaching into the ground and request for information regarding the types of deleterious substances in runoff and vegetative cover.
- Need for invasive plants management during construction activities. Request to see invasive species control included in machinery maintenance and cleaning.
- Importance of replanting areas with native riparian and forage plants as the project location was a traditional site of gathering for the historic Cowichan Nation and a request for input into plant selection. Vegetation health, in particular in the riparian area, is inextricably linked to fish health.

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Cowichan Tribes/CNA’s concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.

- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary (“small wetlands”), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation by the Proponent with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Cowichan Tribes, the Proponent understands that Cowichan Tribes were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Cowichan Tribes are demanding to resume harvesting of plants for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to gather plants. As reported by the Cowichan Tribes/CNA, some of the plant resources formerly harvested on the Fraser River included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule, which they say were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Cowichan Tribes do not appear to gather plants in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Cowichan Tribes/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Cowichan Tribes' asserted Aboriginal rights to gather plants including the ability of Cowichan Tribe to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

The Fraser River has been described by the CNA as both the home of the Cowichan Nation permanent village of *Tl'uqtinus* and the abundant and lucrative salmon resource that was critical to their social and economic success (CNA 2017: 19). *Tl'uqtinus* served as the basis for harvesting of fish and other resources; their trade in camas, clams, and other products for salmon and other resources, including mountain goat wool that Cowichan used in ceremonial regalia; and for providing an opportune time for families of high status to meet and arrange marriages, which were economic unions, and to engage in other ceremonial occasions (e.g., feasts) that acknowledged and escalated the wealth of these high status families (CNA 2017: 20). In this way, the activities of the Cowichan Nation while resident at this permanent village ensured that their permanent winter villages on Vancouver Island and the Gulf Islands, and their trans-Georgia Strait culture and traditions, continued to be supported and maintained (CNA 2017: 19).

The CNA Study reviews the historical circumstances that led to the gradual alienation of *Tl'uq̓tinus* (both the village and the surrounding berry fields) by the late 1870s. While the Cowichan Nation had resisted this alienation, and the government was aware of the Cowichan Nation's resistance and ongoing desire for the lands at *Tl'uq̓tinus* to be reserved to them, no reserves in this area were ultimately assigned, largely because the lands had already been sold to settlers (CNA 2017: 26-28). The CNA Study also reports that, on the opening of the canneries, licences to fish for salmon had been issued to the Cowichan Nation, and this practice had continued "year after year" until 1889-1890, when they were told that "none but the Fraser River Indians could obtain a licence" (CNA 2017: 28). The Cowichan Nation petitioned the government well into the 1900s to have their Fraser River lands and resources returned to them (CNA 2017: 28-29).

The loss of the *Tl'uq̓tinus* lands and access to the Fraser River have combined with other cumulative factors (e.g., ongoing government regulation, privatization of traditional lands, environmental destruction), all of which have contributed to the shift of the Cowichan Nation diet from one heavily dependent on traditional foods to market foods. A survey conducted by the HTG showed that levels of available traditional foods fall far short of levels required by almost all Cowichan Nation communities who wish to engage in traditional/harvesting practices (CNA 2017: 23). These required levels were not reported to the Proponent.

In January 2016, the CNA issued a "Declaration for Reconciliation" to the government regarding *Tl'uq̓tinus*, expressing their desire that the reconciliation of Crown sovereignty with Cowichan Nation Aboriginal rights, including title, on the South Arm of the Fraser River be consistent with Cowichan Nation land and resource use objectives for that area (CNA 2017: 31). These objectives include: the recovery and restoration of *Tl'uq̓tinus*; reestablishment of the Cowichan Nation's residence and river access at *Tl'uq̓tinus*, as well as their culturally integral practices (e.g., harvesting fish, waterfowl, and plants); the realization of Cowichan Nation revenue, economic, and development opportunities and benefits that are compatible with their land and resource use objectives; and promotion of education regarding the presence and interests of the Cowichan Nation at and about *Tl'uq̓tinus* (CNA 2017: 31).

Cowichan Tribes/CNA have expressed the following concerns regarding other traditional or cultural interests:

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Importance of indigenous cultural/archaeological monitors being onsite during construction and of Aboriginal participation in monitoring

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Cowichan Tribes/CNA's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of

practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Cowichan Tribe's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Cowichan Tribes/CNA, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Cowichan Tribes' other traditional and cultural interests including the ability of Cowichan Tribe to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The CNA report that it is likely that late eighteenth century Spanish and British explorers had met Cowichan people during their early map-making work in the Salish Sea, having recorded, in the summer of 1792, Indigenous people moving their houses and possessions across the strait, as the Cowichan did (CNA 2017: 5). The CNA also report that, Simon Fraser, when he led his expedition down the Fraser River in 1808, was aware of Cowichan occupation of the South Arm at the time of his visit, choosing to take the North Arm downstream to the sea after having been warned away from the South Arm by upstream Indigenous people, “because of the presence [there] of ferocious people from the sea and islands” (CNA 2017: 5).

In 1824, the Hudson’s Bay Company, arriving from the south (i.e., Fort Vancouver at the mouth of the Columbia River), conducted an initial reconnaissance of the Fraser River to locate a suitable site for a fort, which would be established three years later, in 1827, at Fort Langley (CNA 2017: 5). The CNA note that the fort was constructed under the protection of “Cowichan Chief Shashia,” who “appears frequently” in the fort’s journals (CNA 2017: 6, n. 6).

In 1827, on their way up the river to build Fort Langley, a Hudson’s Bay Company official recorded travelling by three Cowichan villages situated side-by-side at Lulu Island on the South Arm of the Fraser River, mid-point between New Westminster and the river’s end—that is, at *Tl’uq̓tinus* (CNA 2017: 5). The names of the villages were recorded as Saumnause (Somenos), Pinellahutz (Penelakut), and Quomitzen (Quamichan) (CNA 2017: 6, 10). The CNA have said that a further 10 Cowichan communities likely had a presence in this area (i.e., Stz’uminus, Taatka, Halalt, Koksilah, Yewkwelos, Comiakem, Sickameen, Th’xyun’q̓sun, Clemclemaluts, and Lamalchi) (CNA 2017: 6, n. 3).⁶

A British Admiralty chart that the CNA report was based on survey work completed in 1846 and published in 1849, but essentially copied from a map created in 1827, is labelled “Cowitchin Villages” on the south shore of Lulu Island, downstream of Annacis Island (also labelled) and across from an island now known as Tilbury Island (CNA 2017: 6-11).

The CNA advise that the Project Boundary is approximately 10 km upstream from this area, which they characterize as the extent of exclusive Cowichan Nation territory on the South Arm of the Fraser River (CNA 2017: 29).

Cowichan Tribes/CNA have expressed the following concerns regarding Aboriginal title:

- Importance of Aboriginal Interests in the land and water being taken into account.
- Noted that there is a direct relationship between accommodation and Strength of Claim, and the Proponent should recognize this. The Proponent needs to consider accommodation.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and

⁶ “Taatka” and “Th’xyun’q̓sun” are also rendered and *T’eeet’qe’* and *Tth’hwumq̓sun*.

economic benefit. In response to the Cowichan Tribes/CNA's concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such

as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Cowichan Tribe's culture and traditions, particularly in and around *Tl'uqtinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Cowichan Tribes/CNA, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Cowichan Tribe's Aboriginal title.

12.1.3.3.2 Halalt First Nation

Context

Halalt are Central Coast Salish and speak the *Hul'q'umi'num* (or Island) dialect of Halkomelem (EAO 2017: 222).

The main Halalt community is based on Halalt 2, on the Chemainus River south of the town of Chemainus, on the southeast coast of Vancouver Island, about 30 km south of Nanaimo (INAC 2017). Halalt have one other reserve—Halalt Island 1 or Willy Island—located in Stuart Channel at the mouth of the Chemainus River (INAC 2017). Of 217 members, 83 live on Halalt reserves (INAC 2017). The Project Boundary does not overlap the reserve lands of the Halalt First Nation (**Figure 12.1-A-1**).

Halalt First Nation territory is understood to be represented by the Hul'qumi'num Treaty Group (HTG) Statement of Intent (SOI). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation,⁷ formed in 1993 for the purposes of treaty negotiations with Canada and BC. The HTG SOI is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island (EAO 2017: 198). The Project Boundary lies within this territory (**Figure 12.1-A-2**).

⁷ The CNA has advised the Proponent that Stz'uminus First Nation is no longer a member of the HTG. To the Proponent's knowledge, the Stz'uminus do not assert a traditional territory that is different from that asserted by the HTG, as presented in **Figure 12.1-A-2**.

Cowichan Tribes, Halalt First Nation, Penelakut Tribe, and Stz'uminus First Nation have advised the Proponent that they have come together as the Cowichan Nation Alliance (CNA) to advance their common rights and title interests in the lower mainland region (CNA 2017: 4). The CNA explain that prior to colonization and the subsequent reserve creation process (when they were compartmentalized as a function of the *Indian Act* into their present-day individual bands and reserves), CNA communities were a distinct, trans-Georgia Strait, Coast Salish nation that held rights in their traditional territory, extending from southeastern Vancouver Island, eastward through the Gulf Islands and across the Salish Sea, to encompass the Fraser Delta, its South Arm, and all the way to the vicinity of present-day Yale (CNA 2017: 4). As modern-day successors of this pre-contact Cowichan Nation, the CNA communities report that they also claim Aboriginal title in the lower Fraser River area, including the village site and surrounding lands of *Tl'uq̓tinus*, which they describe as a substantial Cowichan Nation village on the lower South Arm of the Fraser River, from where traditional fishing, hunting, gathering, and cultural activities had taken place since time immemorial (CNA 2017: 4). This area is located approximately 10 km downstream of the Project Boundary (CNA 2017: 29).

Cowichan Nation Alliance prepared the following Project-specific study (CNA Study) regarding their Aboriginal Interests in the area of the Project:

- Pattullo Bridge Replacement Project, Cowichan Nation Alliance Strength of Claim Report (CNA Study 2017)

The spatial area for the identification of Aboriginal Interests in the CNA Study is referred to as the geographical area that will be affected by the construction of the new bridge across the Fraser River (CNA 2017: 2).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Halalt First Nation. Additional information regarding consultation with Halalt First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

For the Pattullo Bridge Replacement Project, Halalt First Nation participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Penelakut Tribe and Stz'uminus First Nation.

Table 12.1-3 Overview of key consultation activities – Halalt First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Halalt First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 27, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation and Penelakut Tribe to introduce the Project.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
July 14, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss capacity funding.
October 16, 2017	Report	Cowichan Nation Alliance submitted a Strength of Claim Report in relation to the Pattullo Bridge Replacement Project.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
September 29, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
May 15, 2017	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Halalt First Nation attended the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2018	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Cowichan Nation Alliance for review and comment.
September 21, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.

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Date	Type of Engagement	Summary
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Halalt First Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	Cowichan Tribes submitted comments on the Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies, on behalf of Cowichan Nation Alliance.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 26, 2017	Email	Cowichan Tribes advised that Cowichan Nation Alliance has no comments on the draft Aboriginal Consultation Plan.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 2, 2017	Letter	The Proponent shared a response to Cowichan Nation Alliance's comments on the Phase B Geotechnical Investigation, Environmental Management Plan and environmental assessment studies.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.

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Date	Type of Engagement	Summary
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 12 2018	Call	Project update to Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
January 16, 2018	Email	<p>Cowichan Nation Alliance shared the following documents with the Proponent, for consideration in the preparation of the Application:</p> <ul style="list-style-type: none"> ▪ Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010) ▪ Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011) ▪ Traditional Marine Use and Occupancy Study – Halalt (2013) ▪ Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013) ▪ Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014) ▪ Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014) ▪ Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014) ▪ Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014) ▪ National Energy Board - Hearings Stz'uminus and Olsen (2014) ▪ George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015) ▪ British Columbia Supreme Court - Affidavit of Randy Bouchard (2016) ▪ Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016) ▪ Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998) ▪ Past Harvesting Practices and Current Harvesting Needs (date unknown) ▪ Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.

Date	Type of Engagement	Summary
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 23, 2018	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss the Project schedule, request for comment on the draft Aboriginal Interests Summary and draft baseline studies, Project governance and funding and other Project-related matters.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 7, 2018	Letter	Cowichan Tribes provided comments, on behalf of Cowichan Nation Alliance, on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Halalt First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Halalt First Nation during consultation and where possible, worked with Halalt First Nation to address and resolve issues and concerns. A table of issues and concerns, previously provided to Halalt First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Halalt First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Halalt First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Halalt First Nation's ability to practice Aboriginal Interests. Based on the CNA Study (CNA 2017) and key issues and concerns raised by Halalt First Nation Tribes during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Halalt First Nation's past, present, and desired future use, as communicated to the Proponent by Halalt First Nation or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the CNA Study (CNA 2017).

In mid-January 2018, the CNA also provided several other documents to the Proponent for consideration:

- Past Harvesting Practices and Current Harvesting Needs [no date, no identified author]
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley – Summary Report, prepared by Precision Identification Biological Consultants, June 1, 1998
- BC Supreme Court – Affidavit of Barbara Lane (*Cowichan Tribes v. Minister of Aboriginal Relations and Reconciliation*), September 12, 2007
- Historical Geography of Cowichan Land Use and Occupancy, Lower Fraser River – Map Series and Report, prepared by K. Brealey, May 31, 2010
- Analysis of Cartographic and Archaeological Evidence to locate Tl'Eqtinus, 19th Century Cowitchen Village on Lulu Island, prepared by John Dewhirst, November 22, 2010
- Pre-Consultation Analysis of Potential Aboriginal Interests – Fraser Richmond Lands, Lulu Island, prepared by John Dewhirst, September 27, 2011
- Traditional Marine Use and Occupancy Study – Halalt, prepared by Halalt First Nation, Loraine Littlefield, and Darlene August, October 31, 2013
- Traditional Marine Use and Occupancy Study – Cowichan Final Report (Draft), prepared by Cowichan Tribes Traditional Marine Use Study Team and Traditions Consulting Services Inc., November 28, 2013
- Fraser River Head Lease Transition Area – Cowichan Nation Alliance – FLNRO Map of CNA Use and Occupancy, prepared by the Ministry of Forests, Lands and Natural Resource Operations, May 7, 2014
- Fraser River Head Lease Areas – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, July 10, 2014
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use – Final Report, prepared by D. Kennedy, Bouchard and Kenndy Research Consultants, September 22, 2014
- Qualitative Fisheries Impact Study – Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report), prepared by Inlailwatash Natural Resources Services and AquaTerra Environmental Ltd., October 6, 2014

- National Energy Board – Hearings (Trans Mountain Expansion Project), Stz'uminus First Nation, November 25, 2014
- George Massey Tunnel Replacement Project – Cowichan Occupation and Use of the Project Lands Report, prepared by D. Kennedy, Bouchard and Kennedy Research Consultants, August 25, 2015
- BC Supreme Court – Affidavit of Randy Bouchard (*Cowichan Tribes v. Canada*), April 1, 2016
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, May 17, 2016

Having reviewed this additional material, the Proponent is satisfied that the CNA Study (CNA 2017) has captured the salient information regarding the Aboriginal Interests of the Halalt First Nation in relation to the Project.

Impacts on Fishing

The CNA Study explains that salmon is fundamental to the life of Central Coast Salish peoples, both as a resource and spiritually, and that salmon of any sort found in the waters of the lower Fraser River region have, and continue to be, absolutely integral to the Cowichan Nation (CNA 2017: 18).

Salmon harvesting coincided with the runs in the Fraser River: Chinook (June into November), sockeye (*Thuqi'*; late June well into September), pink (*Haan'*; mid-August into mid-October), chum (mid-September well into November), and coho (late September to early November) (CNA 2017: 14, 15, 32). Steelhead (rainbow trout) were available May through July and again in October through to mid-November, while cutthroat trout could be found at tributary mouths in August and September (CNA 2017: 14-15). The predictability and abundance of the runs allowed Central Coast Salish to maintain permanent villages, as they could return annually to the same fisheries, at a specific time (more or less), and depending on the technology, harvest thousands of fish in a day (CNA 2017: 18-19).

The CNA Study indicates that the Fort Langley journals for the 1827-1830 period note that the “Cowichan people travelled back and forth between southeastern Vancouver Island, the Gulf Islands, and the lower Fraser River throughout the year, including at times when the journals report salmon and sturgeon being plentiful,” and being harvested in large quantities (CNA 2017: 14). For example, “an immense amount” of sockeye salmon was documented as having been dried and bundled before the Cowichan left the Fraser River in fall (CNA 2017: 14).

A Hudson’s Bay Company official had also documented that the Cowichan “who prized [sturgeon] highly, were loath to part with sturgeon in trade” (CNA 2017: 15). The Cowichan are described in the Fort Langley journals as having been harvesting sturgeon (*Qw-taythun*) on the Fraser River near the establishment in November 1827 and April 1829, or as having been present on the river when sturgeon would have been available (i.e., late April and early May 1828) (CNA 2017: 15-16, 32).

Sturgeon follow eulachon (*Sh-wi'wi*), and eulachon spawning season on the Fraser River is typically between March and May, lasting for upwards of three weeks (CNA 2017: 16-17, 32). These fish (and their roe) would be gathered by rake or dip nets (CNA 2017: 17).

The CNA Study reports that sockeye and pink salmon, sturgeon, eulachon, and flounder (*P'uwi'*) were predominantly obtained in the lower Fraser River as an integral part of the Cowichan Nation's traditional economy, as they were not available in any abundance in other parts of their traditional territory (CNA 2017: 21, 32).

In addition to *Tl'uq̓tinus* as a fishing base, the CNA Study explains that Cowichan oral history refers to a number of sites along the Fraser River in the vicinity of the Project Boundary that were likely seasonal occupations and located primarily in close proximity to other communities (i.e., Katzie), to whom Cowichan were allied. The CNA Study also identifies a "rich [sockeye] fishing ground where the river narrows...adjacent to the Squamish village of *Q'iq'uyht*," near the present-day Pattullo Bridge, where Cowichan, "through arrangements," likely fished on their trading journeys up to Fort Langley (CNA 2017: 30).

Cowichan Nation's traditional use of the Fraser River fisheries continued throughout the colonial period and well after Confederation (1871). In 1878, the reserve commissioner remarked about the Cowichan Nation's "continued practice of occupying their Lulu Island village, while fishing salmon during the summer and early fall runs up the Fraser River, as they had always done" (CNA 2017: 18).

The CNA has advised that they were accustomed to fish along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30). The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of fishing were provided to the Proponent.

Information pertaining to where CNA member First Nations currently fish for FSC purposes outside the Fraser River, the timing, frequency, and duration of that fishing, number of fish caught, or participation levels of community boats and members in FSC fishing, was not provided to the Proponent.

Member communities of the CNA fish for commercial purposes in the Fraser River under licences held by the Hul'q'umi'num Fisheries Limited Partnership. Details regarding their commercial fishing may be found in **Section 6.1 Marine Use**.

Halalt First Nation/CNA expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Cowichan Nation Alliance has fishing rights in the area and is concerned with any impacts to these rights.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings.
- Concern regarding potential interference with Aboriginal fisheries (access and use).
- Concern regarding potential Project-related impacts to fish and fish habitat and interest in opportunities for habitat enhancement/restoration.
- Concern regarding water flow changes and impacts on fisheries and fishing.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Halalt First Nation/CNA's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.

- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a

residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1 Marine Use**, Halalt First Nation, in partnership with Lake Cowichan, Lyackson, Penelakut, and Stz'uminus as part of the Hul'q'umi'num Fisheries Limited Partnership, holds 22 commercial licences and two quotas under the Total Allowable Catch for seven different species, including five Salmon Gill Net Area E licences that can be fished in the LSA, by one vessel based in Ladysmith, B.C. (Vancouver Island).

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Halalt First Nation/CNA, the Proponent understands that Halalt First Nation were accustomed to fishing along the banks of the Fraser River, including within the Project Boundary, from pre-contact into the historical period, and that Halalt First Nation are demanding to resume harvesting fish for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to fish. While Halalt First Nation do not appear to fish in the area for FSC purposes at present, the Proponent acknowledges the potential for the resumption of that fishing.

In consideration of the available information regarding fishing by Halalt First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Halalt First Nation's asserted Aboriginal rights to fish including the ability of Halalt First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

The CNA has advised that they were accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were wildlife resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*) (CNA 2017: 21, 32).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting wildlife were not provided to the Proponent.

Halalt First Nation/CNA have expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related effects to terrestrial wildlife, including effects from noise and light

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Halalt First Nation/CNA's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the

Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Halalt First Nation, the Proponent understands that Halalt First Nation was accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Halalt First Nation is demanding to resume harvesting of wildlife for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to hunt and trap. As reported by the Halalt First Nation/CNA, some of the wildlife resources formerly harvested on the Fraser River included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*), which were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Halalt First Nation does not appear to hunt or trap in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Halalt First Nation/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Halalt First Nation's asserted Aboriginal rights to hunt and trap including the ability of Halat First Nation/CNA to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

The CNA has advised that they were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were plant resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule (CNA 2017: 21, 32). At *Tl'uqtinus*, in addition to the village and "fishermen's camp," colonial surveyors (ca. 1859) had noted trails that connected "stretches of blueberry bushes" (CNA 2017: 24).

According to the CNA Study, it is estimated that at least 10% of the diet was likely made up of fruits and vegetables, and some of the most sought after fruits and vegetables, such as berries (as an example), were only available to the Cowichan Nation on the east side of the Salish Sea (e.g., Lulu Island) (CNA 2017: 22). Cattails, which was not a food source but an important weaving material for baskets, were harvested from certain areas of the Fraser River because of their high quality (CNA 2017: 22). According to an 1865 account, "Fraser river hemp" was also used by Cowichan to make lines and nets for salmon fishing (CNA 2017: 25).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting plants were not provided to the Proponent.

Halalt First Nation/CNA have expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern that storm water runoff from drill pads, and plans to direct it into vegetated areas will potentially impact vegetation or result in deleterious substances leaching into the ground and request for information regarding the types of deleterious substances in runoff and vegetative cover.
- Need for invasive plants management during construction activities. Request to see invasive species control included in machinery maintenance and cleaning.

- Importance of replanting areas with native riparian and forage plants as the project location was a traditional site of gathering for the historic Cowichan Nation and a request for input into plant selection. Vegetation health, in particular in the riparian area, is inextricably linked to fish health.

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Halalt First Nation/CNA's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Halalt First Nation, the Proponent understands that Halalt First Nation were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Halalt First Nation are demanding to resume harvesting of plants for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to gather plants. As reported by the Halalt First Nation/CNA, some of the plant resources formerly harvested on the Fraser River included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule, which they say were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Halalt First Nation do not appear to gather plants in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Halalt First Nation/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use,

noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Halalt First Nation's asserted Aboriginal rights to gather plants including the ability of Halalt First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

The Fraser River has been described by the CNA as both the home of the Cowichan Nation permanent village of *Tl'uq̓tinus* and the abundant and lucrative salmon resource that was critical to their social and economic success (CNA 2017: 19). *Tl'uq̓tinus* served as the basis for harvesting of fish and other resources; their trade in camas, clams, and other products for salmon and other resources, including mountain goat wool that Cowichan used in ceremonial regalia; and for providing an opportune time for families of high status to meet and arrange marriages, which were economic unions, and to engage in other ceremonial occasions (e.g., feasts) that acknowledged and escalated the wealth of these high status families (CNA 2017: 20). In this way, the activities of the Cowichan Nation while resident at this permanent village ensured that their permanent winter villages on Vancouver Island and the Gulf Islands, and their trans-Georgia Strait culture and traditions, continued to be supported and maintained (CNA 2017: 19).

The CNA Study reviews the historical circumstances that led to the gradual alienation of *Tl'uq̓tinus* (both the village and the surrounding berry fields) by the late 1870s. While the Cowichan Nation had resisted this alienation, and the government was aware of the Cowichan Nation's resistance and ongoing desire for the lands at *Tl'uq̓tinus* to be reserved to them, no reserves in this area were ultimately assigned, largely because the lands had already been sold to settlers (CNA 2017: 26-28). The CNA Study also reports that, on the opening of the canneries, licences to fish for salmon had been issued to the Cowichan Nation, and this practice had continued "year after year" until 1889-1890, when they were told that "none but the Fraser River Indians could obtain a licence" (CNA 2017: 28). The Cowichan Nation petitioned the government well into the 1900s to have their Fraser River lands and resources returned to them (CNA 2017: 28-29).

The loss of the *Tl'uq̓tinus* lands and access to the Fraser River have combined with other cumulative factors (e.g., ongoing government regulation, privatization of traditional lands, environmental destruction), all of which have contributed to the shift of the Cowichan Nation diet from one heavily dependent on traditional foods to market foods. A survey conducted by the HTG showed that levels of available traditional foods fall far short of levels required by almost all Cowichan Nation communities who wish to engage in traditional/harvesting practices (CNA 2017: 23). These required levels were not reported to the Proponent.

In January 2016, the CNA issued a "Declaration for Reconciliation" to the government regarding *Tl'uq̓tinus*, expressing their desire that the reconciliation of Crown sovereignty with Cowichan Nation Aboriginal rights, including title, on the South Arm of the Fraser River be consistent with Cowichan Nation land and resource use objectives for that area (CNA 2017: 31). These objectives include: the recovery and restoration of *Tl'uq̓tinus*; reestablishment of the Cowichan Nation's residence and river access at *Tl'uq̓tinus*, as well as their culturally integral practices (e.g., harvesting fish, waterfowl, and plants); the realization of Cowichan Nation revenue, economic, and development opportunities and benefits that are compatible with their land and resource use objectives; and promotion of education regarding the presence and interests of the Cowichan Nation at and about *Tl'uq̓tinus* (CNA 2017: 31).

Halalt First Nation/CNA have expressed the following concerns regarding other traditional or cultural interests:

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Importance of indigenous cultural/archaeological monitors being onsite during construction and of Aboriginal participation in monitoring

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Halalt First Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for

traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).

- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Halalt First Nation's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Halalt First Nation/CNA, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Halalt First Nation's other traditional and cultural interests including the ability of Halalt First Nation/CNA to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The CNA report that it is likely that late eighteenth century Spanish and British explorers had met Cowichan people during their early map-making work in the Salish Sea, having recorded, in the summer of 1792, Indigenous people moving their houses and possessions across the strait, as the Cowichan did (CNA 2017: 5). The CNA also report that, Simon Fraser, when he led his expedition down the Fraser River in 1808, was aware of Cowichan occupation of the South Arm at the time of his visit, choosing to take the North Arm downstream to the sea after having been warned away from the South Arm by upstream Indigenous people, "because of the presence [there] of ferocious people from the sea and islands" (CNA 2017: 5).

In 1824, the Hudson's Bay Company, arriving from the south (i.e., Fort Vancouver at the mouth of the Columbia River), conducted an initial reconnaissance of the Fraser River to locate a suitable site for a fort, which would be established three years later, in 1827, at Fort Langley (CNA 2017: 5). The CNA note that the fort was constructed under the protection of "Cowichan Chief Shashia," who "appears frequently" in the fort's journals (CNA 2017: 6, n. 6).

In 1827, on their way up the river to build Fort Langley, a Hudson's Bay Company official recorded travelling by three Cowichan villages situated side-by-side at Lulu Island on the South Arm of the Fraser River, mid-point between New Westminster and the river's end—that is, at *Tl'uq̓tinus* (CNA 2017: 5). The names of the villages were recorded as Saumnause (Somenos), Pinellahutz (Penelakut), and Quomitzen (Quamichan) (CNA 2017: 6, 10). The CNA have said that a further 10 Cowichan communities likely had a presence in this area (i.e., Stz'uminus, Taatka, Halalt, Koksilah, Yewkwelos, Comiakem, Sickameen, Th'xyun'q̓sun, Clemclemaluts, and Lamalchi) (CNA 2017: 6, n. 3).⁸

A British Admiralty chart that the CNA report was based on survey work completed in 1846 and published in 1849, but essentially copied from a map created in 1827, is labelled "Cowitchin Villages" on the south shore of Lulu Island, downstream of Annacis Island (also labelled) and across from an island now known as Tilbury Island (CNA 2017: 6-11).

The CNA advise that the Project Boundary is approximately 10 km upstream from this area, which they characterize as the extent of exclusive Cowichan Nation territory on the South Arm of the Fraser River (CNA 2017: 29).

⁸ "Taatka" and "Th'xyun'q̓sun" are also rendered as *T'eet'qe'* and *Tth'hwumq̓sun*.

Halalt First Nation/CNA have expressed the following concerns regarding Aboriginal title:

- Aboriginal Interests in the land and water need to be taken into account.
- Noted that there is a direct relationship between accommodation and Strength of Claim, and the Proponent should recognize this. The Proponent needs to consider accommodation.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the Halalt First Nation/CNA's concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCS relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of

the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.

- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Cowichan Tribe's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Halalt First Nation/CNA, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Halalt First Nation/CNA's Aboriginal title.

12.1.3.3.3 Katzie First Nation

Context

Katzie are Central Coast Salish and speak the *Həŋq̓əmiñəm* (or Downriver) dialect of Halkomelem (EAO 2017: 246).

The main Katzie community is based on Katzie 1, on the north shore of the Fraser River immediately west of the Golden Ears Bridge, in Pitt Meadows. Katzie have four other reserves: Katzie 2, on the south shore of the Fraser River, immediately east of the Golden Ears Bridge; Barnston Island 3, on the south end of Barnston Island, along Parsons Channel; Pitt Lake 4, where Pitt Lake meets the Pitt River; and Graveyard 5, in the town of Pitt Meadows. Of 587 registered members, 304 live on Katzie reserves. The Project Boundary lies approximately 17 km downstream of Katzie 1 (**Figure 12.1-A-1**).

Katzie territory extends south from the headwaters of the Pitt River to include Pitt Lake and Pitt Polder and southwest to include a portion of the Fraser River mainstem and South Arm to Ladner and the Nicomekl and Serpentine rivers that drain into Boundary Bay from the east (MOTI 2016: 10.1-10, EAO 2017: 247). The Project Boundary lies within this territory (**Figure 12.1-A-3**).

While the Proponent made funding available for a Project-specific study, Katzie did not provide a study regarding their Aboriginal Interests in the area of the Project.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Katzie First Nation. Additional information regarding consultation with Katzie First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-4 Overview of key consultation activities – Katzie First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Katzie First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
August 5, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering the BC Environmental Assessment Process.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
April 11, 2017	Meeting	Introductory meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
May 17, 2017	Meeting	Project update meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Katzie First Nation attended the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Letter	Letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding First Nation procurement concerns.
September 11, 2017	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Katzie First Nation for review and comment.
September 18, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement on the Project.
September 21, 2017	Email	The Proponent shared a copy of the Katzie First Nation issues and interests list for review and comment.
September 26, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding comments and concerns with respect to procurement opportunities on the Project.
October 2, 2018	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 17, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding First Nation procurement concerns.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Katzie First Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 2, 2018	Letter	Katzie First Nation advised that they had reviewed the draft Aboriginal Consultation Report #2 and Appendix and do not have specific concerns of comments.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Katzie First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Katzie First Nation during consultation and where possible, worked with Katzie to address and resolve issues and concerns. A table of issues and concerns, previously provided to Katzie First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Katzie First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Katzie First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Katzie First Nation's ability to practice Aboriginal Interests. Based on issues and concerns raised by Katzie First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Katzie First Nation's past, present, and desired future use, as communicated to the Proponent by Katzie or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title.

Impacts on Fishing

Katzie have previously reported that their territory historically provided them ready access to freshwater and marine resources (i.e., the five species of salmon, sturgeon, steelhead, trout, and eulachon) (MOTI 2016: 10.1-101). Beginning in late April through to the end of May, Katzie would gather at the village at present-day Katzie 1 to harvest eulachon in Bishop's Reach (MOTI 2016: 10.1-102). As the Fraser River began to flood during the spring rise, Katzie would travel to their various sturgeon fishing grounds on the Pitt River, Pitt Polder, Alouette River, Sturgeon Slough (east of Pitt River, north of Pitt Meadows), and Pitt Lake (MOTI 2016: 10.1-102). In August, Katzie would return to the Fraser River for sockeye—described as their most valued resource—leaving again in September in smaller groups to multiple locations to fish for chum (MOTI 2016: 10.1-102). Over the fall, fishing would continue, particularly for sturgeon, and picked up again in March, when families departed for their winter residences (MOTI 2016: 10.1-102). At this time of year, sturgeon were reportedly abundant in the shallower sloughs of the territory, such as Sturgeon Slough, which Katzie have described as renowned as a sturgeon spawning ground (MOTI 2016: 10.1-102).

Around Barnston Island, the Fraser River separates into Parsons Channel on the south side and Bishop's Reach on the north side. Katzie have identified these areas, approximately 17 km upstream of the Project Boundary, as important traditional fishing locations fronting their villages (i.e., now Katzie 1, 2, and Barnston Island 3) (MOTI 2016: 10.1-102). Currently, Katzie communal FSC fishing occurs upstream of the Port Mann Bridge, and often in the subsection of the river up to and including Kanaka Creek/Derby Reach, which includes their traditional locations around Barnston Island (MOTI 2016: 10.1-103, DFO 2017). In this stretch of the river upstream of the Port Mann Bridge—which Katzie have described as one of the best, most productive areas to fish on the Fraser River between Hope and the estuary—Katzie have been licenced to fish for Chinook, sockeye, and chum salmon, steelhead, and eulachon, as well as for chum salmon specifically in the Pitt River (MOTI 2016: 10.1-103). Katzie has also had access to Fraser River FSC fisheries as part of the Lower Fraser First Nations (MOTI 2016: 10.1-103).⁹ Information regarding past, present, or desired fishing by Katzie at locations in the vicinity of the Project Boundary was not identified in sources reviewed or reported by Katzie to the Proponent.

The specific timing, frequency and duration of Katzie FSC fishing on the Fraser River varies year over year. DFO data for 2014 (a peak sockeye year) indicates that 36 communal FSC licences, 4 communal FSC licences with limited participation, and 23 communal FSC licences with allowance for sale were issued to Katzie (DFO 2017). With the exception of the limited participation licences, which are issued specifically to Katzie, the remaining licences were issued to the Lower Fraser First Nations (DFO 2017), including Katzie.

Based on DFO data for 2014 (DFO 2017), Katzie limited participation licences were issued for eulachon, by drift net only, over a 6 hour duration (week ending April 13, 20, 27). Licences with allowance for sale were limited to sockeye and chum, by set net, drift net, dip net, or beach seine, with openings between 2 and 42 hours (week ending August 17, 31, September 7, 14, 28, October 26, November 2, 9). Remaining licences were issued for Chinook, sockeye, and chum, by set or drift set, with openings between 4 hours and 3 days (week ending May 10, June 1, 8, 15, 22, July 6, 13, 20, 27, August 3, 4, 10, 17, October 5, 12, 19, 26).

Katzie have previously advised that, of their registered membership (currently 587), roughly one third of those members is reportedly licenced to fish during openings on the Fraser River, and an estimated 120 Katzie vessels use the Fraser River to harvest fish annually (MOTI 2016: 10.1-103, EAO 2017: 253), with 50 to 70 Katzie vessels on the water at once during the largest openings (MOTI 2016: 10.1-103). The moorage location of Katzie vessels (i.e., downstream/upstream of the Project Boundary) was not reported in sources reviewed.

Salmon allocations for Katzie were not reported in available DFO data for 2014, but the “Port Mann Bridge to Mission” catch effort among eligible groups was reported as 3,496 Chinook, 211,997 sockeye, 15,222 chum, 892 coho, and 3 pink (as pink are fished in odd years only, this number is likely incidental catch) (DFO 2017). The amount of eulachon harvested by Katzie during limited participation openings

⁹ The Lower Fraser First Nations are those that fish upstream of the Port Mann Bridge to Sawmill Creek in the Fraser Canyon. Members of the Lower Fraser First Nations identified in the Section 11 Order are Katzie, Kwantlen, People of the River Referrals Office (Soowahlie, Shxw'ow'hamel, Skawahlook), and Seabird Island.

was not identified in sources reviewed, but it is assumed to be about 50 lbs/23 kg, which has been the recent limit for other First Nations on the Fraser River. There was no reported steelhead catch given current restrictions on that species (DFO 2017). Sturgeon are also restricted.

Katzie have said that, from the 1940s through the 1980s, many of their members were involved in the commercial fishery, with some running their own boats (MOTI 2016: 10.1-102). In 2014, Katzie and other Lower Fraser First Nations, participated in an economic opportunity fishery for sockeye; Katzie report that they obtained 10,000 sockeye during this fishery that were eligible for sale (MOTI 2016: 10.1-102).

Katzie First Nation expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Concern regarding the protection of fish and fish habitat during construction (sturgeon, eulachon and the five-species of salmon)
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings
- Concern regarding potential interference of construction activities with Aboriginal fisheries (access and use, etc.)
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration
- Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery
- Concern regarding water flow changes and impacts on fisheries and fishing
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns
- The decline in the fishery is a form of cultural genocide

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Katzie First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.

- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes.
- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human

health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information available to the Proponent regarding Katzie First Nation's traditional use of the Project area, the Proponent understands that Katzie fishing for FSC purposes occurs upstream of the Port Mann Bridge. The Proponent is not in possession of information regarding past, present, or desired fishing by Katzie at locations in the vicinity of the Project.

In consideration of the available information regarding fishing by Katzie First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Katzie First Nation asserted Aboriginal rights to fish including the ability of Katzie First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Katzie have previously reported that their territory historically provided them ready access to a wide variety of mammals and birds (MOTI 2016: 10.1-101). Deer, elk, mountain goat, black bear, and smaller fur-bearing animals (e.g., beaver, marten, mink, raccoon) have been identified as harvested in the past (MOTI 2016: 10.1-103, EAO 2017: 255), with game targeted in the early to mid-summer months, then again in October through winter (MOTI 2016: 10.1-103). Katzie also harvested waterfowl, which they have said were plentiful on the shores of the Pitt River and Pitt Lake, and particularly on the marshy flats east of Pitt River, around Silver (Widgeon) Creek (MOTI 2016: 10.1-103).

Katzie report that hunting is second only to fishing in importance to their subsistence and ceremonial lives, but they are now limited to only a few remaining areas where it is safe to discharge firearms given development within their territory (MOTI 2016: 10.1-104, EAO 2017: 255). For example, Katzie have said that while they still harvest waterfowl on Barnston Island, they currently hunt only on the north and east aspects of the island, having voluntarily stopped the practice on the south side (which faces Langley) to limit public concerns (MOTI 2016: 10.1-104, EAO 2017: 255).

Information regarding past, present, or desired wildlife harvesting by Katzie at locations in the vicinity of the Project Boundary was not identified in sources reviewed or reported by Katzie to the Proponent.

Katzie First Nation expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related light and noise effects to terrestrial wildlife

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Katzie First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).
- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Katzie First Nation, the Proponent understands that, in the past, Katzie harvested a wide variety of mammals and birds from their territory, including deer, elk, mountain goat, black bear, smaller fur-bearing animals (e.g., beaver, marten, mink, raccoon), and waterfowl; however, the Proponent is not in possession of information regarding past, present, or desired hunting or trapping by Katzie at locations in the vicinity of the Project.

In consideration of the available information regarding hunting/trapping by Katzie First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Katzie First Nation's asserted Aboriginal rights to hunt and trap including the ability of Katzie First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Katzie have previously reported that their territory historically provided them ready access to a plentiful supply of plant species that were important for nutritional and cultural sustenance for Katzie (MOTI 2016: 10.1-101, EAO 2017: 256). Species harvested by Katzie were said to include, but not limited to, wapato, cranberries, bog blueberries, strawberries, salmonberries, blackberries, blackcaps, thimbleberries, red and blue huckleberries, Saskatoons, salal-berries, crabapple, oso plum, and back haw (MOTI 2016: 10.1-104, EAO 2017: 257). Cedar bark was also gathered and used to manufacture clothes and other household items (MOTI 2016: 10.1-104, EAO 2017: 257).

Harvesting of roots and berries was primarily a summertime activity, but also extended into the fall. Seasonally flooded lands provided them with an abundance of bogs and marsh plants, of which two of the most important were cranberry, which ripen in September, and wapato, an aquatic, potato-like root plant found in shallow sloughs and ponds, and ready for harvest in October and November (MOTI 2016: 10.1-104).

Traditional cranberry gathering areas were identified at the mouth of the Alouette River, Sturgeon Slough, and Silver (Widgeon) Creek, while Katzie wapato patches were identified as north of Sturgeon Slough and around Siwash Island, on the west bank of the Pitt River (MOTI 2016: 10.1-104, EAO 2017: 257).

Information regarding past, present, or desired plant gathering by Katzie at locations in the vicinity of the Project Boundary was not identified in sources reviewed or reported by Katzie to the Proponent.

Katzie First Nation expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern regarding run-off from the bridge, and potential impacts to the river and vegetation

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Katzie First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Katzie First Nation, Katzie once harvested a range of vegetation from their territory, including, but not limited to, wapato, cranberries, bog blueberries, strawberries, salmonberries, blackberries, blackcaps, thimbleberries, red and blue huckleberries, Saskatoons, salal-berries, crabapple, oso plum, back haw, and cedar; however, the Proponent is not in possession of information regarding past, present, or desired plant gathering by Katzie at locations in the vicinity of the Project.

In consideration of the available information regarding plant harvesting by Katzie First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Katzie First Nation asserted Aboriginal rights to gather plants including the ability of Katzie First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Katzie have explained that their identity and territory are inseparable, and that the landscape they call home is sacred, imbued with meaning that anchors and informs who Katzie are, and that ties Katzie to a wider community of kin that share a common ancestry and similar relationships to cultural landscapes informed by their own distinctive sense of place (MOTI 2016: 10.1-104-10.1-105, EAO 2017: 258).

Katzie report that their ancestors are said to have once lived in at least 10 villages throughout Katzie territory, but that they eventually congregated at the village of *q'ə 'ye 'əy* (anglicized as Katzie), the present-day site of Katzie 1 (MOTI 2016: 10.1-101). This village is described as featuring heavily in Katzie oral history (MOTI 2016: 10.1-101).

The only other Katzie village sites that are still permanently occupied are those on Barnston Island 3 and Katzie 2, at the mouth of Yorkson Creek, in Langley (MOTI 2016: 10.1-101). The tributaries of Yorkson Creek are described as within portage distance of the larger Nicomekl River, which along with the Serpentine River, was a travel and trade corridor, connecting Katzie to Boundary Bay and the “salt-water people” who resided there (i.e., Semiahmoo) and downstream of Katzie on the Fraser River (i.e., Musqueam, Tsawwassen) (MOTI 2016: 10.1-101).

Katzie have previously reported that the Fraser River and other waterways within the Fraser River estuary, including the Nicomekl and Serpentine rivers, were not only the focal point for harvesting fish, wildlife, and plant resources; they also strengthened important socio-economic (i.e., kinship and resource) ties between Katzie and neighbouring groups on the outer coast (MOTI 2016: 10.1-101-10.1-102). Katzie have said these ties remain an important component of Katzie identity. Twentieth-century dyking, dredging, and agricultural development, however, have had the effect of widening the Fraser River and draining wetlands, thereby changing the waterways that facilitated Katzie’s ties to their neighbours (MOTI 2016: 10.1-102).

Katzie have remarked that, as access to their territory declines, each opportunity to continue to practice traditional activities—to transmit knowledge and values—becomes even more significant (MOTI 2016: 10.1-105, EAO 2017: 259). Katzie have said that this practice of tradition—their cultural heritage—includes their ongoing use of and connection to harvesting/activity areas, spiritual and ceremonial sites, named locations, cultural landmarks, and archaeological sites (MOTI 2016: 10.1-105, EAO 2017: 258).

Katzie First Nation expressed the following concerns regarding other traditional or cultural interests:

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.
- Importance of an Indigenous cultural recognition component for the Project and request for involvement.
- Ensuring participation of Katzie First Nation in archaeological work.
- Comment that concerted effort should be made to find the transformer stone; if found, suggestion to reinstall on the bank of the river. Measures are required to address the cultural sensitivities and make appropriate restitutions for the spirit site and home of the transformer stone.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Katzie First Nation’s concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of

practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges Katzie First Nation's perspective that their practice of tradition—their cultural heritage—includes their ongoing use of and connection to harvesting/activity areas, spiritual and ceremonial sites, named locations, cultural landmarks, and archaeological sites. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Katzie First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Katzie First Nation's other traditional and cultural interests including the ability of Katzie First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The Proponent is not aware of Katzie First Nation assertions of Aboriginal title to locations in the vicinity of the Project Boundary. No specific concerns related to title were expressed by Katzie to the Proponent.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the general concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for

VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.

- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Katzie First Nation's traditional territory to the support and maintenance of the Katzie First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Katzie First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Katzie First Nation's Aboriginal title.

12.1.3.3.4 Kwantlen First Nation

Context

Kwantlen are Central Coast Salish and speak the *Hə́n̓q̓əmi̓n̓ə́m̓* (or Downriver) dialect of Halkomelem (Kwantlen 2017a: 4).

The main Kwantlen community resides on McMillan Island 6, located in the Fraser River just north of Fort Langley (EAO 2017: 260), approximately 24 km upstream of the Project Boundary. Of 295 registered members, 72 live on Kwantlen reserves (six in total),¹⁰ most of which are centred around the confluence of the Stave River with the Fraser River, another 12 km upstream of McMillan Island 6. Kwantlen also share the *Pekw'Xe:yles* (Peckquaylis) reserve, located approximately 2 km upstream of the Mission Bridge (and approximately 50 km upstream of the Project Boundary), with Stó:lō groups.

While no current Kwantlen reserves overlap the Project Boundary (refer to **Figure 12.1-A-1**), a former Kwantlen reserve – Langley 8 – was first established in 1861 at Brownsville (“Kikait,” *qəyqə'yət*, and other variations, meaning “resting place”) (Kwantlen 2017a: 6-7, 22), and lies within the Project Boundary, under and adjacent to the southern approach to the existing Pattullo Bridge, across from New

¹⁰ MacMillan Island 6, Whonnock 1, and Langley 2, 3, 4, and 5.

Westminster. The reserve was later confirmed in 1878, at which point another block of land within 1 km of the southernmost point of the Project Boundary – Langley 7 – was set aside as a burial ground (Kwantlen 2017a: 7).¹¹ In the early 1900s, both reserves were sold under uncertain circumstances and the area became industrialized shortly thereafter (Kwantlen 2017: 7).

Kwantlen territory has been described as extensive, taking in the watershed of the Stave River and long stretches of the Fraser River (EAO 2017: 261). An early ethnographic account described the Fraser River portion of the territory as stretching from the mouth of the South Arm of the Fraser River in the west up the Fraser River to Hatzic in the east, while another, later account described it as extending downstream from their pre-contact “headquarters” at New Westminster (“Sqaiametl,” *sxəyəmət*, and other variations, meaning “place where people died”); along the North Arm of the Fraser River to a small creek above Marpole; down the South Arm to a small slough a few hundred yards above Ladner; and south to Mud Bay, including the Serpentine River (Kwantlen 2017a: 4, 9, 22). The Project Boundary lies within Kwantlen territory (**Figure 12.1-A-4**), and spans the Fraser River at what Kwantlen have described as the centre of pre-contact Kwantlen territory (Kwantlen 2017a: 3).

Kwantlen have said that, according to tradition, after Fort Langley was established in 1827, Kwantlen moved their headquarters upriver from New Westminster in order to be near the fort; however, Kwantlen report that their shift upriver occurred at an earlier date, possibly due to depopulation upriver as a result of the smallpox epidemic of the 1770s (Kwantlen 2017a: 4), and that this move had not resulted in the abandonment of other areas along the Fraser River (Kwantlen 2017a: 4-5). For example, an expedition commissioned by the Hudson’s Bay Company in 1824 observed Kwantlen along the Fraser River as far up as Hatzic Slough, in the channel in front of New Westminster, and at points in between, including the mouths of the Pitt and Brunette rivers (just upstream of the Pattullo Bridge) (Kwantlen 2017a: 4-5).

Kwantlen report that they continue to have strong connections to the Pattullo Bridge area, despite losing reserve lands in the immediately vicinity, and consider New Westminster and Surrey to be a significant part of their territory (Kwantlen 2017a: 17). Kwantlen have advised that they are strengthening their relationships with the cities of New Westminster and Surrey by engaging with the respective municipal governments and local businesses to undertake initiatives that help to recognize Kwantlen’s historical connection to the area (Kwantlen 2017a: 18).

Kwantlen First Nation prepared the following study (Kwantlen Study) regarding their Aboriginal Interests in the area of the Project:

- Kwantlen Land Use and Occupation in the Vicinity of Pattullo Bridge (Kwantlen 2017a)

The spatial area for the identification of Aboriginal Interests in the Kwantlen Study is referred to as the “Pattullo Bridge TLUS Study Area” (Kwantlen Study Area), defined as within a 2 km radius of the centre of the Pattullo Bridge (Kwantlen 2017a: 1-2).

¹¹ When Langley 8, as well as the adjacent Musqueam 1 (first allotted in 1860), were confirmed in 1878, they were enclosed as discrete areas within the boundaries of new General Reserve, known as the South Westminster Reserve, for the “New Westminster Indians.” With regard to Langley 7, the burial ground, it was intended “generally for Indians frequenting New Westminster, but is included among the Langley [Kwantlen] reserves as they wish to move bodies to it and are the largest tribe interested in it” (Kwantlen 2017a: 7). Langley 7 was identified as Section 21, Block 5, North Range 2 West (Kwantlen 2017a: 7). Today, this section is bordered by 108 Ave on the north, 104 Ave on the south, 132 St on the east, and 128 St on the west. The southern half this section is now known as Royal Kwantlen Park (Kwantlen 2017a: 9).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Kwantlen First Nation. Additional information regarding consultation with Kwantlen First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-5 Overview of key consultation activities – Kwantlen First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Kwantlen First Nation about the Project.
March 3, 2016	Meeting	Introductory meeting between the Proponent and Kwantlen First Nation.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
August 5, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering the BC Environmental Assessment Process.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
February 17, 2017	Tour	Kwantlen First Nation participated in a tour of the hydraulic model for the Project.
April 11, 2017	Meeting	Introductory meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
April 20, 2017	Meeting	Project update meeting between the Proponent and Kwantlen First Nation.
April 20, 2017	Site visit	Site visit regarding cultural representation between the Proponent and Kwantlen First Nation.
May 17, 2017	Meeting	Project update meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 20, 2017	Meeting	Project update meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
June 22, 2017	Working Group Meeting	Kwantlen First Nation attended the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
August 22, 2017	Email	Kwantlen First Nation submitted a Traditional Use Study.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Letter	Letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding First Nation procurement concerns.
September 11, 2017	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 14, 2017		Letter from Kwantlen First Nation advising that the Nation would not be providing comments on the consultation materials provided on September 8, 2017 due to concerns related to the identification of procurement opportunities.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Kwantlen First Nation for review and comment.
September 18, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement on the Project.
September 21, 2017	Email	The Proponent shared a copy of the issues and interests list for review and comment.
September 28, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding comments and concerns with respect to procurement opportunities on the Project.
October 2, 2017	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 16, 2017	Letter	Kwantlen First Nation provided comments regarding the draft Aboriginal Consultation Plan.
October 17, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding First Nation procurement concerns.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Kwantlen First Nation attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 1, 2017	Letter	Kwantlen First Nation provided comments regarding the noise, visual impacts and vegetation environmental assessment consultation package.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B geotechnical investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 20, 2017	Letter	The Proponent responded to Kwantlen First Nation comments on the draft Aboriginal Consultation Plan and provided the revised Plan.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 7, 2018	Letter	Letter to the Proponent requesting additional time to review draft Project-related reports.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 21, 2018	Phone call	Phone call to discuss Kwantlen First Nation concerns regarding the timing for review of draft baseline studies.
January 10, 2018	Letter	Letter to the Proponent confirming that Kwantlen First Nation does not have comments or concerns with the draft Historical Heritage Study.

Date	Type of Engagement	Summary
January 15, 2018	Email	The Proponent provided responses to Kwantlen First Nation comments on the noise, visual and vegetation consultation package.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 18, 2018	Email	The Proponent shared the Kwantlen First Nation Aboriginal Interests Summary for review and comment.
January 19, 2018	Email	The Proponent shared the Kwantlen First Nation Consultation Area Map for review and comment.
January 22, 2018	Email	Kwantlen First Nation confirmed that the Consultation Area Map is of Kwantlen's asserted traditional territory.
January 23, 2018	Meeting	Meeting between Kwantlen First Nation and the Proponent regarding marine use and fish and fish habitat.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 1, 2018	Phone call	Kwantlen First Nation confirmed there are no comments on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Kwantlen First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Kwantlen First Nation during consultation and where possible, worked with Kwantlen to address and resolve issues and concerns. A table of issues and concerns, previously provided to Kwantlen for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Kwantlen First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Kwantlen First Nation's Aboriginal Interests. These

potential impacts are characterized by considering how the Project could affect several factors important to Kwantlen First Nation's ability to practice Aboriginal Interests. Based on the Kwantlen Study (Kwantlen 2017a) and key issues and concerns raised by Kwantlen First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Kwantlen First Nation's past, present, and desired future use, as communicated to the Proponent by Kwantlen or otherwise available from other information sources reviewed to inform this section, is provided below in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the Kwantlen Study (Kwantlen 2017a).

Impacts on Fishing

Kwantlen report that the Fraser River and Brunette River were critical locations for fishing (Kwantlen 2017a: 8, 10). Salmon, eulachon, and sturgeon are specifically identified as harvested by Kwantlen in the Fraser River (Kwantlen 2017a: 25). Large salmon runs were reported for the Brunette River ("Stótelo," *staəlw'*, "Ché'tsh'lus," *cicləs*, and other variations, meaning "little river" and "steep slope," respectively), flowing from Burnaby Lake to the Fraser River at Sapperton ("Xwimsetsen," *xwimsestsam*, meaning "small clenched fist" (Kwantlen 2017a: 23).

Kwantlen continue to harvest salmon in an approximate 42 km stretch of the Fraser River for FSC purposes upstream of the Port Mann Bridge (approximately 6 km upstream of the Pattullo Bridge) to Mission, which is also fished by Katzie and Matsqui (DFO 2017). Within this area, Kwantlen's efforts may be contained to smaller stretches of the river, such as between Port Mann Bridge and Kanaka Creek/Derby Reach (approximately 18 km), or from Kanaka Creek/Derby Reach to Mission (approximately 24 km). These latter stretches of the river are in proximity to existing Kwantlen reserves, from which Kwantlen are assumed to directly access these fishing areas (i.e., boats are moored upstream of the Pattullo Bridge area). Kwantlen plans to resume fishing downstream in the Pattullo Bridge area was not specifically reported.

In the area above the Port Mann Bridge, available DFO data (DFO 2017) indicates that 36 communal FSC licences, 7 communal FSC licences with limited participation, and 23 communal FSC licences with allowance for sale were issued to Kwantlen in 2014 (a peak sockeye year). With the exception of the limited participation licences, which are issued specifically to Kwantlen, the remaining licences were issued to the Lower Fraser First Nations,¹² including Kwantlen.

¹² The Lower Fraser First Nations are those that fish upstream of the Port Mann Bridge to Sawmill Creek in the Fraser Canyon. Members of the Lower Fraser First Nations identified in the Section 11 Order are Katzie, Kwantlen, People of the River Referrals Office (Soowahlie, Shxw'ow'hamel, Skawahlook), and Seabird Island. Refer to **Section 12.1.3.3.15 Upper Stó:lō Groups**.

Based on DFO data for 2014 (DFO 2017), Kwantlen limited participation licences were issued for Chinook and eulachon, by drift net only, with openings between 6 and 8 hours (week ending March 2, April 13, 20, May 11, July 27). Licences with allowance for sale were limited to sockeye and chum, by set net, drift net, dip net, or beach seine, with openings between 2 and 42 hours (week ending August 17, 31, September 7, 14, 28, October 26, November 2, 9). Remaining licences were issued for Chinook, sockeye, and chum, by set or drift set, with openings between 4 hours and 3 days (week ending May 10, June 1, 8, 15, 22, July 6, 13, 20, 27, August 3, 4, 10, 17, October 5, 12, 19, 26). The number of Kwantlen boats and members participating in these openings was not reported.

Salmon allocations for Kwantlen were not reported in available DFO data for 2014, but the “Port Mann Bridge to Mission” catch effort among eligible groups was reported as 3,496 Chinook, 211,997 sockeye, 15,222 chum, 892 coho, and 3 pink (as pink are fished in odd years only, this number is likely incidental catch) (DFO 2017). The amount of eulachon harvested during limited participation openings was not reported by Kwantlen, but it is assumed to be about 50 lbs/23 kg, which is the limit for other First Nations on the Fraser River. There was no reported steelhead catch given current restrictions on that species (DFO 2017). Sturgeon are also restricted.

Kwantlen First Nation identified several concerns related to potential effects to fish, fish habitat, and/or fishing, including:

- Concern regarding impacts to salmon populations.
- Concern regarding the effects of vibration and underwater noise on fish during construction and from traffic during operations.
- Great concern over the declining fish stocks and availability of salmon, particularly sockeye. As of now we finally got a couple of drift days for fishing Chinook, with incidental bycatch of sockeye. The Sockeye in general have not showed up in river as expected. The summer run component of sockeyes has shown up in the marine approach areas finally last week. Test fishing catches picked up in the Straits, but now they have decreased again. Which to us in river means the absolute worse fish season ever. Last year was bad, this season is looking worse now.
- Concern regarding the protection of fish and fish habitat during construction (sturgeon, eulachon and the five-species of salmon specifically identified).
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings.
- Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery.

- Concern regarding water flow changes and impacts on fisheries and fishing.
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns.
- The decline in the fishery is a form of cultural genocide.
- The fishery has been in decline since the Golden Ears Bridge construction, and a post-construction study on the impacts to the fishery should be part of infrastructure projects.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Kwantlen First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.

- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition

activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1**, individual Kwantlen members hold commercial fishing licences valid in the LSA. Kwantlen First Nation was also reported as indicating a desire within the community to establish eco-tourism businesses, and that if eco-tourism opportunities were to be pursued, Kwantlen would aim to include a cultural component. **Section 6.1** also reports that Kwantlen have contributed to the development of a mobile application called “QuestUpon” that shows the historic context of the area around the New Westminster Quay when a smart phone is used to pan the horizon.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwantlen First Nation, the Proponent understands that Kwantlen once fished the Brunette River, which flows into the Fraser River at Sapperton. The Proponent acknowledges the shoreline opposite Sapperton was once the location of a Kwantlen reserve (Langley 8), and that Kwantlen have expressed a continued strong connection to the Pattullo Bridge area despite losing those lands and having resided upstream near Fort Langley for several generations. The Proponent understands that Kwantlen fishing for FSC purposes now occurs upstream of the Port Mann Bridge, in proximity to their community. Kwantlen plans to resume fishing downstream of that location, and particularly in the Pattullo Bridge area, was not specifically identified to the Proponent.

In consideration of the available information regarding fishing by Kwantlen First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Kwantlen First Nation asserted Aboriginal rights to fish including the ability of Kwantlen First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

An extensive area on the south shore of the Fraser River, extending from the Pattullo Bridge area upstream towards the Port Mann Bridge, is identified in the Kwantlen Study as formerly used for hunting (an elk drive site is specifically referenced), trapping, and berry/plant gathering (Kwantlen 2017a: 8, 10, 11, 25). Kwantlen have previously reported that the Stave River, a tributary of the Fraser River, was an important hunting and trapping area and training area for youth (EAO 2017: 271).

Kwantlen First Nation identified concerns related to potential effects to wildlife and wildlife harvesting activities, including:

- Concern regarding Project-related noise and light effects to terrestrial wildlife

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Kwantlen First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.

- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminister, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been

determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwantlen First Nation, an extensive area on the south shore of the Fraser River, extending from the Pattullo Bridge area upstream towards the Port Mann Bridge, was formerly used by Kwantlen for hunting (an elk drive site is specifically referenced), trapping, and berry/plant gathering. The Proponent acknowledges the south shore was once the location of a Kwantlen reserve (Langley 8), and that Kwantlen have expressed a

continued strong connection to the Pattullo Bridge area despite losing those lands and having resided upstream near Fort Langley for several generations. While current or desired future use of the Project area for hunting/trapping was not specifically identified to the Proponent by Kwantlen First Nation, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Kwantlen First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Kwantlen First Nation's asserted Aboriginal rights to hunt and trap including the ability of Kwantlen First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Kwantlen have identified several locations within or near the Kwantlen Study Area as bogs associated with berry/plant harvesting. Among these locations, the Queensborough area of Lulu Island (between the Fraser River North Arm and Annacis Channel) is described as having been a key harvesting site (Kwantlen 2017a: 8, 25). Berry/plant gathering is also reported to have taken place on the east side of Brunette Creek, and in the extensive area on the south shore of the Fraser River described above in relation to hunting/trapping (Kwantlen 2017a: 10, 11). Cranberries are specifically referenced in the descriptions of these berry/plant gathering locations (Kwantlen 2017a: 25).

Kwantlen First Nation identified concerns related to potential effects to plants and plant gathering activities, including:

- Concern regarding run-off from the bridge, and potential impacts to the river and vegetation

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Kwantlen First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.

- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwantlen First Nation, the Queensborough area of Lulu Island (between the Fraser River North Arm and Annacis Channel, which is proximate to the Project, is described as having been a key berry/plant harvesting site. Berry/plant gathering (e.g., for cranberries) is also reported to have taken place on the east side of Brunette Creek, and in the extensive area on the south shore of the Fraser River, extending from the Pattullo Bridge area upstream towards the Port Mann Bridge. The Proponent acknowledges the south shore was once the location of a Kwantlen reserve (Langley 8), and that Kwantlen have expressed a continued strong connection to the Pattullo Bridge area despite losing those lands and having resided upstream near Fort Langley for several generations. While current or desired future use of the Project area for plant gathering was not specifically identified to the Proponent by Kwantlen First Nation, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Kwantlen First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Kwantlen First Nation's asserted Aboriginal rights to gather plants including the ability of Kwantlen First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Kwantlen have identified nine archaeological sites within the Kwantlen Study Area (DhRr-1, DhRr-2, DhRr-11, DhRr-74, DhRr-75, DhRr-376, DhRr-377, DhRr-378, DhRr-384) (Kwantlen 2017a: 13). Kwantlen have also identified cultural heritage sites within and near the Kwantlen Study Area that may or may not coincide with recorded archaeological sites and are described in more detail below.¹³

Kwantlen report there are records of intensive settlement (i.e., villages) located along the Fraser River on both the north (*sxəyəməθ*) and south (*qəyqə'yθ*) banks at the Pattullo Bridge crossing, with other settlement sites located to the east and west of this location along the Fraser River (Kwantlen 2017a: 8). These other settlement sites include villages at a creek downstream of the former BC Penitentiary site; at the former BC Penitentiary site (*c'ic'əθ*, *q'wa'ntal*, and other variations, meaning "noble, high born"); and at the mouth of the Brunette River (possibly "Tce'tstlEs," "Schechi:les," *sc'əc'i:nəs*, and other variations, meaning "drying up down at the mouth," "strong lungs") (Kwantlen 2017a: 5, 23). A Kwantlen village was

¹³ Kwantlen (2017a: 8) define cultural heritage sites as "any geographically defined site (on land and water) used for the purposes of settlement, occupation, cultural use, resource gathering, transportation, or similar activity by a group of people. These sites may lack the physical evidence of human-made artifacts or structures, yet maintain cultural significance to a living community of people."

also identified downstream of the Pattullo Bridge crossing, on the south bank, near the end of Tannery Rd, at Brownsville (“Stcuwā’cEl,” *stəqʷaθen*, and other variations, meaning “across from but facing you”) (Kwantlen 2017a: 9, 22). A cluster of four former reserves on the north shore of the North Arm of the Fraser River, approximately 3 km downstream of the Project Boundary, are also identified by Kwantlen (2017a: 9-10). These are comprised of one on Poplar Island and three others on the north shore opposite Poplar Island, which is associated with the name *sk’utx’iqun’* (and other variations, meaning “hard place to find food”) (Kwantlen 2017a: 23-24). These four reserves are described as having been set aside for the “Coast Indians in common” as a burial ground for smallpox victims and as a camping place during fishing season (Kwantlen 2017a: 23-24).

The Fraser River itself (“Stólo,” *stóləw’*), as well as three overland trail routes converging on the river in the area of the Pattullo Bridge, suggest the area was an important transportation hub for people and the goods they would have been trading with neighbouring groups (Kwantlen 2017a: 8, 25). One of these trails is identified as running along the south shore towards the Pattullo Bridge area from the west (the South Arm); another is mapped as approaching the Pattullo Bridge area directly from the south (Kwantlen 2017a: 11). Both of these trails are identified as routes that connected *qəyqə’yt* to Mud Bay and surrounds (Kwantlen 2017a: 10, 25-26), an area that Kwantlen identify as within their traditional territory (EAO 2017: 268).

Kwantlen report that there are a number of stories involving the Transformer (*xaa/s*) that are associated with the area around the Pattullo Bridge (Kwantlen 2017a: 5). One story in particular involves *sxəyəməł*, the name for New Westminster derived from a warrior who was turned to stone by *xaa/s*. This stone was said to have been buried by engineers when they constructed the approach to the New Westminster Bridge, but there is uncertainty as to whether this meant the rail bridge or the Pattullo Bridge (Kwantlen 2017a: 5, 9).¹⁴ The transformation story of *xaa/s* illustrates that this area was important not just for day-to-day activities but also had and continues to have important historic and symbolic meaning for Kwantlen members (Kwantlen 2017a: 8), including as the site where, in 1808, Simon Fraser first encountered Kwantlen, at *qəyqə’yt* (Kwantlen 2017a: 5). Kwantlen have explained that this historic landscape (Transformation stones/mountains) is linked to culturally specific histories and markers that establish their presence on the land, and that Kwantlen must be able to still see these features to transmit knowledge (Kwantlen 2017b).

Kwantlen First Nation identified several concerns related to potential effects to other traditional and cultural interests, including:

- Concern regarding the impact of noise on Kwantlen’s ability to engage in cultural practices that traditionally required quiet, the importance of culture and spirituality to health and wellbeing.
- Concern regarding changes to the visibility of the historic landscape, both as a result of the structure and increased haze (air quality/smog), and the impact to Kwantlen’s connection to that landscape.

¹⁴ The story was documented in 1936, the same year Pattullo Bridge was constructed; the New Westminster Bridge was built in 1904 (Kwantlen 2017a: 5).

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.
- Concern that impaired viewsapes threaten to disrupt the flow of traditional knowledge transfer. Kwantlen's visual landscape has been and continues to change, compromising a sense of geographical placement and a connection to the land.
- Cumulative effects of land alienation and rapid development of Kwantlen territory without the consent of the Kwantlen First Nation should be taken into account in determining how to proceed with the replacement of the bridge, especially as it might impact on cultural heritage sites in the vicinity.
- Comment that concerted effort should be made to find the transformer stone; if found, suggestion to reinstall on the bank of the river. Measures are required to address the cultural sensitivities and make appropriate restitutions for the spirit site and home of the transformer stone.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Kwantlen First Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Project area to the support and maintenance of Kwantlen First Nation's culture and traditions, with particular reference to *qəyqə'yt* and their former reserve (Langley 8). The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Kwantlen First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Kwantlen First Nation's other traditional and cultural interests including the ability of Kwantlen First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

Kwantlen have reported that they assert Aboriginal rights and title to all of the lands and water included in the Project Boundary (Kwantlen 2017a: 1).

Kwantlen First Nation identified the following concern regarding title:

- Protection of Kwantlen's Aboriginal Interests in the land and water within the Project area

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the Kwantlen First Nation's concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.

- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.

- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges that the Kwantlen First Nation assert Aboriginal rights and title to all of the lands and water included in the Project Boundary. The Proponent also acknowledges that Kwantlen reserve – Langley 8 – first established in 1861 at Brownsville, lies within the Project Boundary

The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project

area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Kwantlen First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in Moderate impacts to Kwantlen First Nation's Aboriginal title.

12.1.3.3.5 Kwikwetlem First Nation

Context

Kwikwetlem are Central Coast Salish and traditionally spoke the *Hə́n̓q̓əmiḥə́m̓* (or Downriver) dialect of Halkomelem (Kwikwetlem 2017a: 6). Kwikwetlem recognize their *Hə́n̓q̓əmiḥə́m̓* name to refer to “small red fish,” an early-return sockeye salmon species that once ran in great number on the Coquitlam River (Kwikwetlem 2017a: 6).

Kwikwetlem have two reserves, Coquitlam 1 and Coquitlam 2, both home to ancient village settlements (also known archaeologically as DhRq-11 and DhRq-10, respectively). The main Kwikwetlem community resides on Coquitlam 1, at the confluence of the Coquitlam and Fraser rivers, and is home to 43 out of 111 registered members (INAC 2017). The Project Boundary is located 7 km downstream of Coquitlam 1 (**Figure 12.1-A-1**).

Kwikwetlem report that the land, water, air, resources, and spirit of the Coquitlam Watershed, their Core Territory, is inextricably linked to their identity, and that they have exclusively occupied and relied on that territory since ancient times (Kwikwetlem 2017a: 6). Kwikwetlem have also routinely and extensively used an extended Area of Interest, including occupation of a number of settlements, engagement in social and economic networks, resource procurement, and other broad-ranging cultural activities (Kwikwetlem 2017a: 6). Some locales in the extended territory are deeply connected to the spiritual and cultural identity of Kwikwetlem (Kwikwetlem 2017: 6). The Project Boundary is located within the Area of Interest and approximately 2 km downstream of the southeastern corner of the Core Territory (BCSC 2016: Schedule B) (**Figure 12.1-A-5**).

Kwikwetlem First Nation prepared the following study (Kwikwetlem Study) regarding their Aboriginal Interest in the area of the Project:

- Kwikwetlem First Nation Traditional Knowledge and Cultural Heritage Interests Relating to the Pattullo Bridge Rehabilitation Project (Kwikwetlem 2017a)

The Kwikwetlem Study refers to a “Pattullo Bridge Project Area” that is understood to include the waters and immediate shorelines of the Fraser River from the south end of Annacis Island up to and including the lower Coquitlam River and floodplain (Kwikwetlem 2017a: 4). Within this area, lies the ancient village site of *qəqəyt* [*Qiqayt*, *Kikayt*, *Kikait*, *Qeqait*, *qəxqa'yəf*] – associated with DhRr-2 and DhRr-74 – and the Kwikwetlem's ancient village site of *slakəya'nc*, at Coquitlam 1 (Kwikwetlem 2017a: 5, 17).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Kwikwetlem First Nation. Additional information regarding consultation with Kwikwetlem First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-6 Overview of key consultation activities – Kwikwetlem First Nation

Date	Type of Engagement	Summary
February 10, 2016	Letter	Notified Kwikwetlem First Nation about the Project.
March 1, 2016	Meeting	Introductory meeting between Kwikwetlem First Nation and the Proponent.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 20, 2016	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
June 6, 2016	Letter	Letter to Kwikwetlem First Nation that outlined upcoming public open houses, provided update on BCEAO process, and thanks for responding to earlier invitation to meet.
June 17, 2016	Letter	Kwikwetlem First Nation letter expressing concern regarding engagement.
June 23, 2016	Letter	Response to Kwikwetlem First Nation's letter of concern regarding engagement.
July 20, 2016	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
August 16, 2016	Letter	Kwikwetlem First Nation letter requesting information to support decision making in Kwikwetlem traditional territory.
August 24, 2016	Letter	Proponent response to Kwikwetlem First Nation letter requesting information to support decision making in Kwikwetlem traditional territory.
September 15, 2016	Meeting	Project update meeting between Kwikwetlem First Nation and the Proponent.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
November 25, 2016	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
January 25, 2017	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
January 25, 2017	Boat tour	Kwikwetlem First Nation shared knowledge of the Fraser River on a boat tour.
March 6, 2017	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
April 20, 2017	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
June 7, 2017	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
June 16, 2017	Letter	Kwikwetlem First Nation provided comments on the in-water geotechnical investigation program.
June 22, 2017	Working Group Meeting	Kwikwetlem First Nation attended the Working Group meeting.
August 11, 2017	Email	Kwikwetlem First Nation provided a Traditional Knowledge and Cultural Heritage Interests Relating to the Pattullo Bridge Rehabilitation Project report.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for review and input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation undertaken to-date with Kwikwetlem First Nation for review and comment.
September 21, 2017	Email	The Proponent shared a list of Kwikwetlem First Nation issues and interests for review and comment.
September 25, 2018	Email	The Proponent shared the Fish and Fish Habitat Terms of Reference, per Kwikwetlem First Nation's request.
September 26, 2017	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
October 2, 2017	Letter	Kwikwetlem First Nation provided comments on the Phase B geotechnical program materials.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 10, 2017	Email	Kwikwetlem First Nation advised that there were no concerns with the draft Aboriginal Consultation Plan.
October 12, 2017	Letter	Kwikwetlem First Nation provided comments regarding the Fish and Fish Habitat Terms of Reference.
October 16, 2017	Site visit	Boat tour with Kwikwetlem First Nation representatives to discuss visual assessment, fish and fishing, cultural heritage recognition and noise monitoring.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
October 23, 2017	Working Group Meeting	Kwikwetlem First Nation attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	The Proponent responded to Kwikwetlem First Nation comments on the Phase B Geotechnical Program materials.
October 25, 2017	Letter	The Proponent provided responses to Kwikwetlem First Nation comments on the draft Fish and Fish Habitat Terms of reference.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 8, 2018	Email	Kwikwetlem First Nation provided notes as a record of the discussion from the October 16, 2018 boat tour.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 24, 2017	Email	Kwikwetlem First Nation provided comments on the following draft documents: <ul style="list-style-type: none"> ▪ Draft Terrestrial Wildlife Study ▪ Draft Vegetation Study
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
November 30, 2017	Email	Kwikwetlem First Nation provided comments on the draft Test Pile Program documents.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 6, 2017	EAO-led conference call	Kwikwetlem First Nation participated in an EAO-led conference call specific to fish and fish habitat.
December 11, 2017	Letter	The Proponent responded to Kwikwetlem First Nation comments on the draft Test Pile Program materials.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 21, 2017	Email	The Proponent shared the draft AOA for review and comment.
January 15, 2017	Email	The Proponent requested information regarding Kwikwetlem First Nation fish allocations.
January 15, 2018	Email	The Proponent provided responses to written comments provided by Kwikwetlem First Nation as a follow-up from the October 2017 boat tour.
January 15, 2018	Email	Kwikwetlem First Nation provided a comment related to the Aboriginal Consultation Report #1, and advised that there were no comments on the Visual Quality and Photographic Inventory Study.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 17, 2018	Email	The Proponent Shared the Kwikwetlem First Nation Aboriginal Interests Summary and Consultation Area map for review and comment.
January 22, 2018	Email	Kwikwetlem First Nation confirmed that the Consultative Area Map is accurate.
January 30, 2018	Email	Kwikwetlem First Nation provided information regarding fish allocations.
January 26, 2018	Meeting	Project update meeting between the Proponent and Kwikwetlem First Nation.
February 1, 2018	Email	Kwikwetlem First Nation advised that the draft Aboriginal Interests Summary is comprehensive and accurate and provided points of emphasis and one point of concern.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 22, 2018	Meeting	Project update meeting between Kwikwetlem First Nation and the Proponent.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.

Date	Type of Engagement	Summary
March 23, 2018	Email	The Proponent shared responses to additional Kwikwetlem First Nation concerns regarding the Test Pile Program.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent provided responses to Kwikwetlem First Nation comments on the draft Aboriginal Consultation Report #1, as well as the revised document.
May 9, 2018	Email	Kwikwetlem First Nation advised that they did not have concerns regarding the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Kwikwetlem First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Kwikwetlem First Nation during consultation and where possible, worked with Kwikwetlem to address and resolve issues and concerns. A table of issues and concerns, previously provided to Kwikwetlem First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Kwikwetlem First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Kwikwetlem First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Kwikwetlem First Nation's ability to practice Aboriginal Interests. Based on the Kwikwetlem Study (Kwikwetlem 2017a) and key issues and concerns raised by Kwikwetlem First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Kwikwetlem First Nation's past, present, and desired future use, as communicated to the Proponent by Kwikwetlem or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater

fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the Kwikwetlem Study (Kwikwetlem 2017a).

Impacts on Fishing

The importance of salmon, and particularly sockeye, to Kwikwetlem is embedded within their name for themselves, which, as reviewed earlier, refers to an early-return sockeye salmon species that once ran in great number on the Coquitlam River (Kwikwetlem 2017a: 6, Kwikwetlem 2018a).

Kwikwetlem have said that, while Kwikwetlem territory centres on the Coquitlam Watershed, the lands and waters surrounding Pattullo Bridge, including the north and south shorelines of the Fraser River, upland areas surrounding New Westminster and Brownsville (Surrey), and the Fraser River's waters and associated tributaries, were regularly used by Kwikwetlem from ancient times, are deeply connected to Kwikwetlem history and beliefs, and feature regularly in Kwikwetlem family stories and remembrances (Kwikwetlem 2017a: 6, 15, 25).

Kwikwetlem have said that their deep connection to and continued interest in the Pattullo Bridge area is well- documented in anthropological records of the *qəqəyt* creation story, and that their continued interest in the south shore is clearly documented by long-standing accounts of family movements between Kwikwetlem and *qəqəyt*, participation in historic efforts to lobby the government to preserve First Nations access to the *qəqəyt* village site and fishing camp, knowledge and use of family-held fishing places, and continued engagement with the rich Fraser River fisheries associated with the Project location (Kwikwetlem 2017a: 11, Kwikwetlem 2018a).

Kwikwetlem report that the settlement at *qəqəyt* was an important part of the spring and summer fishery used by many *Hən̓q̓əmi̓n̓əm̓*, and that its location was central to providing access to a range of important resources (Kwikwetlem 2017a: 17). Kwikwetlem have described their association with the establishment of *qəqəyt* as a fishing station (Kwikwetlem 2017a: 8-15, 17), their continued use of the site ("going to stay") into the 1900s based on Coast Salish patterns of seasonal mobility based on social ties and use rights, and their participation in a 1925 "protest letter" from First Nations to the federal government regarding loss of access to the village (Kwikwetlem 2017a: 19-20, 27).

On the north side of the Fraser River, in and around New Westminster, Kwikwetlem have a concentration of fishing camps, important Transformer events, and village sites that is described as "not typical" of the region, thereby offering a "reflection of the important cultural use and regard of New Westminster" (Kwikwetlem 2017a: 21), which later became, in the colonial and post-Confederation period, a place to sell fish, among other economic activities (e.g., working at area canneries) (Kwikwetlem 2017a: 23).

Kwikwetlem have reported that set netting, drift netting, gill netting, hook and line fishing, freshwater shell fish collection, and eulachon harvesting are remembered on the shores and waters of the Fraser River near the Pattullo Bridge and at Brunette River (Kwikwetlem 2017a: 25). They report once bountiful eulachon and Chinook salmon runs, and that trade in these resources, particularly eulachon, once provided a valuable commodity and important connection to a traditional economic network (Kwikwetlem 2017a: 28). Eulachon gathered from Brownsville Bar was traded with groups upriver (Kwikwetlem 2017a: 25).

Kwikwetlem have said that they no longer practice shore-based fishing in the area due to historic modifications to the shoreline (i.e., rip rap, fill, private property) that impede access or lack the privacy to engage in traditional practices in public areas (Kwikwetlem 2017a: 28). Losing the opportunity to fish from shore at Brownsville Bar was noted by Kwikwetlem as a particular loss (Kwikwetlem 2017a: 28). Kwikwetlem have also been frustrated by what is described as degradation of the south Fraser River shoreline and tributary waterways due to industrialization (Kwikwetlem 2017a: 28). Kwikwetlem have emphasized to the Proponent that they have an interest in the restoration of Fraser River streams, and that they have been actively involved in restoration activities (Kwikwetlem 2018a).

Kwikwetlem continue to harvest salmon (Chinook, sockeye, chum) in an approximate 10 km stretch of the Fraser River for FSC purposes between Douglas Island and just downstream of the Pattullo Bridge, as practiced traditionally (DFO 2017, Kwikwetlem 2017b). Sockeye is also taken in Pitt River (DFO 2017).

Within the Douglas Island to Pattullo Bridge area, Kwikwetlem have said that the south side of the Pattullo Bridge crossing is a prime Kwikwetlem fishing area, preferred for its predictable conditions (Kwikwetlem 2017b). Kwikwetlem have described the flow of the river on the south side as calmer than areas upstream, and as guiding in eulachon, Chinook, and sockeye, through the early spring and summer. These calmer conditions also make drift and set netting easier and more successful; Kwikwetlem report that setting their nets off of breakwaters, piers, and dolphins in the area is a common activity (Kwikwetlem 2017b). The frequency and duration of this fishing activity at this location, the quantity of fish taken during harvesting events, and the number of boats engaged, was not reported in the Kwikwetlem Study.

Available DFO data indicates that 23 communal FSC licences (including “limited participation” and “allowance for sale” openings) were issued to Kwikwetlem in 2014 (a peak sockeye year) for the purposes of harvesting salmon by drift or set net. These openings consisted of one Chinook opening in May (May 18), followed by weekly openings over the balance of June and July (June 1, 15, 22, 29, July 6, 13, 20); weekly sockeye openings beginning in late July that carried through to the beginning of September (July 27, August 3, 10, 17, 24, 31, September 7); and weekly chum openings running from the beginning of October until mid-November (October 5, 12, 19, 26, November 2, 9) (DFO 2017). Openings lasted from 6 hours to 48 hours each. No licences for eulachon appear to have been issued to Kwikwetlem over the period 2004 through 2014, based on available DFO records (DFO 2017). Kwikwetlem have advised the Proponent that the lack of eulachon licences can be attributed to Kwikwetlem’s concern regarding the small numbers of returning stock and concern for the health of the run (Kwikwetlem 2018a).

Salmon allocations for Kwikwetlem were not reported in available DFO data, but the “Below Port Mann Bridge” catch effort among eligible groups other than Musqueam and Tsawwassen (i.e., Tsleil-Waututh, New Westminster or Qayqayt First Nation, and Kwikwetlem) were reported as 141 Chinook, 10,379 sockeye, 30 chum, 3 coho, and no pink (fished in odd years only). There was also no reported steelhead catch given current restrictions on that species.

Kwikwetlem First Nation identified several concerns related to potential effects to fish and fish habitat, including:

- Potential effects on natural, particularly aquatic, resources within the Coquitlam River, the largest tributary in the vicinity of the Project Boundary, that are of critical importance to Kwikwetlem.
- Concern regarding the effects of vibration and underwater noise on fish.
- Concerns regarding effects of underwater noise on eulachon spawning.
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns.
- Concern with how vibration affects fish, noting that fishers clearly saw an impact on fish behaviour during Mary Hill Bypass and Port Mann Bridge construction/demolition. Comment that construction and demolition timing should consider fish behavior patterns – and be aware that different species are affected differently – as well as ongoing vehicle traffic vibration. Comment that spawning time is also a critical concern.
- Efforts must be made to clean and restore habitats and Fraser River and tributary water quality essential to the well-being of aquatic resources that have sustained Kwikwetlem peoples for millennia.
- Take the opportunity to improve or create fish habitat, prioritizing Brownsville Creek and Brunette Creek, the latter of which used to support a major sockeye run.
- Particular concerns were also noted for Como Creek, Bon Accord Creek, and the “old stream” on the south side under the Pattullo Bridge.
- Work closely with Kwikwetlem to ensure the Project appropriately assess cumulative impacts on critical fisheries, especially sturgeon, eulachon, and salmon, and the implementation of best practice and proactive strategies to promote fish and fish habitat revitalization.
- Consider implementing the recommendations of the fish study reports that Kwikwetlem provided to TransLink regarding sturgeon.
- Specific interest in eulachon, sturgeon, and sockeye restoration work being undertaken as a Project legacy.
- Kwikwetlem First Nation expects the Project will adopt offsets that would meet anticipated changes to the federal *Fisheries Act* as outlined in the Government Response to the Standing Committee on Fisheries and Oceans. The old designation misses some fish that are important as food for fish; misses waterbodies that may be important habitat but doesn't support fisheries; and also harmful alterations to habitat that once were covered off as HADDs (harmful alterations, damage and destruction of habitat).
- Comment regarding the importance of considering cultural meaning and archaeology in habitat offsetting given the location of the Project.

Kwikwetlem First Nation identified several concerns related to potential effects to fish harvesting activities and access, including:

- Concern regarding changes to flows or currents or patterns of sedimentation and erosion that may affect fishing.
- Concern that fishing spots may change.
- Request that the south side of the new bridge not be crowded with pier locations given that the south side of the river at this location is prime Kwikwetlem fishing area.
- Concern that in the past, water visuals were ignored, so it is important that both land and water visuals are taken into account. The river is the primary highway for the fishers and should build that visual assessment into the design.
- Concern regarding effects of the new bridge on snag patterns, as snags make it hard to fish.
- Enhance the fishery, as some fisheries are almost gone, and Kwikwetlem children need a stable, healthy, and safe fishery in the future.
- Consider the visual impacts of the new structure on fishing.
- Concern regarding navigability and access restrictions during construction of the new bridge and decommissioning of the old bridge.
- Concern regarding the protection of fish and fish habitat during construction (sturgeon, eulachon and the five-species of salmon).
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Different groups and families have a drift net fishery in the area, particularly between Douglas Island and the Pattullo Bridge. Kwikwetlem First Nation members have specific agreements and protocols for fishing, and there are concerns about the impacts of the Project on fishing, and fish habitat. Kwikwetlem First Nation expects the highest standard of assessment to be applied to consider potential impacts to Aboriginal fisheries.
- Concern with cumulative impacts and secondary Project impacts such as climatic impact of the Project on critical fisheries such as sturgeon, eulachon and salmon.
- Concern regarding water flow changes and impacts on fisheries and fishing.
- Request to recognize, address and reference, in the Application, Aboriginal Interests that cannot be practiced today because of development.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Kwikwetlem First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.

- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and

recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwikwetlem First Nation, the Proponent understands that Kwikwetlem fishing in the Fraser River for FSC purposes occurs in the area from Douglas Island to a point just downstream of the Pattullo Bridge, and that the south side of the river at the bridge crossing is particularly favoured for its predictable, relatively calm conditions, making fishing easier and more successful. Short-term, sporadic effects on Kwikwetlem fishing access and environmental conditions (noise, visual) may not be completely avoidable during construction. It may also take time for mitigation measures related to fish and fish habitat to become effective.

In consideration of the available information regarding fishing by Kwikwetlem First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Minor-to-Moderate** impacts to Kwikwetlem First Nation asserted Aboriginal rights to fish including the ability of Kwikwetlem First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Kwikwetlem have said that hunting for deer, waterfowl, game birds took place on the south shore of the Fraser River, from the Port Mann Bridge downriver to *qəqəyt* (Kwikwetlem 2017a: 25), and even more broadly from Surrey Bend (between Douglas and Barnston Islands) downstream to Burns Bog, until the 1930s and 1940s, when increasing land restrictions and urbanization barred access to traditional land-based resource harvesting and other traditional pursuits (Kwikwetlem 2017a: 29). Kwikwetlem have said that this area on the south side of the river provided an easy-access alternative to areas of the Coquitlam drainage, and had the advantage of being close to home communities, easily accessible by canoe travel to carry goods home (Kwikwetlem 2017a: 29).

Kwikwetlem First Nation identified concerns related to potential effects to wildlife and wildlife harvesting activities and access, including:

- Concern regarding Project-induced development, its impact on the region, and in particular the affect on Kwikwetlem use and conception of the land.
- Interest in identifying opportunities to enhance the health of area traditional lands, waters, and resources.
- Concern regarding Project-related effects, such as noise and light, to terrestrial wildlife.
- Interest in enhancement and mitigation strategies that support the installation of wildlife trees or structures of a size to support the return and revitalization of large bird species. Smaller wildlife trees that can support smaller nesting cavities should be a priority in all parts of the Project area, but especially on the south side.
- Request for analysis on exactly how degraded wildlife habitats are, and the potential for rehabilitation of such habitats through future mitigation. That mitigation could include artificial nesting sites, especially in the light of a dearth of observed large trees in the LSA.
- Request for the Proponent to consider compiling recorded historic preindustrial ecosystem and wildlife patterns in the area in order to strategize priority mitigation goals. Restoring and revitalizing species, ecosystems of varying type, terrestrial and avian movement corridors is a key priority. Reviving habitats to support highest at-risk native species is critical.
- Request for enhancement and mitigation strategies that support the installation of wildlife trees or structures of a size to support the return and revitalization of large bird species (osprey, red-tailed hawk, bald eagle, heron). Smaller wildlife trees that can support smaller nesting cavities should be a priority in all parts of -the Project area, but especially on the south side.

- Request for the implementation of pre-construction wildlife surveys to assess the Project area for the presence of low density wildlife that may not have been apparent during the very limited baseline field surveys.

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Kwikwetlem First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).
- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwikwetlem First Nation, the south shore of the Fraser River in the vicinity of the Project (i.e., from the Port Mann Bridge downriver to *qəqəyt*) was used by Kwikwetlem for hunting for deer, waterfowl, and game birds until the 1930s and 1940s, when their access to the area for such purposes and other traditional pursuits effectively ceased due to land restrictions and urbanization. While current or desired future use of the Project area for hunting/trapping was not specifically identified to the Proponent by Kwikwetlem First Nation, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Kwikwetlem First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Kwikwetlem First Nation's asserted Aboriginal rights to hunt and trap including the ability of Kwikwetlem First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Kwikwetlem report that gathering for food plants and berries, other plants, wood, bark, and roots took place on the south shore of the Fraser River, from the Port Mann Bridge downriver to *qəqəyt*, which Kwikwetlem recall as known in particular for the gathering of cranberries and Labrador tea (Kwikwetlem 2017a: 25). Similar to hunting, plant gathering is reported to have taken place even more broadly from Surrey Bend (between Douglas and Barnston Islands) downstream to Burns Bog, until the 1930s and 1940s, when increasing land restrictions and urbanization barred access to traditional land-based resource harvesting and other traditional pursuits (Kwikwetlem 2017a: 29).

Kwikwetlem First Nation identified several concerns related to potential effects to plants and plant harvesting activities, including:

- Concern regarding Project-induced development, its impact on the region, and in particular the affect on Kwikwetlem use and conception of the land
- Identify opportunities to enhance the health of area traditional lands, waters, and resources

- Request the use of traditional plants and trees in revegetation plans
- Comment that Kwikwetlem First Nation supports the implementation of select area pre-construction plant surveys to assess and appropriately mitigate the presence of rare plants and plants with a narrow seasonal window
- Request for Proponent to consider compiling recorded historic stream mapping, preindustrial ecosystem mapping, and recorded information on preindustrial plant species in the Project area to plan and strategize mitigation goals
- Comment that restoring and revitalizing ecosystems to support economically valued plants is a key priority for Kwikwetlem First Nation

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Kwikwetlem First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from

the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been

determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Kwikwetlem First Nation, the south shore of the Fraser River in the vicinity of the Project (i.e., from the Port Mann Bridge downriver to *qəqəyt*) was used for gathering food plants and berries, other plants, wood, bark, and roots, but was known in particular for the gathering of cranberries and Labrador tea until the 1930s and 1940s, when their access to the area for such purposes and other traditional pursuits effectively ceased due to land restrictions and urbanization. While current or desired future use of the Project area for hunting/trapping was not specifically identified to the Proponent by Kwikwetlem First Nation, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Kwikwetlem First Nation for traditional purposes, the Proponent’s proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent’s analysis of residual and cumulative effects to vegetation (no residual effects), land use,

noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Kwikwetlem First Nation's asserted Aboriginal rights to gather plants including the ability of Kwikwetlem First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

As indicated above, Kwikwetlem have described the use and knowledge of trails and water routes on the north and south shore of the Fraser River in the area of the Project (Kwikwetlem 2017a: 22, 25).

Kwikwetlem have explained that place names provide an important record of Indigenous connection to, and knowledge of, the landscape, and make clear the perspective that the physical world in Coast Salish life is not inanimate but an integral part of spiritual and cultural life (Kwikwetlem 2017a: 17). Kwikwetlem identified the following place names as associated with the Project area (Kwikwetlem 2017a: 16, 17, 21, 22; *Halq'eméylem* or Upriver Halkomelem spellings in parentheses):

- *qəqəyt* – “resting place,” a settlement on the south Fraser River shoreline, immediately upstream and underlying the Pattullo Bridge, also notable as one of the locations visited by Simon Fraser during his July 1808 voyage down the river
- (Leleqw) – “windy until you get there,” a geographic area on the north Fraser River shoreline
- (Stéqwó:thel) – “across from, but facing you,” a settlement downstream of the Pattullo Bridge
- *sx^wa'aymət* – “place where people died,” on the north Fraser River shoreline, where a warrior was turned into a stone, which was said to have been buried by engineers when they constructed the approach to the New Westminster Bridge (where the Pattullo Bridge now stands)
- *sta[?]tələw* – “little river,” a settlement and fishing site on the north Fraser River shoreline, located at a creek just downstream from the old BC Penitentiary site
- *scli'qən' / sxeyumu* – “high born,” on the north Fraser River shoreline, at the old BC Penitentiary site
- *sk^wek^wtə'x^wqən / (Tsitslhes)* – (“dried out,” “drying up down at the mouth”), on the north Fraser River shoreline, at the mouth of the Brunette River

Kwikwetlem families stayed at *qəqəyt* and at other camps at New Westminster identified in the list above (Kwikwetlem 2017a: 25). Kwikwetlem families also hold stories that carry a sense of spirited connection to, and spirit events associated with, *qəqəyt* (Kwikwetlem 2017a: 29).

Kwikwetlem report that they have maintained and reinforced strong social networks with groups throughout the lower Fraser River through their connection and ongoing use of *qəqəyt* from ancient to historic periods (Kwikwetlem 2017a: 25).

Kwikwetlem First Nation identified several concerns related to potential effects to other traditional and cultural interests, including:

- Concern regarding the effects of new bridge piers on shoreline sedimentation and on undocumented archaeological weir sites along the Fraser River foreshore from Pattullo Bridge to Coquitlam, and a request for monitoring.
- Concern regarding existing cumulative effects to Indigenous history and lands brought on by the existing Pattullo Bridge construction and use.
- Address cultural sensitivities and make appropriate restitution for the spirit site and home of the Transformer stone that was destroyed by construction of the existing Pattullo Bridge.
- Measures are required to address the cultural sensitivities and make appropriate restitutions for the spirit site and home of the transformer stone [see below] that was destroyed by construction of the existing Pattullo Bridge. Take steps to acknowledge and protect cultural heritage places on the shoreline and upland slopes of New Westminster, and Indigenous history of the Project area as a whole.
- Promote Indigenous presence in Project-related structural and landscape design that honours the area Indigenous ancestral history and that enhances continued and healthful opportunities for Indigenous peoples to engage in cultural lifeways today and into the future.
- Incorporate Indigenous history, knowledge, and recognition as a core element of the physical design of the Project and in greenspaces, in collaboration with participating First Nations to acknowledge Indigenous interest and maximize public recognition of Indigenous histories.
- Identify opportunities for cultural heritage recognition and education at varying scales and locales along the river.
- With respect to pier locations, would like to see baseline studies or long-term monitoring of the area archaeological sites, considering not just a narrow 'impact zone' but potential secondary impacts and regional area changes.
- Importance of cultural continuity to the Kwikwetlem people.
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.
- Concern that hydraulic modelling should include intertidal archaeological site locations.
- Concern that additional archaeological investigation be undertaken in advance of construction and importance of Aboriginal involvement in future archaeological work.
- Concern regarding the lack of archaeological standards for areas of the Project within port lands.
- With historic development in the area, site protection has been treated poorly. Request for an increased level of effort by the Proponent to protect sites which includes modifying plans and design.

- Request for the ability to be able to make contributions with respect to sites and methods. To inform the Project of how it can proceed without impacting the site.
- Importance of site protection being prioritized over mitigation.
- Comment that mitigation is used to accept impacts on culture and the continued chipping away at cultural heritage. Archaeological sites are considered something of the past but they are part of our culture being lived today, part of our identity and who we are. Impacts to cultural heritage are impacting First Nations identity.
- Concerns regarding ancestral remains on the New Westminster side of the Project and importance of dialogue regarding ancestral remains with Aboriginal Groups.
- Request for a cultural heritage and archaeological orientation session done by First Nations with the contractor at the start of Project construction to ensure full awareness of the significance of cultural heritage and archaeology to First Nations.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Kwikwetlem First Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Project area to the support and maintenance of Kwikwetlem First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Kwikwetlem First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Minor** impacts Kwikwetlem First Nation's other traditional and cultural interests including the ability of Kwikwetlem First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

Kwikwetlem has not reported an assertion of Aboriginal title to locations within or near the Project Boundary; however, the Proponent is aware of Kwikwetlem's title claims to areas near the mouth of the Coquitlam River, upstream of the Project Boundary (BCSC 2016).

Kwikwetlem First Nation expressed the following concerns regarding Aboriginal title:

- The Project has the potential to impact Aboriginal rights and title of Kwikwetlem First Nation.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the general concerns from Kwikwetlem First Nation regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.

- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.

- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Fraser River and the lands and waters surrounding Pattullo Bridge to the Kwikwetlem First Nations's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Kwikwetlem First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Kwikwetlem First Nation's Aboriginal title.

12.1.3.3.6 Lake Cowichan First Nation

Context

Lake Cowichan (Ts'uubaasatx) First Nation are located on lower central Vancouver Island, between the town Duncan on the east coast, and Balaatsad, the main village of the Diitiidaatx (Ditidaht First Nation), on the west coast (Ts'uubaasatx 2017: [2]). Ts'uubaasatx are descendants of both Nuu-chah-nulth-speaking (Diitiidaatx) ancestors and *Hul'qumi'num* (or Island Halkomelem)-speaking ancestors,¹⁵ the latter known as the Somenos (also Saumni, Samena, Saumina, among other variations) (EAO 2017: 276). The Somenos were one of seven village groups comprising the Cowichan Tribes (EAO 2017: 276).

The Ts'uubaasatx community is based on a single reserve on the northeastern shore of Cowichan Lake (INAC 2017), with 11 of 21 registered members living on the Ts'uubaasatx reserve (Ts'uubaasatx 2017: [2]; INAC 2017). The Project Boundary does not overlap the Ts'uubaasatx reserve (**Figure 12.1-A-1**).

Ts'uubaasatx territory has been previously identified as the Hul'qumi-num Treaty Group (or HTG) Statement of Intent (SOI) area (EAO 2017: 276). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation, formed in 1993 for the purposes of treaty negotiations with Canada and BC. The HTG SOI is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island. The Project Boundary lies within this territory (**Figure 12.1-A-2**).

Ts'uubaasatx prepared the following study (Ts'uubaasatx Study) regarding their Aboriginal Interests in the area of the Project:

- Ts'uubaasatx Interests: Pattullo Bridge Replacement Project (Ts'uubaasatx 2017)

The spatial area for the identification of Aboriginal Interests in the Ts'uubaasatx Study consist of "the waters and immediately adjacent terrestrial areas of the Fraser River," in the area of the Project (Ts'uubaasatx 2017: [2]).

The Ts'uubaasatx Study expresses and asserts Lake Cowichan First Nation's Aboriginal rights to camp, fish, hunt, and otherwise move about the spatial area described above to support Ts'uubaasatx use of terrestrial vegetation and wildlife; freshwater fish; coastal birds; and marine vegetation, fish, invertebrates, and mammals (Ts'uubaasatx 2017: [2]).

¹⁵ While Halkomelem belongs to the Coast Salish language family, Nuu-chah-nulth belongs to the Wakashan language family.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Lake Cowichan First Nation. A more detailed description of consultation undertaken with Lake Cowichan First Nation can be found in Aboriginal Consultation Reports #1 and #2 (**Attachment 12.1-B**)

Table 12.1-7 Overview of key consultation activities – Lake Cowichan First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Lake Cowichan First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
August 8, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
January 31, 2017	Email	Lake Cowichan First Nation shared concerns regarding the Project.
February 14, 2017	Meeting	Meeting between Lake Cowichan First Nation and the Proponent regarding capacity funding and other Project-related matters.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Lake Cowichan First Nation did not attend the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Lake Cowichan First Nation for review and comment.
September 21, 2017	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.

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Date	Type of Engagement	Summary
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Lake Cowichan First Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
November 30, 2017	Email	Lake Cowichan First Nation submitted a Traditional Use Study for the Project.

Date	Type of Engagement	Summary
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 18, 2018	Meeting	Meeting between Lake Cowichan First Nation and the Proponent to confirm list of issues, discuss funding, and discuss the status of Project-related documents under review by Lake Cowichan First Nation.
January 25, 2018	Email	The proponent requested information in relation to the Hul'q'umi'num Fisheries Limited Partnership (jointly held by Lyackson, Stz'uminus, Halalt, Penelakut and Lake Cowichan
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 2, 2018	Meeting	Update meeting. Lake Cowichan First Nation advised that there are no comments on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Lake Cowichan First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Lake Cowichan First Nation during consultation and where possible, worked with Lake Cosichan to address and resolve issues and concerns. A table of issues and concerns, previously provided to lake Cosichan First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Lake Cowichan First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this

section focuses on potential impacts of the Project on Lake Cowichan First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Lake Cowichan First Nation's ability to practice Aboriginal Interests. Based on the Ts'uubaasatx Study (Ts'uubaasatx 2017) and key issues and concerns raised by Lake Cowichan First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Lake Cowichan First Nation's past, present, and desired future use, as communicated to the Proponent by Ts'uubaasatx or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the Ts'uubaasatx Study (Ts'uubaasatx 2017).

Impacts on Fishing

Ts'uubaasatx have explained that they used to go over to the Fraser River delta area to fish and hunt every year, but that there has been no use of the Pattullo Bridge area since about 1960 (Ts'uubaasatx 2017: [5-6]). Ts'uubaasatx Study participants said that it is not safe to harvest resources in the area because of pollution (Ts'uubaasatx 2017: [5-6]). They maintain that they have an Aboriginal right to camp, fish, hunt, and gather food there based on historic use (Ts'uubaasatx 2017: [2, 5-6]). Ts'uubaasatx have said that, while they are not currently using the area to harvest resources, they wish to exercise their rights in the area in the future, if the area was to be cleaned up and made safe again (Ts'uubaasatx 2017: [5-6]).

Lake Cowichan First Nation has identified concerns related to potential effects to fish and harvesting activities, including):

- Concern about too many people and pollution in the area, making it unsafe to fish, hunt, or gather food
- Restore area to a healthy state
- Guard, maintain, and protect Ts'uubaasatx traditional historical access and rights to the area into the future
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration

- Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery
- Concern about utilizing any fish resources in the immediate area around the bridge site due to industrial pollutants in the area
- Importance of and request for side-channel creation and ensuring areas that are gently shaded for fish
- Concern regarding water flow changes and impacts on fisheries and fishing

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Lake Cowichan First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.

- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition

activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1 Marine Use**, Lake Cowichan First Nation, in partnership with Halalt, Lyackson, Penelakut, and Stz'uminus as part of the Hul'q'umi'num Fisheries Limited Partnership, holds 22 commercial licences and two quotas under the Total Allowable Catch for seven different species, including five Salmon Gill Net Area E licences that can be fished in the LSA, by one vessel based in Ladysmith, B.C. (Vancouver Island).

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Lake Cowichan First Nation, the Proponent understands that Lake Cowichan people once visited the Fraser River annually to fish and hunt, but that, due to pollution and safety concerns regarding consumption of edible resources, there has been no use of the Pattullo Bridge area since about 1960. Lake Cowichan First Nation have said that if the area were to be cleaned up and made safe again, they would like to resume their asserted harvesting rights in the area in the future. The Proponent acknowledges the potential for the resumption of that activity.

In consideration of the available information regarding fishing by Lake Cowichan First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lake Cowichan First Nation's asserted Aboriginal rights to fish including the ability of Lake Cowichan First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Ts'uubaasatx have explained that they used to go over to the Fraser River delta area to fish and hunt every year, but that there has been no use of the Pattullo Bridge area since about 1960 (Ts'uubaasatx 2017: [5-6]). Ts'uubaasatx Study participants said that they do not hunt in the area because population density and proximity make the use of firearms patently unsafe, and because of industrial pollution (Ts'uubaasatx 2017: [5-6]). They maintain that they have an Aboriginal right to camp, fish, hunt, and gather food there based on historic use (Ts'uubaasatx 2017: [2, 5-6]). Ts'uubaasatx have said that, while they are not currently using the area to harvest resources, they wish to exercise their rights in the area in the future, if the area was to be cleaned up and made safe again (Ts'uubaasatx 2017: [5-6]).

Lake Cowichan First Nation has identified concerns related to potential effects to wildlife and harvesting activities, including:

- Concern about too many people and pollution in the area, making it unsafe to fish, hunt, or gather food
- Restore area to a healthy state
- Guard, maintain, and protect Ts'uubaasatx traditional historical access and rights to the area into the future
- Concern regarding Project-related effects to terrestrial wildlife from noise and light

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Lake Cowichan First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is

consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Lake Cowichan First Nation, the Proponent understands that Lake Cowichan people once visited the Fraser River annually to fish and hunt, but that, due to pollution and safety concerns regarding consumption of edible resources, there has been no use of the Pattullo Bridge area since about 1960. Lake Cowichan First Nation have said that if the area were to be cleaned up and made safe again, they would like to resume their asserted harvesting rights in the area in the future. The Proponent acknowledges the potential for the resumption of that activity.

In consideration of the available information regarding hunting/trapping by Lake Cowichan First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lake Cowichan First Nation's asserted Aboriginal rights to hunt and trap including the ability of Lake Cowichan First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Ts'uubaasatx have explained that they used to go over to the Fraser River delta area to fish and hunt every year, but that there has been no use of the Pattullo Bridge area since about 1960 (Ts'uubaasatx 2017: [5-6]). Ts'uubaasatx Study participants said that they do not use resources in the area because of safety concerns related to pollution (Ts'uubaasatx 2017: [5-6]). They maintain that they have an Aboriginal right to camp, fish, hunt, and gather food there based on historic use (Ts'uubaasatx 2017: [2, 5-6]). Ts'uubaasatx have said that, while they are not currently using the area to harvest resources, they wish to exercise their rights in the area in the future, if the area was to be cleaned up and made safe again (Ts'uubaasatx 2017: [5-6]).

Lake Cowichan First Nation has identified concerns related to potential effects to plants and plant harvesting activities, including:

- Concern about too many people and pollution in the area, making it unsafe to fish, hunt, or gather food
- Restore area to a healthy state
- Guard, maintain, and protect Ts'uubaasatx traditional historical access and rights to the area into the future
- Request the use of traditional plants and trees in revegetation plans and the creation of areas for harvesting

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Lake Cowichan First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of

water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.

- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).

- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Lake Cowichan First Nation, the Proponent understands that Lake Cowichan people once visited the Fraser River annually to fish and hunt (and presumably gather plants), but that, due to pollution and safety concerns regarding consumption of edible resources, there has been no use of the Pattullo Bridge area since about 1960. Lake Cowichan First Nation have said that if the area were to be cleaned up and made safe again, they would like to resume their asserted harvesting rights in the area in the future. The Proponent acknowledges the potential for the resumption of that activity.

In consideration of the available information regarding plant harvesting by Lake Cowichan First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lake Cowichan First Nation's asserted Aboriginal rights to gather plants including the ability of Lake Cowichan First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Ts'uubaasatx say that, historically, they enjoyed a right to annually visit the area of the Fraser River delta, including where the Pattullo Bridge exists today, as well as the aquatic and terrestrial areas immediately adjacent to the existing bridge (Ts'uubaasatx 2017: (2)). These annual visits are said to have involved setting up camps to fish, hunt, visit relatives in the area, and otherwise move about on the water and land (Ts'uubaasatx 2017: [2]).

The Ts'uubaasatx Study reports that one participant noted that, whenever they are on the mainland, they like to go by the Pattullo Bridge and look at the old Ts'uubaasatx camping area there (Ts'uubaasatx 2017: [6]).

Ts'uubaasatx have explained that they are in the process of locating members that dispersed in the wake of the residential school era, and well over 100 individuals with Ts'uubaasatx ancestry have been located to date (Ts'uubaasatx 2017: [2]). Several of these individuals have expressed interest in returning to the community on Cowichan Lake (Ts'uubaasatx 2017: [2]). Ts'uubaasatx expect their community to grow, and have expressed their desire for their returning members to learn about and be able to exercise their rights in the area around Pattullo Bridge (Ts'uubaasatx 2017: [2, 6]).

Ts'uubaasatx raised the following concerns regarding other traditional or cultural interests:

- Importance of cultural continuity for Lake Cowichan First Nation
- Concern with the effects of sky glow and visibility of the night sky and stars
- Interest in Traditional Use and the revitalization of Lake Cowichan First Nation traditional practices
- Interest in the area being restored as healthy habitat for camping, food gathering and other purposes
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Archaeology and importance of Indigenous cultural/archaeological monitors being onsite during construction and participating in monitoring

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Lake Cowichan First Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of

archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1 through 12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and

Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Project area to the support and maintenance of Lake Cowichan First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Lake Cowichan First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Lake Cowichan First Nation's other traditional and cultural interests including the ability of Lake Cowichan First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The Project Boundary lies within an area identified by the HTG, which has included Lake Cowichan First Nation, as "core territory," over which they assert Aboriginal title.

In the context of this particular Project, Ts'uubaasatx have characterized their Aboriginal rights in the area as rights of access "to camp, hunt, fish, and otherwise move about" in the area of the Pattullo Bridge (Ts'uubaasatx 2017: [2, 6]).

No specific concerns regarding title were expressed by Ts'uubaasatx to the Proponent.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to Indigenous concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.

- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence

openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the waters and immediately adjacent terrestrial areas of the Fraser River to Lake Cowichan First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Lake Cowichan First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Cowichan Lake First Nation's Aboriginal title.

12.1.3.3.7 Lyackson First Nation

Context

Lyackson are Central Coast Salish and speak the *Hul'qumi'num* (or Island) dialect of Halkomelem (EAO 2017: 293), and specifically the Chemainus form of that dialect (Lyackson 2017: 8).

Lyackson have three reserves (Lyacksun 3, Single Point 4, Portier Pass 5)¹⁶ (INAC 2017), all on Valdes Island (*Le'eyqsun*), which lies approximately 60 km west of the Project area, on the west side of the Salish Sea, directly opposite the mouth of the South Arm of the Fraser River. Over 90% of Lyackson's 214 members live off reserve, principally in or near the southeastern shore of Vancouver Island and adjacent Gulf Islands (EAO 2017: 293). Chemainus serves as the administrative centre for the Lyackson, but oral tradition upholds that *Le'eyqsun* is the place of origin of Lyackson Mustimuhw (Lyackson 2017: 4, 8). The Project Boundary does not overlap Lyackson reserves or *Le'eyqsun* (**Figure 12.1-A-1**).

Lyackson territory has been identified as the Hul'qumi-num Treaty Group (or HTG)-Lyackson Statement of Intent (SOI) (Lyackson 2017: 5). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation, formed in 1993 for the purposes of treaty negotiations with Canada and BC. The HTG-Lyackson SOI appears to be the same as the HTG SOI and is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island (Lyackson 2017: 5). The Project Boundary lies within this territory (**Figure 12.1-A-2**).

¹⁶ "Portier Pass 5" is located on Porlier Pass, which lies between Galiano Island (to the south) and *Le'eyqsun* (Valdes Island).

Lyackson First Nation prepared the following study (Lyackson Study) regarding their Aboriginal Interests in the area of the Project:

- Lyackson First Nation Traditional Land Use and Mapping Study for the South Coast British Columbia Transportation Authority's Pattullo Bridge Replacement Project (Lyackson 2017)

The spatial area for the identification of Aboriginal Interests in the Lyackson Study is referred to as the Traditional Use Study (TUS) Area (Lyackson 2017: 4-5). The TUS Area is a stretch of the Fraser River main stem and adjacent lands downstream of the Port Mann Bridge to the upper portions and adjacent lands of the North Arm (including the Queensborough area) and South Arm (including Annacis Island). The TUS Area includes the Project Boundary.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Lyackson First Nation. Additional information regarding consultation with Lyackson can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-8 Overview of key consultation activities – Lyackson First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Lyackson First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
August 8, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
November 20, 2017	Letter	The Proponent responded to Lyackson First Nation comments on the draft Aboriginal Consultation Plan and provided the revised Plan.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Lyackson First Nation attended the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
August 24, 2017	Site Visit	The Proponent supported a self-guided site tour organized by Lyackson First Nation.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental

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Date	Type of Engagement	Summary
		assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Lyackson First Nation for review and comment.
September 21, 2017	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Lyackson First Nation attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.

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Date	Type of Engagement	Summary
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 20, 2018	Email	Lyackson First Nation provided additions to the Aboriginal Interests Summary.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
April 30, 2018	Email	Lyackson First Nation provided comments on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Lyackson First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Lyackson First Nation during consultation and where possible, worked with Lyackson to address and resolve issues and concerns. A table of issues and concerns, previously provided to Lyackson for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Lyackson First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Lyackson First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Lyackson First Nation's ability to practice Aboriginal Interests. Based on the Lyackson Study (Lyackson 2017) and key issues and concerns raised by Lyackson First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Lyackson First Nation's past, present, and desired future use, as communicated to the Proponent by Lyackson or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the Lyackson Study (Lyackson 2017). Lyackson have expressed that the Lyackson Study establishes the deep and recent historic significance of the Lower Fraser River, and particularly the South Arm, for Lyackson Mustimuhw culture, identity, well-being, and traditional use (Lyackson 2018).

Impacts on Fishing

Lyackson report that their traditional use in and along the lower Fraser River has been consistently framed in documentary sources and in interviews with Lyackson members around the sockeye salmon fishery and *Tl'uqtinus*, a major permanent village and named place about 12 km downstream of the Project Boundary, on the south shore of Lulu Island (Richmond), across from Deas/Tilbury Island (Lyackson 2017: 11, 25). Documentary sources reviewed for the Lyackson Study indicate that Lyackson were part of the "Cowichan of Vancouver Island" that came to *Tl'uqtinus* annually during salmon season (for sockeye and pink salmon), with some reportedly staying "all year round" (Lyackson 2017: 9, 12-13). The Lyackson Study explains the particular historical connection of two Lyackson villages—*Tth'hwumqsun* ("Shining Point," on Porlier Pass) and *T'eet'qe'* (Shingle Point, on the southwest aspect of *Le'eyqsun*)—to the Cowichan River and Fraser River. Both of these villages are described as once having been located along the Cowichan River, but that each had been permanently relocated to *Le'eyqsun* at different times before contact (Lyackson 2017: 13). In addition, documentary sources reportedly indicate that an individual frequently referred to in the Fort Langley journals as a "Cowichan chief"—"Shashia" (Chadseaw, Chapea)—was from *T'eet'qe'* (Lyackson 2017: 14). Fort Langley was established in 1827.

Like other Cowichan groups, Lyackson were not allotted reserves on the Fraser River; however, Lyackson say that the Fraser River subsequently remained an important element Lyackson life. Lyackson report that they continued to travel to the Fraser River for the salmon fisheries (as they had always done), and to sell fish to, and work at, the multitude of Fraser River canneries that were operating at the turn of the twentieth century (by 1900, there were 42) (Lyackson 2017: 15). Lyackson Elders participating in the Lyackson Study recalled camping at a number of places along the lower Fraser River, including Deas Island, and fishing for salmon (i.e., sockeye, Chinook, pink) and sturgeon (Lyackson 2017: 15-17, 25). Lyackson fishing on the Fraser River “foreshore area” (i.e., foreshore of Lulu Island/Tsawwassen) specifically for sockeye, remains important to Lyackson; however, for reasons outside of Lyackson First Nation’s control (e.g., DFO regulations and licencing, fish population declines) (Lyackson 2017: 19, 22, 25), Lyackson say that, within the past few years, it has not been feasible for Lyackson to fish for food on the Lower Fraser River and its foreshore areas (Lyackson 2018). The Lyackson Study explains that this is of concern to Lyackson members and leadership, as salmon is a major traditional food source that is connected to Lyackson members’ health and wellbeing (Lyackson 2017: 19, 22).

Commercial-scale fishing for sockeye is one aspect of traditional use that Lyackson have said shows continuity leading up to and through the post-European contact period through the 1900s (Lyackson 2017: 25). They report this important economic activity was linked in particular to the two Lyackson villages mentioned earlier—*Tth’hwumqsun* and *T’ee’t’qe’*—on *Le’eyqsun* (Lyackson 2017: 13). Lyackson have reported that, in the 1800s, they fished salmon and sturgeon east of Langley for trade (Lyackson 2017: 25). Some Lyackson Study participants reported going up the Fraser River as far as the Pattullo Bridge for commercial fishing, and that they used a dock on the New Westminster side, west of the bridge; however, most recalled fishing largely at the mouth of the Fraser River (Lyackson 2017: 18, 25). Commercial-scale fishing by Lyackson members appears to have ceased in the area in the early 1990s (Lyackson 2017: 25). Lyackson say that this resulted from environmental degradation and its effect on fish populations, which has increased competition for salmon on the Fraser River (Lyackson 2018). In conjunction with DFO licencing schemes and regulations, which Lyackson describe as prohibitive, commercial fishing as a means to livelihood and well-being has been rendered inaccessible to Lyackson fishermen (Lyackson 2018). Lyackson participation in commercial fishing continues through the Hul’qumi’num Fisheries Limited Partnership (HFLP), a commercial fishing business they own with other HTG groups. Refer to **Section 6.1 Marine Use** for further details on HFLP commercial fishing.

Site-specific data included with the Lyackson Study indicate that seven “commercial” values (i.e., commercial fishing) were identified in the TUS Area, with two of these values overlapping the Project Boundary (Lyackson 2017: 19, 21). The entire stretch of the Fraser River from its mouth to upstream of Barnston Island is identified as a “general fishing area” and overlapping the Project Boundary, with a specific site for halibut jigging identified off of the mouth of the South Arm, in the Salish Sea (Lyackson 2017: 20-21).

For some Lyackson families, fishing at a commercial scale well into the twentieth century was inter-generational and lucrative lifestyle that was disrupted by increasing regulation of the fisheries and the cumulative environmental impacts from more than a century of industrialization and development

(Lyackson 2017: 15-19, 25). Lyackson report that the way they exercised their rights on the Fraser River, including land use and occupancy, has also been affected by these impacts (Lyackson 2017: 19, 25). Lyackson underscore that their participation in modern fishing efforts was a connection or adaptation of ancestral practice to modern circumstances, and that they never ceded, released, or surrendered their rights on the Fraser River while participating in the evolution of fishing efforts subsequent to contact (Lyackson 2017: 25).

Lyackson First Nation has identified concerns related to potential effects to fish and fishing activities, including:

- Potential to compound existing negative impacts to key fish species, particularly salmon, and fish habitat (i.e., reductions in fish populations and fish habitat), resulting from high levels of existing industry and commercial development on the lower Fraser River, and the following related concerns:
 - Timing of fish studies in relation to the Fraser River salmon fishery
 - Reliability of existing population data on salmon species from DFO studies
 - Timing of Project construction and decommissioning of the existing bridge and its potential impact on salmon runs and spawning
- Potential for further environmental degradation to exacerbate competition for salmon on the Fraser River, which in conjunction with DFO licencing regimes and regulations, has rendered fishing as a means to livelihood and well-being inaccessible to Lyackson Mustimuhw working in a commercial capacity, as well as Lyackson members wishing to fish for food on the lower Fraser River and its foreshore area, thereby adding to existing impacts on Lyackson First Nation's Aboriginal right to fish.
- Opportunities for environmental rehabilitation of a densely urban, industrial, and commercial area, which has changed so dramatically in the last 50 years that Lyackson Elders no longer recognize it.
- Concern regarding the protection of fish and fish habitat during construction.
- Development and industrialization on the river has directly impacted the Aboriginal rights of Lyackson by destroying wildlife habitat, particularly for salmon.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings.
- Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).
- Concern regarding vessel and vehicle traffic increase during new bridge construction and concern about population and quality of salmon in the Fraser River.
- Interest in the reduction of existing freighter traffic and concern with potential increase to traffic volumes.
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.

- Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery.
- Concern regarding Project activities affecting surface water and sediment, potentially impacting population and quality of salmon in the Fraser River.
- Concern regarding Project activities limiting the shade or cooling spaces for spawning salmon.
- Concern regarding the timing of fish studies, noting that DFO has typically conducted salmon population studies at times when accurate population estimates would not be obtained.
- Concerns regarding the cumulative effects of high levels of industry and commercial development on the lower Fraser River including the reduction of fish populations, and fish and wildlife habitat.
- Comment that the fact that the Project is located in an area that has experienced incremental and cumulative effects does not justify continuing these incremental changes. According to the traditional harvesters and rights holder, there is no such thing as an abundance in resources anymore, in fact there is a scarcity in numerous resources. The Project would be contributing to effects that further would reduce the already scarcely available resources for traditional purposes.
- Concern regarding water flow changes and impacts on fisheries and fishing.
- Question as to how the Proponent is assessing the abundance of habitat available and required to sustain a healthy fish population.
- Question as to what thresholds and benchmarks that are used for this assessment and how Traditional Knowledge is incorporated in these assessments.
- Concern that the available habitat is already insufficient to support a sustainable and healthy fish populations.
- Concern that Fisheries and Oceans Canada regulations may not sufficiently address First Nations concerns with respect to fisheries and fishing.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Lyackson First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in

Section 12.1.3.2.1:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to

Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.

- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1 Marine Use**, Lyackson First Nation, in partnership with Halalt, Lake Cowichan, Penelakut, and Stz'uminus as part of the Hul'q'umi'num Fisheries Limited Partnership, holds 22 commercial licences and two quotas under the Total Allowable Catch for seven different species, including five Salmon Gill Net Area E licences that can be fished in the LSA, by one vessel based in Ladysmith, B.C. (Vancouver Island).

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Lyackson First Nation, the Proponent understands that, for reasons outside of Lyackson's control (e.g., DFO regulations and licencing, fish population declines), it has not been feasible for Lyackson to fish for FSC purposes on the Lower Fraser River and its foreshore area for quite some time, and possibly not since the 1900s. While Lyackson do not fish in the area for FSC purposes at present, the Proponent acknowledges the potential for the resumption of that fishing in the future.

In consideration of the available information regarding fishing by Lyackson First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lyackson First Nation's asserted Aboriginal rights to fish including the ability of Lyackson First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights..

Impacts on Hunting and Trapping

Hunting or trapping by Lyackson in the TUS Area was not reported in the Lyackson Study, nor otherwise identified by Lyackson to the Proponent.

Lyackson First Nation expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding wildlife in the Project footprint during Project construction and the potential for impacts to wildlife habitat, and consequently the ability to harvest these resources
- Concern regarding impact on duck, geese, bald eagle and blue heron populations, due to direct interaction with Project activities
- Concern regarding the timing of wildlife studies undertaken to inform the assessment

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Lyackson First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.

- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).
- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Past, present, or desired future hunting or trapping by Lyackson in the vicinity of the Project area was not identified by Lyackson to the Proponent.

In consideration of the available information regarding hunting/trapping by Lyackson First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lyackson First Nation's asserted Aboriginal rights to hunt and trap including the ability of Lyackson First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Documentary sources reviewed for the Lyackson Study indicate that Lyackson, while resident on the Fraser River "for trade and sockeye salmon fishing," gathered huckleberries in the summer and left them to sun-dry (Lyackson 2017: 9). In "*Tl'uqtinus* territory," Lyackson are also said to have harvested two species of blueberries and cranberries (Lyackson 2017: 9, 13).

Site-specific data included with the Lyackson Study shows a "general medicinal plant harvesting area" along the entire stretch of the Fraser River from its mouth to upstream of Barnston Island, an area that overlapping the Project Boundary (Lyackson 2017: 20-21).

Lyackson First Nation has identified concerns related to potential effects to plant habitat, including:

- Lack of vegetation/riparian area along the Fraser River due to existing industrialization and development
- Understanding what types of ecological restoration and rehabilitation may be possible to address lack of vegetation
- Concern regarding the disturbance of green space and other riparian areas in the Project footprint during Project construction, potentially impacting native plant species

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of

vegetation for traditional purposes. In response to Lyackson First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.

- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human

health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Lyackson First Nation, Lyackson once gathered huckleberries, blueberries, and cranberries while resident on the Fraser River in the summer (their primary residence being at *Tl'uqtinus*, on the South Arm of the Fraser River), and also harvested medicinal plants along the entire stretch of the Fraser River from its mouth to upstream of Barnston Island, an area that overlaps the Project Boundary. While Lyackson do not appear to be currently harvesting plants in the area at present, the Proponent acknowledges the potential for the resumption of that harvesting activity in the future.

In consideration of the available information regarding plant harvesting by Lyackson First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Lyackson First Nation's asserted Aboriginal rights to gather plants including the ability of Lyackson First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Lyackson have said that the lower Fraser River estuary has been an integral part of Lyackson Mustimuhw and Hul'qumi'num cultures, traditional practice, identity, well-being, and economy, from potentially as far back as 2,500 years ago to the present day (Lyackson 2017: 25). Lyackson participants visiting the area of the Project as part of the Lyackson Study remarked at the scale of landscape change since they had been last on the river in their youth, 50 to 60 years ago (Lyackson 2017: 23).

Site-specific data included with the Lyackson Study identify five "interactions" values, consisting of three sites of "family relations" and two sites of "trade." The two sites of trade are described as intersecting the TUS Area (which includes the Project Boundary), while the three family relations sites are said to be dispersed up and down the Fraser River (Lyackson 2017: 20). Mapping provided with the Lyackson Study depicts this "interactions" area as the entire stretch of the Fraser River from its mouth to upstream of Barnston Island, an area that overlaps the Project Boundary (Lyackson 2017: 21).

The site-specific data also identify locations considerably downstream of the Project Boundary. Three “small-craft transportation” values are identified as fishing routes to the Fraser River across the Salish Sea from *Le’eyqsun* (Lyackson 2017: 20-21). One “story-history” value is identified as taking in the lower portion of the South Arm, from *Tl’uq̓tinus* down to the Salish Sea (Lyackson 2017: 20-21). Two “habitation” values are also identified, corresponding to the Deas Island and Steveston areas (Lyackson 2017: 20-21).

Lyackson First Nation has identified the following concern related to potential effects to other traditional and cultural interests:

- Increased public awareness of First Nations history and connections to the Fraser River generally through development of interpretive information, which could include a narrative of the Fraser River as a shared First Nations place, and one that remains important to many Central Coast Salish communities
- Importance of cultural continuity
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Lyackson First Nation’s concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of

cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place),

recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Lyackson First Nation's culture and traditions, particularly in relation to *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Lyackson First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Lyackson First Nation's other traditional and cultural interests including the ability of Lake Cowichan First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The Project Boundary lies within an area identified by the HTG, including Lyackson First Nation, as "core territory," over which they assert Aboriginal title.

Lyackson First Nation have expressed the following concern regarding Aboriginal title:

- Protection of Aboriginal Groups' Interests within the Project area

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to Lyackson First Nation's concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.

- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.

- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the waters and immediately adjacent terrestrial areas of the Fraser River to Lyackson First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Lyackson First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Lyackson First Nation's Aboriginal title.

12.1.3.3.8 Musqueam Nation

Community Profile

Musqueam are traditionally *hə́ŋqəmińəm* (or Downriver dialect of a three-dialect language, Halkomelem) speaking people (MIB 2017: 18, n. 3, Musqueam 2018). "Musqueam" is the anglicized form of *xʷməθkʷəy̓əm*, which translates from the *hə́ŋqəmińəm* as "place of *məθkʷəy̓*," a plant which once grew in abundance in the Fraser River delta and tidal flats (MIB 2017: 18). Musqueam have explained that this etymological relationship between themselves and their ancestral environment emphasizes the importance of place and landscape for the transmission of knowledge; the close connection between Musqueam identity and the unique environment of the territory in which they live; and, with the decline in abundance of *məθkʷəy̓*, signals how their territory has changed drastically over time (MIB 2017: 18).

Musqueam were living where they still live today, known as the Musqueam Indian Reserve (Musqueam 2), when Simon Fraser descended the river that still bears his name, in 1808, and where they had been living for millennia before contact (MIB 2017: 18). Musqueam 2, the largest of three Musqueam reserves, is located adjacent to Vancouver south of Marine Dr, at the mouth of the North Arm of the Fraser River, approximately 25 km downstream of the Project Boundary (**Figure 12.1-A-1**). The two other reserves are Sea Island 3, located in Richmond on the northwest corner of Sea Island, also at the mouth of the North Arm, approximately 25 km downstream of the Project Boundary, and Musqueam 4, located in Ladner, on the South Arm of the Fraser River, approximately 24 km downstream of the Project Boundary. Musqueam's principal community and administrative centre is based on Musqueam 2, where approximately 675 of 1,419 registered members reside (MIB 2017: 17, n. 1; INAC 2017).

While no current Musqueam reserves overlap the Project Boundary (refer to **Figure 6.2-A-3**), a former Musqueam reserve—Musqueam 1—was first established in 1860 at *qiqéyt* (Brownsville), located on the south shore of the Fraser River near the present-day location of the Pattullo Bridge, across from present-day New Westminster (*sxʷeyəməl* and *sxʷeyem*) (MIB 2017: 19, Musqueam 2018). This was the location of a house belonging to *čsəmlenəxʷ*, a Musqueam chief (MIB 2017: 19), after he and a group of Musqueam were removed from *tsicélas* (Sapperton) (Musqueam 2018).

Musqueam report that their current reserves cover 388 ha, representing approximately 0.2% of their core territory (144,888 ha) (MIB 2017: 314). As described in the 1976 Musqueam Declaration, this core territory encompasses the lands, lakes, and streams defined and included by a line commencing at Harvey Creek in Howe Sound and proceeding eastward to the height of land and continuing on the height of land around the entire watershed draining into English Bay, Burrard Inlet, and Indian Arm; south along the height of land between the Coquitlam River and Brunette River to the Fraser River, across to the south or left bank of the Fraser River and proceeding downstream, taking in the left bank of the main stream and the South Arm to the sea, including all those intervening lands, islands, and waters back

along the sea shore to Harvey Creek, and the sea, its reefs, flats, tidal lands, and islands adjacent to the above described land and out to the centre of the Salish Sea (MIB 2017: 17-18). The Project Boundary lies within Musqueam core territory (**Figure 12.1-A-6**), over which Musqueam continue to assert Aboriginal title (MIB 2017: 18), and within which Musqueam “have established rights in the Fraser River” (Musqueam 2018).

Musqueam prepared the following study (Musqueam Study) regarding their Aboriginal Interests in the area of the Project:

- Musqueam Indian Band Knowledge and Use Study, TransLink’s Pattullo Bridge Replacement Project (MIB 2017)

The spatial area for the identification of Aboriginal Interests, and potential Project interactions with those Aboriginal Interests, are defined in the Musqueam Study as follows (MIB 2017: 29):

- Project Footprint (Musqueam Project Footprint) – within 250 m of the Project that includes the footprint and zone of influence (i.e., related physical works, access routes, and activities)¹⁷
- Local Study Area (Musqueam LSA) – within a 5 km radius of the Musqueam Project Footprint
- Regional Study Area (Musqueam RSA) – within a 25 km radius of the Musqueam Project Footprint

Musqueam have advised the Proponent that the Project may have what Musqueam characterize as a “substantial” adverse impact on the following Aboriginal Interests of the Musqueam Indian Band (MIB 2017: 3):

- Cultural continuity
- Sense of place and identity
- Fishing

With regard to fishing, the Proponent recognizes the Musqueam’s proven Aboriginal right to fish for FSC purposes, as established by the Supreme Court of Canada’s decision in *Sparrow (R v. Sparrow, [1990] 1 SCR 1075; MIB 2017: 18, 69)*.

In addition to the three rights-based values identified above, Musqueam have advised that the Project is likely to interact with Musqueam’s ability to exercise their hunting and plant gathering rights (MIB 2017: 3-4).

Involvement in the Consultation Process (Proponent Perspective)

This section summarizes initial and Pre-Application phase consultation undertaken with Musqueam Nation. Additional information regarding consultation with Musqueam can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

¹⁷ Also referred to in the Musqueam Study as the “Project Area” (MIB 2017: 26 [Figure 1], 36 [Figure 2], 37 [Figure 3], 50 [Figure 4], 67 [Figure 5]).

Table 12.1-9 Overview of key consultation activities – Musqueam Nation

Date	Type of Engagement	Summary
February 10, 2016	Letter	Notified Musqueam Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 8, 2016	Meeting	Introductory meeting between the Proponent and Musqueam Nation.
May 20, 2016	Meeting	Project update meeting between the Proponent and Musqueam Nation.
July 15, 2016	Letter	Letter from Musqueam Nation to the Proponent regarding the draft Project Description.
June 17, 2016	Meeting	Project update meeting between the Proponent and Musqueam Nation.
July 22, 2016	Meeting	Project update meeting between the Proponent and Musqueam Nation.
August 18, 2016	Email	The Proponent provide initial responses to the issues raised in Musqueam Nation's July 15, 2016 letter.
August 29, 2016	Meeting	Project update meeting between the Proponent and Musqueam Nation.
September 13, 2016	Workshop	State of Knowledge Workshop Part 1 with Musqueam Nation.
September 26, 2016	Meeting	Project update meeting between the Proponent and Musqueam Nation.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 8, 2016	Workshop	State of Knowledge Workshop Part 2 with Musqueam Nation
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
January 27, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
February 22, 2017	Site visit	Boat tour and tour of the hydraulic model with Musqueam Nation.
March 10, 2017	Email	The Proponent shared updated responses to issues raised in the July 15, 2016 letter from Musqueam Nation.
March 13, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
March 30, 2017	Letter	Letter from Musqueam Nation to the Proponent regarding the Project Description.
April 19, 2017	Community meeting	Community meeting at Musqueam Nation regarding pier locations.
April 21, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
March 30, 2017	Letter	Musqueam provided comments on the Project Description.
June 2, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
June 22, 2017	Working Group meeting	Musqueam Nation attended the Working Group meeting.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
June 23, 2017	Email	Musqueam provided responses to the Proponent's request for comments on the geotechnical study overview.
July 4, 2017	Email	The Proponent provided responses to Musqueam Nation's comments regarding the geotechnical study overview.
July 6, 2017	Email	The Proponent shared the geotechnical study schedule to Musqueam Nation.
July 12, 2017	Email	Musqueam Provided a Knowledge and Use Study for the Pattullo Bridge Replacement Project.
July 2017	Workshop	Traditional Use Study workshop with Musqueam Nation.
August 15, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
August 16, 2017	Workshop	Traditional Use Study workshop with Musqueam Nation.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared information regarding the Phase B geotechnical investigation program for review and comment.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Musqueam Nation for review and comment.
September 21, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
September 28, 2017	Letter	Musqueam Nation provided comments on the draft Aboriginal Consultation Plan and Appendix A.
September 28, 2017	Letter	Musqueam Nation provided comments on the Phase B geotechnical investigation documents.
October 4, 2017	Email	The Proponent provided a draft schedule for the Pattullo environmental assessment baseline studies, with proposed windows for Musqueam Nation review of study drafts.
October 6, 2017	Email	Musqueam Nation provided comments on the noise, visual and vegetation environmental assessment consultation package.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 16, 2017	Meeting	Project update meeting with Musqueam Nation.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
October 23, 2017	Working Group Meeting	Musqueam Nation attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	The Proponent provided responses to Musqueam's comments on the Phase B geotechnical investigation program materials.
October 24, 2017	Email	Musqueam Nation advised that they would not be providing information regarding species, but would continue to place the language in Musqueam reports, submission and documents submitted for the Project.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared draft Test Pile Program documents for review and comment.
October 31, 2017	Email	The Proponent shared the revised Chance-Find Procedure for the Phase B geotechnical investigation program.
November 2, 2017	Email	Musqueam Nation provided comments on the revised Chance-Find Procedure for the Phase B geotechnical investigation program.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 17, 2017	Email	Musqueam advised the Proponent that their concerns regarding the Test Pile Program materials had been addressed in the revised documents that were provided to all Schedule B Aboriginal Groups.
November 17, 2018	Email	The Proponent followed-up with Musqueam Nation with additional questions related to the Musqueam Knowledge and Use Study.
November 21, 2017	Letter	The Proponent provided responses to Musqueam Nation's comments on the draft Aboriginal Consultation Plan and shared the revised Aboriginal Consultation Plan and Appendix A.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 21, 2017	Email	Musqueam Nation shared comments on the following documents: <ul style="list-style-type: none"> ▪ Draft Vegetation Study ▪ Draft Wildlife Study
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
November 30, 2017	Letter	The Proponent responded to the Musqueam Nation March 30, 2017 letter regarding the Project Description.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 11, 2017	Email	The Proponent shared the revised draft Historical Heritage Study for Musqueam Nation review and comment.
December 11, 2017	Email	Musqueam Nation shared comments on the following documents: <ul style="list-style-type: none"> ▪ Draft Soil and Groundwater Report ▪ Draft Sediment and Surface Water Quality Report
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 14, 2017	Boat tour	Musqueam attended a boat tour of in-river noise monitoring locations.
December 14, 2017	Meeting	Project update meeting between Musqueam Nation and the Proponent.
December 19, 2017	Meeting	Project update meeting between the proponent and Musqueam Nation.
December 21, 2017	Email	The Proponent provided the draft AOA for review and comment.
January 10, 2018	Email	Musqueam Nation provided comments on the draft Historic Heritage Study.
January 11, 2018	Meeting	Fisheries and marine use meeting between Musqueam Nation and the Proponent.
January 12, 2018	Email	The Proponent requested additional information regarding fisheries and marine use.
January 15, 2018	Email	Musqueam Nation provided comments on the draft Visual Quality Assessment and Photographic Inventory.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 29, 2018	Community meeting	Community meeting at Musqueam Nation. Project team technical representatives for archaeology, river hydraulics, fish and fish Habitat, and engineering/design were in attendance.
January 29, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
February 5, 2018	Email	Musqueam Nation provided comments on the draft Aboriginal Consultation Report #1.
February 9, 2018	Email	Musqueam Nation confirmed that the information provided in the January 12, 2018 email regarding fisheries and marine use is correct, and provided additional information.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
February 27, 2018	Email	Musqueam Nation provided input on the species list to the Proponent.
February 27, 2018	Email	The Proponent provided responses to Musqueam comments on the following documents: <ul style="list-style-type: none"> ▪ Noise, Visual and Vegetation Consultation Package ▪ Draft Vegetation Survey ▪ Draft Terrestrial Wildlife Survey ▪ Draft Soil and Groundwater Report ▪ Draft Sediment and Water Quality Study ▪ Draft Visual Quality Assessment and Photographic Inventory
March 8, 2018	Email	The Proponent shared a summary of comments and concerns raised at the Pattullo Bridge Replacement Project Musqueam community meeting.
March 15, 2018	Email	The Proponent sought additional direction with respect to items from the species list that Musqueam Nation provided.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 20, 2018	Email	The Proponent provided responses to Musqueam Nation's comments on the draft Historical Heritage Study.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared responses to Musqueam Nation comments on the draft Aboriginal Consultation Report #1 as well as the revised document.
May 9, 2018	Email	Musqueam responded to the request for comments on draft Aboriginal Consultation Report #2
May 15, 2018	Email	Musqueam Nation shared additional comments regarding the draft Historic Heritage Study.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Musqueam identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Musqueam during consultation and where possible, worked with Musqueam to address and resolve issues and concerns. A table of issues and concerns, previously provided to Musqueam for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Musqueam Nation's Proven and Asserted Aboriginal Rights and Title

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Musqueam's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Musqueam's ability to practice its Aboriginal Interests. Based on the Musqueam Study (MIB 2017) and key issues and concerns raised by Musqueam during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Musqueam's past, present, and desired future use, as communicated to the Proponent by Musqueam or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to title, cultural continuity, sense of place and identity, fishing, hunting/trapping, and plant gathering. The key information source for the following summary is the Musqueam Study (MIB 2017).

Impacts on Cultural Continuity

Musqueam have said that they accessed resources at numerous year-round and seasonal settlements along the Fraser River delta, including settlements at the mouth of the Brunette River, the mouth of Glen Creek (on the south shore of the Fraser River, near the mouth of the Stave River), and along the Coquitlam and Pitt rivers (MIB 2017: 20). The Musqueam Study indicates that a number of Musqueam participants specifically identified the Pattullo Bridge area as a place where teaching actively occurs, as demonstrated by the site-specific data that reflects an intensity of Musqueam use in the Musqueam LSA, particularly in and immediately downstream of the Project Boundary (MIB 2017: 38).

Musqueam report that their ability to continue as a people and a culture—their cultural continuity—depends on the transmission of knowledge within and across generations (MIB 2017: 38). This includes knowledge of places and practices (e.g., how to fish), as well as the *hən̓q̓əmiṇəm* language, which encodes this knowledge and these practices across the landscape (e.g., through place names, mnemonic device for stories, histories, genealogies) (MIB 2017: 38).

Teaching moments that transfer this knowledge are frequently spontaneous and unscripted, arising from opportunities to practice traditional activities on the landscape in the company of someone who is more experienced or knowledgeable (MIB 2017: 38). Musqueam describe this as a life-long and iterative process, requiring repeated exposure to understand seasonal and year-over-year differences in resource availability (MIB 2017: 40). Abundant and high-quality resources are key to this knowledge transmission; however, Musqueam have explained that this is becoming increasingly difficult due to cumulative impacts to resources within Musqueam territory (MIB 2017: 44).

In addition to being abundant and of high quality, resources must also be accessible to facilitate knowledge transmission, which requires the ability to travel (MIB 2017: 40). Musqueam report that navigation of the Fraser River continues to be an immensely important means for Musqueam members to access places and people, enabling knowledge sharing and creation (MIB 2017: 40). Sufficient time while on the water and land to teach and learn is also critical (MIB 2017: 41). Interference with access, quality of access, or adequate time for teaching may therefore cause gaps in knowledge (MIB 2017: 44, Musqueam 2018).

In addition to resource harvesting, Musqueam teachings also relate to *šxwtəhim* (i.e., beliefs, ways, manners, and customs) and what it means to be Musqueam, including rights, responsibilities, and the core tenet of who you are and where you come from (aspects of *snəwəyət*); of what distinguishes Musqueam from others (MIB 2017: 42). A critical aspect of this knowledge transfer and identity formation is the *hən̓qəmin̓əm̓* language (MIB 2017: 42). For Musqueam, *hən̓qəmin̓əm̓* place names not only denote settlements or topographical features; they are also symbols and points of identity and tradition, access and use of which ensure the continuity of Musqueam culture (MIB 2017: 43), and in turn the ability to exercise their rights and title (MIB 2017: 44).

Musqueam have communicated that their cultural continuity has been, and continues to be, affected by many factors as a result of government legislation and policies, including but not limited to the reserve system, residential schools, and restrictions to resources (MIB 2017: 44-45). Musqueam say that cultural teachers are being forced to spend time earning income or navigating obstructions and hazards, as opposed to teaching and learning through oral tradition and experience (MIB 2017: 45, Musqueam 2018).

As cultural continuity pervades all aspects of the Musqueam way of life, impacts to Musqueam members' abilities to engage in traditional resource use (e.g., through reductions in access and deteriorated resource health and abundance) erode knowledge, teaching capacities, and opportunities for teaching and learning (MIB 2017: 46).

In the context of historic and on-going environmental losses and losses in the capacity of Musqueam members to transmit knowledge and language, the resources that remain are invaluable to Musqueam's cultural continuity efforts (MIB 2017: 47).

Musqueam Nation identified several concerns related to potential effects to cultural continuity, including:

- Increased gaps in knowledge from lost opportunities (e.g., lost availability of resources) to transmit knowledge due to Project construction and decommissioning (and potentially during Project operations, depending on design features).

- Increased disruption to the applicability and reliability of traditional knowledge, impeding the ability of members to transfer their knowledge as a result of changes to the environment from Project construction, decommissioning, and operation (e.g., lost or shifting back eddies and holding areas, river speed, and turbulence).
- Decreased skill, proficiency, confidence, and safety of younger land and water users owing to lost teaching opportunities and experiences as a result of Project construction and operations.
- Decreased access and use of key teaching areas as a result of Project construction and decommissioning.
- Disruption to Musqueam social connections (within the community and between communities), member identities, and cultural resilience as a result of reduced knowledge transmission due to Project construction and decommissioning.
- Request for information regarding how the Proponent intends to integrate sense of place, cultural continuity, and inter-generational knowledge transfer in connection to Aboriginal fisheries into its Project assessment.
- Concern that the current Heritage Resources VC focuses solely on archaeology through field studies. Musqueam's cultural survival is contingent on cultural continuity, the factors for which go well beyond archaeological values.
- Request for a detailed description of how the Project is likely to intersect and impact upon the multiple named sites in the area.
- Request for the assessment of Musqueam tangible and intangible cultural heritage. It is anticipated that the Proponent will address Musqueam semi- and intangible cultural heritage in the Project assessment (i.e. cultural continuity, sense of place, inter-generational knowledge transfer).
- Concern that negative impacts to fish stocks and fish habitat that may occur from the Project would similarly have deleterious effects on Musqueam's cultural continuity.
- Concern that changes to the characteristics of the area may alter the emotional, psychological, and physical linkages Musqueam members have to the area. For instance, recognised and valued place features may be disrupted through the intensification of noise and marine traffic during Project construction and decommissioning, and physical changes to water flows, shorelines, and the local viewscape from the installation of the new bridge.
- Project interactions with Musqueam's ability to fish would also cause adverse effects for knowledge transmission by disrupting opportunities for Musqueam members to teach and learn while on and off the water.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Musqueam's cultural continuity. In response to Musqueam Nation's concerns regarding cultural continuity, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during

daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through

avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Project area to the support and maintenance of Musqueam's culture and traditions, with particular reference to *qiqéyt* and their former reserve (Musqueam 1). The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding the cultural continuity of the Musqueam Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **minor** impacts to Musqueam Nation's cultural continuity.

Impacts on Sense of Place and Identity

Musqueam report that sense of place and identity are fundamental aspects of being Musqueam, encompassing intangible and tangible Musqueam values and activities central to Musqueam culture, including (MIB 2017: 51):

- members' attachment and affinity to place (i.e., sense of place)
- spirituality
- ceremonies and community gatherings, including rites and sacred places
- heritage resources and sites (e.g., burial sites)
- identity as linked to the above and subsistence cultural activities

As with cultural continuity, a key aspect of Musqueam sense of place is encompassed in *snəwəyəl* (including knowing who you are and where you come from), which includes a person's understanding of their genealogy, rights, and responsibilities, and geographical, temporal, and social space (MIB 2017: 51, Musqueam 2018). Sense of place is also derived from memories and experiences built in a particular environment or space, as well as the presence of familiar and valued features (MIB 2017: 51). Sense of self is closely linked to place, in relation to which Musqueam are stewards and guardians for their ancestors and future generations (MIB 2017: 52).

Occupation and use of the Project area by Musqueam ancestors (and in living memory) form part of present-day members' identities and responsibilities (MIB 2017: 53). Oral histories and historical experiences tell them who they are, from where they have come, and their ties to their territory (MIB 2017: 53). Alongside these oral histories and direct experiences, a well-established record of belongings (artefacts), and village and burial sites (archaeological sites) in Musqueam's territory, including in the Musqueam LSA, anchors Musqueam sense of place and identity (MIB 2017: 55). For Musqueam, they are more than physical objects; they are also indicators of a long and proud history (MIB 2017: 55). Village and burial sites are also considered sacred (MIB 2017: 55), as are locations of historic events, ceremonial places, and sites recognized for having spiritual qualities and power (MIB 2017: 55). These sacred areas include Transformer sites and *s'leləqəm* (powerful spiritual being) sites, as well as ceremonial and gathering sites, which may not have physical remnants (MIB 2017: 57). Place names are indicative of, or tied to, stories and spiritual sites, and are interconnected, forming a network of over 125 Musqueam named sites, linked by genealogy, history, story, cultural practice, teachings, and familial and community relationships, in which the parts are critical for the knowledge and maintenance of the whole (MIB 2017: 55). These names seldom refer to people, but rather to events, resources, and environmental features (MIB 2017: 55).

Musqueam have explained that evidence of Musqueam occupation and use in the lower Fraser River region is documented in oral histories (e.g., of sedimentation and land change) over thousands of years and archaeological evidence from *səwǫ́ʷeqsən* (Glenrose/St. Mungo Cannery, at the south foot of the Alex Fraser Bridge) dating to over 8,500 years ago (MIB 2017: 65, n. 13). Musqueam have also described the Project Boundary itself as an area of substantial historic and contemporary use (MIB 2017: 62). The old settlement of *qiqéyt* (later Musqueam 1)—the former reserve (and associated burials, birthplaces, place names, etc.)—is a valued location that contributes to Musqueam sense of place and identity (MIB 2017: 54, 64). Musqueam have explained how, within living memory, they had “little cabins around the Pattullo Bridge,” where they would camp and use the beach, and have pointed out that the current name of the street that fronts the water on the south shore is “Musqueam Drive” (MIB 2017: 62). Musqueam report having been shown areas along the shoreline in the Project Boundary and Musqueam LSA that bear physical evidence of their ancestors (MIB 2017: 55), including burial sites on Poplar Island (MIB 2017: 56). They have also identified Pattullo Bridge as the former site of a Transformer rock that no one has been able to find since the bridge was constructed (MIB 2017: 56, Musqueam 2018), as well as a place for teaching and participating in traditional canoeing (i.e., at Brownsville Park), which has become more of a danger with the amount of marine traffic that now goes through up to New Westminster and Surrey (MIB 2017: 60, TransLink 2018).

Musqueam have said that participation in cultural events and ceremonies—community gatherings, feasts, and ceremonial rites—are fundamental aspects of Musqueam identity, and help to reinforce ties between community members, across communities, and between people and the environment (MIB 2017: 57). These cultural events and ceremonies often require specific resources gathered from the territory or particular places on the land and water (e.g., salmon and sturgeon) (MIB 2017: 57). Ceremonies are not always social events; they are also conducted by individuals in private (e.g., when thanks are given for a successful fishing excursion) (MIB 2017: 58). A strong sense of responsibility and duty to carry on and restore ceremonial and spiritual traditions remains with Musqueam, despite the rapidly changing natural and social environment (MIB 2017: 58).

Harvesting of resources and the sharing and trading of those resources has been and remains a distinct aspect of Musqueam identity (MIB 2017: 58). Musqueam have emphasized the social importance of wild foods for bringing the community and families together, whether at ceremonies or gatherings, or while out harvesting (MIB 2017: 59). Almost 20% of Musqueam Study participants indicated they had harvested traditional foods within the Musqueam LSA to trade with others in the community and 25% had done so to trade with people outside the community (MIB 2017: 59). A quarter of Musqueam Study participants reported having received traditional foods harvested from within the LSA through trade or purchase from community members, and other 13% through trade or purchase from individuals outside the Musqueam community (MIB 2017: 59). Approximately 200 on-reserve households and 150 off-reserve members received fish from the Musqueam Nation, and upwards of 80 Musqueam events in 2016 requested fish from the Musqueam Fisheries Department (MIB 2017: 59, Musqueam 2018). Musqueam have advised the Proponent that these numbers must be considered in relation to existing cumulative effects on resources and harvesting of those resources, and that they do not reflect levels of desired or required use among members (Musqueam 2018).

Musqueam have said that rapid industrialization and urbanization have drastically changed Musqueam's territory, from its aesthetics, to the quality of access and use, to the abundance of resources, resulting in the loss of valued place characteristics and disrupting Musqueam members' connection to place (MIB 2017: 59, Musqueam 2018). Landscape changes created by urbanization and industrialization have rendered large parts of Musqueam territory inappropriate for ceremonial and cultural activities, as well as day-to-day aspects of the Musqueam way of life, whether due to a lack of resources, tranquility, privacy, and even concerns for safety (MIB 2017: 60). Adverse environmental effects have had a substantial impact on Musqueam spiritual wellbeing, due to a lack of resources available for sharing that runs counter to Musqueam social norms (MIB 2017: 61). Psychological and emotional distress often accompanies disruptions to the water, the land, and its resources given the close affinity felt by Musqueam towards the environment (MIB 2017: 61).

Musqueam Nation identified several concerns related to potential effects to sense of place and identity, including:

- Increased disruption to Musqueam members' sense of place in heavily used and familiar areas as a result of changes to critical place features, including the introduction of noise and marine traffic (i.e., as well as other disturbances such as auditory, olfactory, etc.) and ecological and geographical changes, caused by Project construction and decommissioning, and operations (depending on the new bridge's design features);
- Increased disruption to Musqueam members' connection to their past and to heritage sites and resources by Project construction and decommissioning;
- Increased psychological and emotional stress from changes to the physical and auditory landscape, and loss of important resources and associated cultural values;
- Deterioration of social relationships between and within families and communities from the loss of access or abundance and quality of resources from Project construction, decommissioning, and operation; and
- Increased disturbance to the Musqueam way of life, including ceremonial and spiritual activities, and the persistence of Musqueam worldviews, beliefs, and ethics (i.e., *šxʷtəhim*) and identity (i.e., *snəw'eyəł*), as a result of Project construction and operation.
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.
- Comment that archaeology is an aspect of heritage. Heritage resources must be understood as the tangible and intangible aspects of Musqueam's culture passed down from their ancestors and to which there is an onus to protect and maintain for successive generations. Heritage resources include, but are not limited to, transformer sites, *s'ələqəm* sites, named sites, "archaeological" sites, spiritual use sites (e.g. bath sites), aspects of the landscape and all associated *həŋqəmiŋərh* language and knowledge. Heritage resources are central to Musqueam's continuity and sense of place.

- Importance of bringing concepts of heritage closer to Musqueam's understanding of heritage. Intangible areas are important – names, transformer sites, teaching areas. The river itself is a heritage site.
- A VC is necessary for the assessment of both tangible and intangible cultural heritage, specific to Musqueam.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Musqueam's sense of place. In response to Musqueam Nation's concerns regarding sense of place, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual

quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).

- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Project area to the support and maintenance of Musqueam's culture and traditions, with particular reference to *qiqéyt* and their former reserve (Musqueam 1). The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Musqueam Nation's sense of place, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage, visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Musqueam Nation's sense of place.

Impacts on Fishing

Musqueam report that the diversity of resources available to and used by Musqueam people along the Fraser River were extensive, but strongly centred around fish, which were depended on for a major portion of their annual diet, as well as for surpluses that could be traded (MIB 2017: 21). Salmon and other fish species (e.g., sturgeon, eulachon) have and continue to be an integral part of Musqueam life, language, culture, and economic systems for Musqueam (MIB 2017: 21).

Access to migratory species like Chinook, coho, sockeye, pink, and chum salmon, as well as steelhead and cutthroat trout, fluctuated seasonally, with salmon spawning in the Fraser River between spring and early winter, and reaching its peak in August and early September (Musqueam 2017: 21). Musqueam also hung, dried, then stored the salmon to last throughout cooler months. Fishing areas and camps where fish was processed and dried are recorded along the Fraser River delta, including the north bank of the Fraser River in the area of the Pattullo Bridge, as well as at the mouth of the Coquitlam River (MIB 2017: 21). Musqueam report that, historically, they fished the Fraser River from the open ocean up towards Barnston Island and Pitt Lake (MIB 2017: 81).

Musqueam have communicated that, at the time of contact, they exercised rights and control over salmon harvesting and other resource-harvesting areas in the lower Fraser River, and that specific protocols were in place to control and regulate access by outside nations to these areas based on kinship and inter-village ties (MIB 2017: 18). Musqueam have indicated that use of the sockeye fishery at *qiqéyt* was shared between Musqueam and other groups, but that access by other groups was based on relations and protocols with Musqueam (MIB 2017: 19). Musqueam have said that these protocols determining access rights continue to be used today, and that Musqueam requires other First Nations seeking access to waterways and resources in the territory to apply for permission through the Musqueam Fisheries Department (MIB 2017: 18).

Musqueam report that fishing access and ability has been impacted within the Musqueam RSA by several factors, including changing legal and licensing protocols that, since the 1800s and despite Indigenous protocols, have restricted Musqueam fishing in terms of space, time, quality, and method (MIB 2017: 93, Musqueam 2018).

Spatially, the current eastern boundary of Musqueam fishing grounds, as regulated by DFO, is the Port Mann Bridge (MIB 2017: 81; DFO 2017). Within this area, Musqueam identified the Pattullo Bridge area as a key fishing location, resulting from a number of increasingly rare environmental attributes (e.g., back eddies) that together constitute often critical and required habitat and harvesting conditions for valued species, including but not limited to salmon (all species), sturgeon, and eulachon (MIB 2017: 73, 78, Musqueam 2018). Musqueam have explained that the area from the Port Mann Bridge to the Pattullo Bridge is one where a particular concentration of valued species is found. Given the location of these

bridges just below the meeting point of the Fraser River with the Pitt River, among others, and prior to the separation of the Fraser River into the North Arm and South Arm downstream, fish are effectively funneled into and concentrated in one waterway at this location (MIB 2017: 79, TransLink 2018). In addition, a lack of nuisance predators this far upstream (i.e., seals), combined with favourable hydrologic and river features (e.g., low tides, river bottom contours, back eddies, sandbars), makes the area especially productive fishing grounds for spawning and migratory species (MIB 2017: 79, 83-84, TransLink 2018).

In-river and shore development (e.g., bridges and docks) along the Fraser River and other competing uses have also impacted Musqueam fishing access and ability, resulting in increased risks to safety and greater expense of effort, time, and cost for every fish caught (MIB 2017: 94, Musqueam 2018). Some areas, including those that were highly productive fishing grounds, have been rendered practically unusable, such as at Musqueam 1, where sets can no longer be tied to the shoreline because of development (MIB 2017: 94, TransLink 2018). Musqueam report that this development, including dredging, has also altered the physical features of the river, changing water depths and flows that have led to the loss of fishing areas (e.g., legal nets do not go deep enough to catch fish or drift differently, including towards shore, which needs to be avoided) (MIB 2017: 95, TransLink 2018).

Musqueam additionally associate loss of fishing access and ability with historic and ongoing infilling and rerouting of natural waterways (and spawning habitat) through culverts and dykes (MIB 2017: 96, Musqueam 2018), as well as increasing commercial and recreational marine traffic. For example, Musqueam say they have had to cut short fishing sets and trips to avoid being run over by large commercial vessels and tugs, and that recreational vessels are hindering their fishing in already limited spaces, creating safety hazards, and damaging fishing gear (MIB 2017: 97, TransLink 2018). Musqueam explain that this has alienated Musqueam fishers from certain areas at times, citing in particular a “bottleneck” area at the Pattullo Bridge (where the river narrows) and the Fraser-Surrey Docks area (MIB 2017: 97-98, TransLink 2018).

In terms of time and method, fishing activities are determined by the spawning times of different species and specific environmental attributes of fishing locations (MIB 2017: 73). Musqueam have noted to the Proponent that annual returns of salmon are increasingly unpredictable and that they are not reaching harvestable abundance until much later in their respective seasons (Musqueam 2018); for example, they have said that previously they would start harvesting Chinook in March, but now they may wait until July (TransLink 2018). On the other hand, eulachon is being harvested earlier in the season (TransLink 2018), although these harvests are restricted given the decline in the species (Musqueam 2018). Musqueam have said that these shifts in the timing of salmon and eulachon harvests affects their traditional understanding of place and time, as they can no longer harvest a given species at the same time they would have traditionally (i.e., species were harvested in the month bearing the *hən̓q̓əmi̓ñəw̓* name for that species) (Musqueam 2018). Musqueam have also reported that higher marine traffic volumes in the river mean that nets must be set for shorter time periods before they have to be moved (TransLink 2018), affecting the duration of openings (e.g., a 4-hour opening may practically mean a 2 hour opening).

Based on DFO data for 2014 (the latest year for which data are available, which was also a peak sockeye year), Musqueam were issued 20 communal FSC licences, 15 communal FSC licences with limited participation (i.e., ceremonial fisheries), and 21 communal FSC licences with allowance for sale (i.e., economic opportunity fisheries) (DFO 2017). Musqueam limited participation licences were issued for eulachon, Chinook, and sockeye, by drift net only, with openings between 4 and 56 hours (week ending April 13, 20, June 22, 27, August 3, 10, 17, 24). Licences with allowance for sale were limited to sockeye and chum, by set, drift, or purse seine, with openings between 4 and 16 hours (week ending August 17, 24, 31, September 7, 14, 21, 28, October 5, 26). Remaining licences were issued for Chinook, sockeye, and chum, by set or drift net, with openings between 4 and 48 hours (week ending May 18, 25, June 1, 8, 15, 22, 29, July 6, 13, 20, 27, August 3, 10, 17, 24, October 12, 19).

The number of Musqueam boats and members participating in these openings was not reported; however, Musqueam say that, generally, the area around the Pattullo Bridge is highly used by a high percentage of the Musqueam community (MIB 2017: 82). According to a recent Musqueam census, over half the community (56%) participate in resource harvesting, which is presumed in the Musqueam Study to be heavily weighted toward aquatic and marine resources (MIB 2017: 75). Musqueam have advised that this heavier weighting toward aquatic and marine resources is connected to the “lack of harvestable areas for terrestrial use” (Musqueam 2018). Musqueam also have advised that this proportion of community participation in resource harvesting must be considered in relation to existing cumulative effects on resources and harvesting of those resources (some of which they cannot currently harvest, such as sturgeon), and that they do not reflect levels of desired or required use among members (TransLink 2018).

Musqueam remember experiencing or being told stories of abundance in the past, of the diverse fish species within their territory, and of camps and processing sites once based in areas known for being rich in aquatic and marine species (MIB 2017: 71, 86). Musqueam report that fishing within the Musqueam RSA has been heavily impacted by declining fish abundance (MIB 2017: 85-86). Among factors identified by Musqueam as affecting fish abundance include:

- overfishing by commercial fishing fleets, sport fishers, and fisheries mismanagement, both within and beyond the Musqueam RSA (MIB 2017: 88)
- urbanization of Musqueam territory, including the area around the Pattullo Bridge, which Musqueam say has had particularly negative impacts on salmon-bearing streams, as well as spawning grounds and habitats for eulachon and sturgeon, among other species (MIB 2017: 88-89)
- conspicuous changes in water quality of the Fraser River within the lifetimes of Musqueam members, who noted that Fraser River water was potable 50 years ago (MIB 2017: 89)
- anthropogenic stressors, such as log booms, dredging, climate change, and increasing vessel traffic (commercial boats, shipping) that Musqueam have said damage fish habitats, increase fish mortality, and change fish behaviour (MIB 2017: 91)

Musqueam have advised the Proponent that salmon has seen a catastrophic drop in abundance over the past 10 years, while eulachon and sturgeon have been increasing over the same time period (TransLink 2018). Eulachon can only be harvested in very limited quantities, while sturgeon (as well as steelhead) cannot be retained (TransLink 2018). For fish that can be retained, low stock levels correspond to high fishing effort required by Musqueam fishers in the increasingly shorter windows of time in which they are allowed to harvest marine and aquatic resources, without necessarily leading to higher catch rates (MIB 2017: 87).

Musqueam have advised the Proponent that they determine when stocks have reached appropriate abundance in partnership with DFO and the Pacific Salmon Foundation. Musqueam have said that through traditional knowledge, Musqueam know when fish are ready to be harvested, then tell DFO, who try to establish harvestable numbers through science (TransLink 2018). Musqueam have also said that they may refrain from harvesting even if DFO says the stocks are sufficient for harvesting (Musqueam 2018).

Current salmon allocations were not reported by Musqueam to the Proponent. Musqueam catch effort (kept) in 2014, based on the latest available DFO data, was 2,169 Chinook, 193,199 sockeye, 20,249 chum, 242 coho, and no pink (which is fished in odd years only) (DFO 2017).

Musqueam report that, despite a desire to access more traditional foods, the amount of fish they are able to obtain has declined substantially within their lifetimes (MIB 2017: 86), exacerbating the drastic declines experienced during their parents' and grandparents' lifetimes (Musqueam 2018). Levels of decline of salmon were noted as being of particular concern (MIB 2017: 86). Musqueam say this decline is compounded by contamination from pollution of some wild fish species that remain available to Musqueam (MIB 2017: 86).

Many Musqueam members rely, at least in part, on the consumption of traditional or wild foods as part of their regular diet (MIB 2017: 74). Although traditional foods are not limited to aquatic and marine resources, the importance of fish and other species to Musqueam, as well as the cumulative loss of abundance or access to many terrestrial resources, suggests that a large portion of these traditional foods come from the water (MIB 2017: 75). The Musqueam Study reports that, of members surveyed for the study, approximately 44% said that at least 25% of their personal diets are composed of traditional foods, either harvested directly or received from other community members or at community gatherings and cultural events (MIB 2017: 74). Cumulative impacts from development and industrialization, as well as increasing restrictions on fisheries, were cited as factors that prevent Musqueam from eating more traditional foods (MIB 2017: 75), despite a desire to harvest more when possible (Musqueam 2018).

These cumulative impacts also affect Musqueam's ability to trade or sell fish to other Indigenous and non-Indigenous communities (MIB 2017: 77). Members recalled a site in New Westminster, across the Pattullo Bridge, where Musqueam people in the early twentieth century traded goods with settlers and continued trade with other Indigenous nations (MIB 2017: 77). Musqueam have said that the exchange of fish (and particularly the different types of salmon) for other needed items within the community continues, often through family and social networks (MIB 2017: 77).

Being able to harvest and share fishing resources has been cited by Musqueam as important for supporting good nutrition, physical health, and broader Musqueam cultural wellbeing, since fishing, and particularly salmon fishing, is a core part of Musqueam identity (MIB 2017: 75, 98). Musqueam report that as space, time, and abundance become constrained, even chance events and small changes may produce large negative and long-term effects on Musqueam fishing, and by extension Musqueam health, knowledge, and culture (MIB 2017: 99).

In addition to relying on fish for FSC purposes, Musqueam report that, in 2015-2016, 10 members held 35 commercial licences for various species, or had licences on lease for key species (MIB 2017: 76, TransLink 2018). Musqueam members also participate in commercial fishing as deckhands and net menders, and by fixing boats and motors, processing fish, and fixing traps (MIB 2017: 76). Musqueam have explained that decreasing fish numbers have changed the ability for many Musqueam members to now make a consistent income in the industry (MIB 2017: 76). Musqueam have also explained that effects on fish abundance go beyond economic effects on individual members that participate in the industry; it also has wider, community-level implications, affecting social cohesion and community knowledge associated with the act of fishing and acts that support fishing (Musqueam 2018). For further discussion of Musqueam participation in fisheries and other activities for economic purposes, see **Section 6.1 Marine Use**.

Musqueam Nation identified several concerns related to potential effects on fish and fish habitat, including:

- Loss of fish habitat as a result of changes in water flow patterns, benthic river structures (including sedimentation and/or erosion), in-river infrastructure, and altered shorelines caused by Project construction and bridge decommissioning (and potentially Project operations, depending on bridge design).
- Increased stress, behaviour changes, and mortality of salmon, sturgeon, and eulachon as a result of changes in water flow patterns and increased in-river infrastructure caused by Project construction and bridge decommissioning.
- Anticipated negative interactions between Project-related dredging in the Fraser River and fish stress and salmon, sturgeon, and eulachon migration and spawning behaviours.
- Decreased fish abundance and health due to pollution from debris and potential accidents during Project construction and bridge decommissioning.
- Increased stress and behaviour changes in fish as a result of noise during construction and bridge decommissioning.
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns.
- Concern that migration patterns of fish have changed due to stress from aquatic noise.

- Concern regarding the effect of land-based noise on migrating fish. Fishers have noticed that higher volumes of noise associated with rail traffic and roads adjacent to the Project area have resulted in fish moving closer to the centre of the river where vessel volumes are higher. Previously fish would use the sides of the river to rest as there is less current and to avoid the higher levels of vessel traffic in the centre of the river. Noise appear to affect this behaviour.
- Impediments to on-going and desired future Musqueam efforts to restore fish populations and habitat for the continuation of rights-based activities.
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Concern that proposed Project footprint intersects with a Musqueam critical fishing area, and therefore, there are potential adverse effects and impacts to Musqueam cultural, social, and economic viability.
- Concern regarding potential impacts of the Project on Aboriginal fisheries. For example, changes to river topography/morphology, hydrological shifts, holding areas, and foreshore impacts, stress on fish pollution, access and use of area during Project construction, habitat and stocks restoration and conservation, decreased value of fishing area, impacts of potential dredging, increased marine traffic during construction and operation.
- Concern regarding the protection of fish and fish habitat during construction. Sturgeon, eulachon and the five-species of salmon have been specifically identified.
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Concern regarding effects and impacts to important fish, fish habitat and habitat for other riverine and anadromous species in the Fraser River, including changes in migration, distribution, population, health, and biodiversity as a result of alteration of river hydraulics and morphology.
- Increased soil erosion, scouring effects, and slope instability as a result of changes to the Fraser River hydraulics and river morphology (with resulting adverse effects to fish and fish habitat).
- Concern that more detail is needed regarding the current scope and assessment of Fish and Fish Habitat as a VC. The proposed Project area is an important corridor for salmon, white sturgeon, and eulachon. There is great potential for restoration of spawning and rearing habitat within the proposed Project footprint. While the Proponent has completed “limited field studies” and a “desktop review” on the upstream channels into the Fraser, there is a need for increased information in the methods, baseline, and assessment remain in the conclusion that the upper channels are inhabitable to fish.

- Quantification and qualification of fish habitat losses due to in-stream piers and any other shoreline modification or in-stream physical works and activities related to the Project.
- Concern regarding water flow changes and impacts on fisheries and fishing.

Musqueam Nation identified several concerns related to potential effects to fishing access and use, including:

- Decreased and lower value of access and use of the Project area by Musqueam, especially during Musqueam fishing months (particularly short and increasingly unpredictable fish openings) that overlap with proposed construction timing.
- Decreased and lower value of access and use of fishing grounds and river travel due to Project construction and decommissioning (and potentially Project operation, depending on bridge design).
- Decreased and lower value of access and use on the river from obstacles placed in the river as part of Project construction and bridge decommissioning, including both temporary and permanent structures.
- Decreased efficacy of Musqueam fishing equipment as a result of changes in the river (e.g., water flow patterns) from Project construction and bridge decommissioning, and impacts to fish abundance and behaviour.
- Concern regarding navigability and access restrictions during construction of the new bridge and decommissioning of the old bridge.
- Concern that decommissioning of the existing bridge may encounter pre-existing soil and/or groundwater contamination, which may impact ability to harvest in the vicinity of qiqéyt (e.g., commercial and recreational fishing).
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Musqueam Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.

- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1**, Musqueam Nation, in partnership with Tsleil-Waututh and Tla'amin as part of the Salish Seas Limited Partnership, hold a commercial Salmon Gill Net Area E licence that can be fished in the LSA, and individual Musqueam members hold commercial fishing licences valid in the LSA. Also operating in the LSA are a number of Musqueam water-based eco-tourism businesses, which Musqueam say have been established over the last five to ten years as an alternative form of economic development in response to the decline in commercial fisheries.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Musqueam Nation, the Proponent understands that the area around Pattullo Bridge is a key fishing location that is highly used by a high percentage of the Musqueam community for FSC fishing, including EO fisheries, given a number of increasingly rare environmental attributes that make the location an especially productive fishing ground for spawning and temporary migratory species of critical importance to Musqueam. Short-term, sporadic effects on Musqueam fishing access and environmental conditions (noise, visual) may not be completely avoidable during construction. It may also take time for mitigation measures related to fish and fish habitat to become effective.

In consideration of the available information regarding fishing by Musqueam Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Minor-to-Moderate** impacts to Musqueam Nation asserted Aboriginal rights to fish including the ability of Musqueam Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Musqueam note that they hunted terrestrial and marine mammals and birds, such as deer, elk, waterfowl, and whales throughout their territory (MIB 2017: 21). Musqueam 1, Douglas Island, and the marsh areas

of what is now Richmond were identified as key areas for hunting and habitat, particularly for waterfowl (MIB 2017: 109). Members recall how they once used the area around Douglas Island for hunting, and used their gillnetting boats to reach Pitt Lake, where they had trap lines (marten specifically identified) (MIB 2017: 110). Members also recall hunting in their own lifetimes in the berry fields of Richmond, where berry field owners would let them hunt for pheasant (MIB 2017: 110). Ducks were also said to be harvested at the Fraser River mouth (MIB 2017: 110), and trapping reportedly occurred along the river from the mouth up through Pitt Lake (Musqueam 2018).

Musqueam note that fishing's importance as a critical subsistence activity for Musqueam has magnified with the decline in the availability of hunting, both in terms of species and spaces caused by firearm restrictions, loss of species habitats, and the overwhelming urban settlement and industrialization of Musqueam's territory (MIB 2017: 109). Musqueam have stressed that this translates into very few spaces left in which Musqueam people can still practice their hunting rights in their territory (MIB 2017: 110). In addition to loss of hunting areas and restrictions that hinder access, quantities of hunted species has drastically declined as concerns about the quality and health of hunted animals due to pollution have increased, reducing their confidence about safely consuming those animals that are still available (e.g., waterfowl) (MIB 2017: 110).

Musqueam have said that, despite these effects to date, hunting remains an important activity for both subsistence purposes and for Musqueam culture, and that the site-specific data indicate that they have used and continue to use the Musqueam LSA for hunting (MIB 2017: 109). Waterfowl and game birds are the key species identified as currently harvested within the Musqueam LSA, and Musqueam report that such hunting is a highly social activity, with meat often shared around the community or at community gatherings and goose and duck feathers used in feasts and ceremonies (MIB 2017: 109). Moose and mink are noted as occasionally hunted within the Musqueam RSA, where Musqueam Study participants reported seeing deer and fragments of good-quality habitat (MIB 2017: 109). Musqueam have noted that mink have been increasingly observed, and that mink and fisher are culturally important animals (Musqueam 2018).

Musqueam Nation identified several concerns related to potential effects to wildlife and wildlife harvesting, including:

- Resource harvesting is essential to Musqueam members' connections to their territory, sense of wellbeing, and identity, and thus connected to cultural continuity and sense of place and identity;
- Changes to the Study area as a result of the Project, both temporary and more permanent, have the capacity to further alter the limited areas to which Musqueam members have access for hunting, particularly marshland and foreshore areas, as well as remaining forest fragments;
 - Noted and valued sites may be disrupted through clearing, alteration, or degradation of these areas during Project construction and decommissioning, and as a result of construction-related debris and contaminants;
 - Project-related degradation of remaining natural areas is likely to result in a further decrease in the quantity and quality of spaces to which Musqueam members have access in order to practice rights-based activities such as hunting;

- This may further impact the abundance of animal species that Musqueam people are able to use in the area; and
 - The possibility of increased contaminants in the air or that build up in animals may also prevent Musqueam members from feeling it is safe to consume those species that are still hunted in the Project area.
-
- The intensification of noise from marine and road traffic during Project construction, decommissioning, and operations may also increase stress and change the behaviour of the limited populations of animals remaining in the Study area, and deter animals from using these areas, leading to further declines in abundance, and, correspondingly, further constraints on opportunities to go hunting.
 - Concern regarding Project-related noise from construction and operations (i.e. traffic) having the potential to increase animal stress and lead to avoidance of the area.
 - Musqueam members anticipated few opportunities for adequate or culturally appropriate measures to restore or allow the recovery of these highly impacted areas.
 - Concern regarding wildlife in the Project footprint during Project construction and the potential for impacts to wildlife habitat, and consequently the ability to harvest these resources.
 - Interest in the restoration and protection of the two riparian zones in the LSA being a priority. Not only would this maintain the remaining riparian areas within an industrialized zone it would also serve the multiple purposes of habitat offset and mitigations strategies by providing a natural buffer to bridge activities, recreational possibility and also aiding in preserving Musqueam presence.
 - Comment that while most animals are culturally important screech owls are messengers from the other side.
 - Concern regarding the shifting of migratory/flight patterns due to reliance on migratory birds for a variety of needs.
 - Comment that there are mink downstream and recommendation that the area be carefully reviewed for them.

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Musqueam Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.

- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminister, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been

determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Musqueam Nation, the Proponent understands that Musqueam hunted species such as deer, elk, waterfowl, and whales throughout their territory, with the area around former Musqueam 1 identified as a key area for harvesting waterfowl, and the mouth of the Fraser River up to Pitt Lake being used for trapping. While Musqueam Nation does not appear to hunt or trap in the area at present due to cumulative effects

to date on access to spaces to harvest wildlife and the availability and quality of harvestable species, the Proponent acknowledges the potential for the resumption of harvesting activity in the future.

In consideration of the available information regarding hunting/trapping by Musqueam Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Musqueam Nation's asserted Aboriginal rights to hunt and trap including the ability of Musqueam Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Musqueam have reported that plants such as broad leaf maple were harvested to create paddles or poles, yew was used to fashion bows, while alder served to smoke-dry fish or clams, and Western red cedar—particularly abundant in the New Westminster area until at least the mid-nineteenth century—was used to make baskets and other material goods (e.g., canoes, bailers) that were sometimes traded at a European village site in the Pattullo Bridge area (MIB 2017: 21). Root plants, raspberries, berries, camas, salal, and medicinal plants such as hemlock and wild licorice were also noted in the written records of European explorers as highly valued and used (MIB 2017: 21).

Site-specific data show that food and medicine plants are gathered in all three spatial areas defined in the Musqueam Study, and that this has been an important cultural and subsistence activity for Musqueam for thousands of years (MIB 2017: 111). Musqueam report that *qiqéyt* was not just a little village, but the epicentre of an area that was important for wide range of important activities, given its location just above the split of the river into the North Arm and South Arm (MIB 2017: 113). Past and current berry picking areas include the Musqueam Project Footprint at Musqueam 1 and along the shoreline under the Pattullo Bridge, as well as within the Musqueam LSA on an island in the South Arm of the Fraser River, right below its separation from the main stem (MIB 2017: 111). The Musqueam LSA (e.g., foreshore in the present Fraser-Surrey Docks area) and Musqueam RSA also include areas where Musqueam reported harvesting food and medicine plants such as blackberries, salmonberries, bog cranberries, cherry bark and sap, as well as poplar bud and cattails (MIB 2017: 111, 115). Trade in camas bulbs in the Pitt River-Maple Ridge area with Katzie—where a lot of eulachon is caught today—was also noted (MIB 2017: 113).

Musqueam have explained that berries are a particularly important subsistence plant for Musqueam, and members reported that berry picking, like waterfowl hunting, is a highly social activity that brings family and members of the community together (MIB 2017: 111). A wide range of other plants also provide food for Musqueam people, including tree sap, young shoots, and bulbs. Musqueam have explained that medicine plants are important to Musqueam culture and health and are still harvested around the Vancouver area (MIB 2017: 111). Musqueam have discussed the diversity of plants that remain available to them, the uses of these plants, and the importance of teaching and sharing with others the uses of these plants and their role in Musqueam cultural life and sense of wellbeing (MIB 2017: 112).

Musqueam have identified existing impediments to their traditional plant collection and use (e.g., conversion of remaining forested and marshland areas for agriculture, residential development, expansion of industrial activities along the Fraser River, private property) (MIB 2017: 113, 115). The few plants that still remain accessible are often contaminated due to pollution from the city, industry, and agriculture, deterring Musqueam members from harvesting (MIB 2017: 113). Musqueam say that cleanliness of the environment is particularly important for medicinal plants, but that the current environment makes gathering for these plants difficult (MIB 2017: 113). Musqueam expressed low confidence in the possibility of restoring or recovering these highly developed and industrialized habitats (MIB 2017: 113).

Musqueam Nation identified several concerns related to potential effects to plants and plant harvesting, including:

- Resource harvesting is essential to Musqueam members' connections to their territory, sense of wellbeing, and identity, and thus connected to cultural continuity and sense of place and identity;
- Changes to the Study area as a result of the Project, both temporary and more permanent, have the capacity to further alter the limited areas to which Musqueam members have access for gathering plants, particularly marshland and foreshore areas, as well as remaining forest fragments;
 - Noted and valued sites may be disrupted through clearing, alteration, or degradation of these areas during Project construction and decommissioning, and as a result of construction-related debris and contaminants;
 - Project-related degradation of remaining natural areas is likely to result in a further decrease in the quantity and quality of spaces to which Musqueam members have access in order to practice rights-based activities such as plant gathering;
 - This may further impact the abundance of plant species that Musqueam people are able to use in the area;
 - The possibility of increased contaminants in the air or that build up in plants may also prevent Musqueam members from feeling it is safe to consume those species that are still harvested in the Project area.
- The ability for Musqueam members to harvest plants—particularly medicine plants—in peace may be hampered by increased noise from the Project, continuing through the operations stage after construction has been completed; and
- Musqueam members anticipated few opportunities for adequate or culturally appropriate measures to restore or allow the recovery of these highly impacted areas.
- Request the use of traditional plants and trees in revegetation plans.
- Comment regarding the importance of a culturally informed revegetation plan.
- Concern regarding the disturbance of green space and other riparian areas in the Project footprint during Project construction, potentially impacting native plant species.

- Concern regarding the introduction of invasive species and need for management of invasive species.
- Request that Proponent work with Musqueam's Aquatic Habitat Restoration Project (AHRP) department to develop an Invasive Species removal and Native Plant Restoration Plan.
- Project-related noise likely to decrease ability to harvest plants, particularly medicine plants, and to rehabilitate and restore species and their habitats to be able to harvest in the future.
- Concern that the Project will impact traditional plant gathering areas.
- Comment that there should have been a cumulative impacts assessment to determine what plant species were previously in the area. Some of this can be gleaned from TUS and from surveyor records. This would inform the historic Project impacts, potential current impacts, and re-vegetation discussions with Musqueam.
- Concern regarding pollution or runoff potentially affecting marine/intertidal/riparian vegetation.

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Musqueam Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA,

including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas

required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions (except Musqueam), but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided by Musqueam Nation to the Proponent, the Proponent understands that Musqueam once harvested a wide range of vegetation in and around *qiqéyt*. Musqueam have identified several existing impediments to their traditional plant collection and use, including but not limited to contamination, and expressed low confidence in the possibility of restoring or recovering highly developed and industrialized habitats, such as those in the Project Boundary. Despite these existing impediments, Musqueam reported current berry picking areas include the area around former Musqueam 1 and along the shoreline under the Pattullo Bridge, as well as on an island in the South Arm of the Fraser River, right below its separation from the main stem, in the vicinity of the Project. To the extent that Musqueam are plant harvesting in the

Project area under these existing conditions, the Project may result in low magnitude, local, sporadic effects on access and use for the purposes of plant harvesting over the construction period (i.e., short-term), and are not expected to persist into the Project operations phase.

In consideration of the available information regarding plant harvesting by Musqueam Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible-to-Minor** impacts to Musqueam Nation's asserted Aboriginal rights to gather plants including the ability of Musqueam Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Aboriginal Title

Musqueam have previously advised that, prior to the assertion of Crown sovereignty, they exercised exclusive control over their core territory, and continue to hold Aboriginal title to this core territory (EAO 2017: 314), which includes the Project Boundary.

Musqueam have previously explained that their Aboriginal title is central to the integrity of Musqueam's culture, identity, and the underpinning of Musqueam's right to exercise governance over and fully benefit from its lands, as well as the ability to choose to what use its lands will be put (EAO 2017: 336).

Musqueam have also previously expressed their expectation, with regard to any major infrastructure project in Musqueam territory, that the Crown must seek Musqueam's consent to the Project and accommodate the impacts to Musqueam's proven and asserted Aboriginal rights and title (EAO 2017: 334).

Musqueam Nation identified several concerns relating to potential effects on Musqueam Aboriginal title, including:

- Protection of Aboriginal Groups' rights to harvest within the Project area
- Concern regarding impaired access to traditional harvesting areas within the Project footprint as a result of construction and decommissioning processes
- Concern that Project has strong potential to adversely impact Musqueam rights and title. For example, proven right to fish and ability to exercise hunting rights in remaining habitat fragments that Musqueam members are able to access and use
- Impacts on Aboriginal title, and related cultural and heritage resources, located at Musqueam's historical settlement of *qiqéyt* (and former reserve, Musqueam 1)
- Cumulative and legacy effects of industrial, transportation, and residential impacts in the area on Musqueam rights and interests
- Concern that Aboriginal rights and title, including CEAA 2012, 5 (1)(c) requirements, should be addressed in the draft VC document, rather than in **Part C** requirements

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the Musqueam concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in an industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such

as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges that the Musqueam assert Aboriginal rights and title to the area included in the Project Boundary, and that Musqueam have established rights in the Fraser River. The Proponent also acknowledges that Musqueam reserve – Musqueam 1 – first established in 1860 at Brownsville, lies within the Project Boundary

The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Musqueam, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in Moderate impacts to Musqueam's Aboriginal title.

12.1.3.3.9 Penelakut Tribe

Context

Penelakut are Central Coast Salish and speak the *Hul'q'umi'num* (or Island) dialect of Halkomelem (EAO 2017: 378).

The main Penelakut community is based on Penelakut Island 7 (formerly Kuper Island), in the Stuart Channel opposite the town of Chemainus, on the southeast coast of Vancouver Island, about 30 km south of Nanaimo (INAC 2017). Penelakut have three other reserves: Tsussie 6, at the mouth of the Chemainus River); Tent Island 8, immediately south of Penelakut Island; and Galiano Island 9, on the northwestern tip of Galiano Island, approximately 30 km across the Salish Sea from the mouth of the South Arm of the Fraser River (INAC 2017). Of 971 members, 523 live on Penelakut reserves (INAC 2017). The Project Boundary does not overlap the reserve lands of the Penelakut Tribe (**Figure 12.1-A-1**).

Penelakut Tribe territory is understood to be represented by the Hul'qumi'num Treaty Group (HTG) Statement of Intent (SOI). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation,¹⁸ formed in

¹⁸ The CNA has advised the Proponent that Stz'uminus First Nation is no longer a member of the HTG. To the Proponent's knowledge, the Stz'uminus do not assert a traditional territory that is different from that asserted by the HTG, as presented in **Figure 12.1-A-2**.

1993 for the purposes of treaty negotiations with Canada and BC. The HTG SOI is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island (EAO 2017: 198). The Project Boundary lies within this territory (**Figure 12.1-A-2**).

Cowichan Tribes, Halalt First Nation, Penelakut Tribe, and Stz'uminus First Nation have advised the Proponent that they have come together as the Cowichan Nation Alliance (CNA) to advance their common rights and title interests in the lower mainland region (CNA 2017: 4). The CNA explain that prior to colonization and the subsequent reserve creation process (when they were compartmentalized as a function of the *Indian Act* into their present-day individual bands and reserves), CNA communities were a distinct, trans-Georgia Strait, Coast Salish nation that held rights in their traditional territory, extending from southeastern Vancouver Island, eastward through the Gulf Islands and across the Salish Sea, to encompass the Fraser Delta, its South Arm, and all the way to the vicinity of present-day Yale (CNA 2017: 4). As modern-day successors of this pre-contact Cowichan Nation, the CNA communities report that they also claim Aboriginal title in the lower Fraser River area, including the village site and surrounding lands of *Tl'uqtinus*, which they describe as a substantial Cowichan Nation village on the lower South Arm of the Fraser River, from where traditional fishing, hunting, gathering, and cultural activities had taken place since time immemorial (CNA 2017: 4). This area is located approximately 10 km downstream of the Project Boundary (CNA 2017: 29).

Cowichan Nation Alliance prepared the following Project-specific study (CNA Study) regarding their Aboriginal Interests in the area of the Project:

- Pattullo Bridge Replacement Project, Cowichan Nation Alliance Strength of Claim Report (CNA Study 2017)

The spatial area for the identification of Aboriginal Interests in the CNA Study is referred to as the geographical area that will be affected by the construction of the new bridge across the Fraser River (CNA 2017: 2).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Penelakut Tribe. Additional information regarding consultation with Penelakut Tribe can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

For the Pattullo Bridge Replacement Project, Penelakut Tribe participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Halalt First Nation and Stz'uminus First Nation.

Table 12.1-10 Overview of key consultation activities – Penelakut Tribe

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Penelakut Tribe about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 27, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation and Penelakut Tribe to introduce the Project.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
July 14, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss capacity funding.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
September 29, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
May 15, 2017	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Penelakut Tribe did not attend the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2018	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Cowichan Nation Alliance for review and comment.
September 21, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 16, 2017	Report	Cowichan Nation Alliance submitted a Strength of Claim Report in relation to the Pattullo Bridge Replacement Project.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.

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Date	Type of Engagement	Summary
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Penelakut Tribe did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	Cowichan Tribes submitted comments on the Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies, on behalf of Cowichan Nation Alliance.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 26, 2017	Email	Cowichan Tribes advised that Cowichan Nation Alliance has no comments on the draft Aboriginal Consultation Plan.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 2, 2017	Letter	The Proponent shared a response to Cowichan Nation Alliance's comments on the Phase B Geotechnical Investigation, Environmental Management Plan and environmental assessment studies.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.

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Date	Type of Engagement	Summary
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 12, 2018	Meeting	The Proponent provided a Project update to Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
January 16, 2018	Email	<p>Cowichan Nation Alliance shared the following documents with the Proponent, for consideration in the preparation of the Application:</p> <ul style="list-style-type: none"> ▪ Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010) ▪ Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011) ▪ Traditional Marine Use and Occupancy Study – Halalt (2013) ▪ Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013) ▪ Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014) ▪ Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014) ▪ Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014) ▪ Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014) ▪ National Energy Board - Hearings Stz'uminus and Olsen (2014) ▪ George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015) ▪ British Columbia Supreme Court - Affidavit of Randy Bouchard (2016) ▪ Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016) ▪ Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998) ▪ Past Harvesting Practices and Current Harvesting Needs (date unknown) ▪ Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.

Date	Type of Engagement	Summary
January 18, 2018	Email	The Proponent requested marine use information from Penelakut Tribe.
January 19, 2018		Penelakut Tribe provided marine use information to the Proponent.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 23, 2018	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss the Project schedule, request for comment on the draft Aboriginal Interests Summary and draft baseline studies, Project governance and funding and other Project-related matters.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 7, 2018	Letter	Cowichan Tribes provided comments, on behalf of Cowichan Nation Alliance, on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Penelakut Tribe identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Penelakut Tribe during consultation and where possible, worked with Penelakut to address and resolve issues and concerns. A table of issues and concerns, previously provided to Penelakut for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Penelakut Tribe's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Penelakut Tribe's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Penelakut Tribe's ability to practice Aboriginal Interests. Based on issues and concerns raised by Penelakut Tribe during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Penelakut Tribe's past, present, and desired future use, as communicated to the Proponent by Penelakut Tribe or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the CNA Study (CNA 2017).

In mid-January 2018, the CNA also provided several other documents to the Proponent for consideration:

- Past Harvesting Practices and Current Harvesting Needs [no date, no identified author]
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley – Summary Report, prepared by Precision Identification Biological Consultants, June 1, 1998
- BC Supreme Court – Affidavit of Barbara Lane (*Cowichan Tribes v. Minister of Aboriginal Relations and Reconciliation*), September 12, 2007
- Historical Geography of Cowichan Land Use and Occupancy, Lower Fraser River – Map Series and Report, prepared by K. Brealey, May 31, 2010
- Analysis of Cartographic and Archaeological Evidence to locate Tl'Eqtinus, 19th Century Cowitchen Village on Lulu Island, prepared by John Dewhirst, November 22, 2010
- Pre-Consultation Analysis of Potential Aboriginal Interests – Fraser Richmond Lands, Lulu Island, prepared by John Dewhirst, September 27, 2011
- Traditional Marine Use and Occupancy Study – Halalt, prepared by Halalt First Nation, Loraine Littlefield, and Darlene August, October 31, 2013
- Traditional Marine Use and Occupancy Study – Cowichan Final Report (Draft), prepared by Cowichan Tribes Traditional Marine Use Study Team and Traditions Consulting Services Inc., November 28, 2013
- Fraser River Head Lease Transition Area – Cowichan Nation Alliance – FLNRO Map of CNA Use and Occupancy, prepared by the Ministry of Forests, Lands and Natural Resource Operations, May 7, 2014
- Fraser River Head Lease Areas – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, July 10, 2014
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use – Final Report, prepared by D. Kennedy, Bouchard and Kenndy Research Consultants, September 22, 2014
- Qualitative Fisheries Impact Study – Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report), prepared by Inlailwatash Natural Resources Services and AquaTerra Environmental Ltd., October 6, 2014

- National Energy Board – Hearings (Trans Mountain Expansion Project), Stz'uminus First Nation, November 25, 2014
- George Massey Tunnel Replacement Project – Cowichan Occupation and Use of the Project Lands Report, prepared by D. Kennedy, Bouchard and Kennedy Research Consultants, August 25, 2015
- BC Supreme Court – Affidavit of Randy Bouchard (*Cowichan Tribes v. Canada*), April 1, 2016
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, May 17, 2016

Having reviewed this additional material, the Proponent is satisfied that the CNA Study (CNA 2017) has captured the salient information regarding the Aboriginal Interests of the Penelakut Tribe in relation to the Project.

Impacts on Fishing

The CNA Study explains that salmon is fundamental to the life of Central Coast Salish peoples, both as a resource and spiritually, and that salmon of any sort found in the waters of the lower Fraser River region have, and continue to be, absolutely integral to the Cowichan Nation (CNA 2017: 18).

Salmon harvesting coincided with the runs in the Fraser River: Chinook (June into November), sockeye (*Thuqi'*; late June well into September), pink (*Haan'*; mid-August into mid-October), chum (mid-September well into November), and coho (late September to early November) (CNA 2017: 14, 15, 32). Steelhead (rainbow trout) were available May through July and again in October through to mid-November, while cutthroat trout could be found at tributary mouths in August and September (CNA 2017: 14-15). The predictability and abundance of the runs allowed Central Coast Salish to maintain permanent villages, as they could return annually to the same fisheries, at a specific time (more or less), and depending on the technology, harvest thousands of fish in a day (CNA 2017: 18-19).

The CNA Study indicates that the Fort Langley journals for the 1827-1830 period note that the “Cowichan people travelled back and forth between southeastern Vancouver Island, the Gulf Islands, and the lower Fraser River throughout the year, including at times when the journals report salmon and sturgeon being plentiful,” and being harvested in large quantities (CNA 2017: 14). For example, “an immense amount” of sockeye salmon was documented as having been dried and bundled before the Cowichan left the Fraser River in fall (CNA 2017: 14).

A Hudson’s Bay Company official had also documented that the Cowichan “who prized [sturgeon] highly, were loath to part with sturgeon in trade” (CNA 2017: 15). The Cowichan are described in the Fort Langley journals as having been harvesting sturgeon (*Qw-taythun*) on the Fraser River near the establishment in November 1827 and April 1829, or as having been present on the river when sturgeon would have been available (i.e., late April and early May 1828) (CNA 2017: 15-16, 32).

Sturgeon follow eulachon (*Sh-wi'wi*), and eulachon spawning season on the Fraser River is typically between March and May, lasting for upwards of three weeks (CNA 2017: 16-17, 32). These fish (and their roe) would be gathered by rake or dip nets (CNA 2017: 17).

The CNA Study reports that sockeye and pink salmon, sturgeon, eulachon, and flounder (*P'uwi*) were predominantly obtained in the lower Fraser River as an integral part of the Cowichan Nation's traditional economy, as they were not available in any abundance in other parts of their traditional territory (CNA 2017: 21, 32).

In addition to *Tl'uq̓tinus* as a fishing base, the CNA Study explains that Cowichan oral history refers to a number of sites along the Fraser River in the vicinity of the Project Boundary that were likely seasonal occupations and located primarily in close proximity to other communities (i.e., Katzie), to whom Cowichan were allied. The CNA Study also identifies a "rich [sockeye] fishing ground where the river narrows...adjacent to the Squamish village of *Q'iq'uyht*," near the present-day Pattullo Bridge, where Cowichan, "through arrangements," likely fished on their trading journeys up to Fort Langley (CNA 2017: 30).

Cowichan Nation's traditional use of the Fraser River fisheries continued throughout the colonial period and well after Confederation (1871). In 1878, the reserve commissioner remarked about the Cowichan Nation's "continued practice of occupying their Lulu Island village, while fishing salmon during the summer and early fall runs up the Fraser River, as they had always done" (CNA 2017: 18).

The CNA has advised that they were accustomed to fish along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30). The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of fishing were not provided to the Proponent.

Information pertaining to where CNA member First Nations currently fish for FSC purposes outside the Fraser River, the timing, frequency, and duration of that fishing, number of fish caught, or participation levels of community boats and members in FSC fishing, was not provided to the Proponent.

Member communities of the CNA fish for commercial purposes in the Fraser River under licences held by the Hul'q'umi'num Fisheries Limited Partnership. Details regarding their commercial fishing may be found in **Section 6.1 Marine Use**.

Penelakut Tribe/CNA expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Cowichan Nation Alliance has fishing rights in the area and is concerned with any impacts to these rights.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use.)

- Concern regarding potential Project-related impacts to fish and fish habitat and interest in opportunities for habitat enhancement/restoration.
- Concern regarding water flow changes and impacts on fisheries and fishing.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Penelakut Tribe/CNA's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring

and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.

- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during

periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1 Marine Use**, Penelakut Tribe, in partnership with Halalt, Lake Cowichan, Lyackson, and Stz'uminus as part of the Hul'q'umi'num Fisheries Limited Partnership, holds 22 commercial licences and two quotas under the Total Allowable Catch for seven different species, including five Salmon Gill Net Area E licences that can be fished in the LSA, by one vessel based in Ladysmith, B.C. (Vancouver Island). Individual Penelakut members were also reported as holding commercial fishing licences valid in the LSA.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

- Based on information provided to the Proponent by Penelakut Tribe/CNA, the Proponent understands that Penelakut Tribe were accustomed to fishing along the banks of the Fraser River, including within the Project Boundary, from pre-contact into the historical period, and that Penelakut Tribe is demanding to resume harvesting fish for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to fish. While Penelakut Tribe do not appear to fish in the area for FSC purposes at present, the Proponent acknowledges the potential for the resumption of that fishing.

In consideration of the available information regarding fishing by Penelakut Tribe for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Penelakut Tribe's asserted Aboriginal rights to fish including the ability of Penelakut Tribe to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

The CNA has advised that they were accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were wildlife resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*) (CNA 2017: 21, 32).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting wildlife were not provided to the Proponent.

Penelakut Tribe/CNA have expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related effects to terrestrial wildlife, including effects from noise and light

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Penelakut Tribe/CNA's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.

- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been

determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Penelakut Tribe, the Proponent understands that Penelakut Tribe was accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Penelakut Tribe is demanding to resume harvesting of wildlife for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to hunt and trap. As reported by the Penelakut Tribe/CNA, some of the

wildlife resources formerly harvested on the Fraser River included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*), which were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Penelakut Tribe does not appear to hunt or trap in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Penelakut Tribe/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Penelakut Tribe's asserted Aboriginal rights to hunt and trap including the ability of Penelakt Tribe/CNA to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

The CNA has advised that they were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were plant resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule (CNA 2017: 21, 32). At *Tl'uqtinus*, in addition to the village and "fishermen's camp," colonial surveyors (ca. 1859) had noted trails that connected "stretches of blueberry bushes" (CNA 2017: 24).

According to the CNA Study, it is estimated that at least 10% of the diet was likely made up of fruits and vegetables, and some of the most sought-after fruits and vegetables, such as berries (as an example), were only available to the Cowichan Nation on the east side of the Salish Sea (e.g., Lulu Island) (CNA 2017: 22). Cattails, which was not a food source but an important weaving material for baskets, were harvested from certain areas of the Fraser River because of their high quality (CNA 2017: 22). According to an 1865 account, "Fraser river hemp" was also used by Cowichan to make lines and nets for salmon fishing (CNA 2017: 25).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting plants were not provided to the Proponent.

Penelakut Tribe/CNA have expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern that storm water runoff from drill pads, and plans to direct it into vegetated areas will potentially impact vegetation or result in deleterious substances leaching into the ground and request for information regarding the types of deleterious substances in runoff and vegetative cover.

- Need for invasive plants management during construction activities. Request to see invasive species control included in machinery maintenance and cleaning.
- Importance of replanting areas with native riparian and forage plants as the project location was a traditional site of gathering for the historic Cowichan Nation and a request for input into plant selection. Vegetation health, in particular in the riparian area, is inextricably linked to fish health.

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Penelakut Tribe/CNA's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Penelakut Tribe, the Proponent understands that Penelakut Tribe were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Penelakut Tribe are demanding to resume harvesting of plants for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to gather plants. As reported by the Penelakut Tribe/CNA, some of the plant resources formerly harvested on the Fraser River included horsetail (*Sxum'xum*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule, which they say were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Penelakut Tribe do not appear to gather plants in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Penelakut Tribe/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to

Penelakut Tribe's asserted Aboriginal rights to gather plants including the ability of Penelakut Tribe/CNA to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

The Fraser River has been described by the CNA as both the home of the Cowichan Nation permanent village of *Tl'uq̓tinus* and the abundant and lucrative salmon resource that was critical to their social and economic success (CNA 2017: 19). *Tl'uq̓tinus* served as the basis for harvesting of fish and other resources; their trade in camas, clams, and other products for salmon and other resources, including mountain goat wool that Cowichan used in ceremonial regalia; and for providing an opportune time for families of high status to meet and arrange marriages, which were economic unions, and to engage in other ceremonial occasions (e.g., feasts) that acknowledged and escalated the wealth of these high status families (CNA 2017: 20). In this way, the activities of the Cowichan Nation while resident at this permanent village ensured that their permanent winter villages on Vancouver Island and the Gulf Islands, and their trans-Georgia Strait culture and traditions, continued to be supported and maintained (CNA 2017: 19).

The CNA Study reviews the historical circumstances that led to the gradual alienation of *Tl'uq̓tinus* (both the village and the surrounding berry fields) by the late 1870s. While the Cowichan Nation had resisted this alienation, and the government was aware of the Cowichan Nation's resistance and ongoing desire for the lands at *Tl'uq̓tinus* to be reserved to them, no reserves in this area were ultimately assigned, largely because the lands had already been sold to settlers (CNA 2017: 26-28). The CNA Study also reports that, on the opening of the canneries, licences to fish for salmon had been issued to the Cowichan Nation, and this practice had continued "year after year" until 1889-1890, when they were told that "none but the Fraser River Indians could obtain a licence" (CNA 2017: 28). The Cowichan Nation petitioned the government well into the 1900s to have their Fraser River lands and resources returned to them (CNA 2017: 28-29).

The loss of the *Tl'uq̓tinus* lands and access to the Fraser River have combined with other cumulative factors (e.g., ongoing government regulation, privatization of traditional lands, environmental destruction), all of which have contributed to the shift of the Cowichan Nation diet from one heavily dependent on traditional foods to market foods. A survey conducted by the HTG showed that levels of available traditional foods fall far short of levels required by almost all Cowichan Nation communities who wish to engage in traditional/harvesting practices (CNA 2017: 23). Those required levels were not reported to the Proponent.

In January 2016, the CNA issued a "Declaration for Reconciliation" to the government regarding *Tl'uq̓tinus*, expressing their desire that the reconciliation of Crown sovereignty with Cowichan Nation Aboriginal rights, including title, on the South Arm of the Fraser River be consistent with Cowichan Nation land and resource use objectives for that area (CNA 2017: 31). These objectives include: the recovery and restoration of *Tl'uq̓tinus*; reestablishment of the Cowichan Nation's residence and river access at *Tl'uq̓tinus*, as well as their culturally integral practices (e.g., harvesting fish, waterfowl, and plants); the realization of Cowichan Nation revenue, economic, and development opportunities and benefits that are compatible with their land and resource use objectives; and promotion of education regarding the presence and interests of the Cowichan Nation at and about *Tl'uq̓tinus* (CNA 2017: 31).

Penelakut Tribe/CNA have expressed the following concerns regarding other traditional or cultural interests:

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Importance of Indigenous cultural/archaeological monitors being onsite during construction and of Aboriginal participation in monitoring

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Penelakut Tribe/CNA's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional

purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).

- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.

- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Penelakut Tribe's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Penelakut Tribe/CNA, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Penelakut Tribe's other traditional and cultural interests including the ability of Penelakut Tribe/CNA to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The CNA report that it is likely that late eighteenth century Spanish and British explorers had met Cowichan people during their early map-making work in the Salish Sea, having recorded, in the summer of 1792, Indigenous people moving their houses and possessions across the strait, as the Cowichan did (CNA 2017: 5). The CNA also report that, Simon Fraser, when he led his expedition down the Fraser River in 1808, was aware of Cowichan occupation of the South Arm at the time of his visit, choosing to take the North Arm downstream to the sea after having been warned away from the South Arm by upstream Indigenous people, "because of the presence [there] of ferocious people from the sea and islands" (CNA 2017: 5).

In 1824, the Hudson's Bay Company, arriving from the south (i.e., Fort Vancouver at the mouth of the Columbia River), conducted an initial reconnaissance of the Fraser River to locate a suitable site for a fort, which would be established three years later, in 1827, at Fort Langley (CNA 2017: 5). The CNA note that the fort was constructed under the protection of "Cowichan Chief Shashia," who "appears frequently" in the fort's journals (CNA 2017: 6, n. 6).

In 1827, on their way up the river to build Fort Langley, a Hudson's Bay Company official recorded travelling by three Cowichan villages situated side-by-side at Lulu Island on the South Arm of the Fraser River, mid-point between New Westminster and the river's end—that is, at *Tl'uq̓tinus* (CNA 2017: 5). The names of the villages were recorded as Saumnause (Somenos), Pinellahutz (Penelakut), and Quomitzen (Quamichan) (CNA 2017: 6, 10). The CNA have said that a further 10 Cowichan communities likely had a presence in this area (i.e., Stz'uminus, Taatka, Halalt, Koksilah, Yewkwelos, Comiakem, Sickameen, Th'xyun'qsun, Clemclemaluts, and Lamalchi) (CNA 2017: 6, n. 3).¹⁹

¹⁹ "Taataka" and "Th'xyun'qsun" are also rendered as *T'eet'qe'* and *Tth'hwumqsun*.

A British Admiralty chart that the CNA report was based on survey work completed in 1846 and published in 1849, but essentially copied from a map created in 1827, is labelled “Cowitchin Villages” on the south shore of Lulu Island, downstream of Annacis Island (also labelled) and across from an island now known as Tilbury Island (CNA 2017: 6-11).

The CNA advise that the Project Boundary is approximately 10 km upstream from this area, which they characterize as the extent of exclusive Cowichan Nation territory on the South Arm of the Fraser River (CNA 2017: 29).

Penelakut Tribe/CNA have expressed the following concerns regarding Aboriginal title:

- Importance of Aboriginal Interests in the land and water being taken into account
- Noted that there is a direct relationship between accommodation and Strength of Claim, and the Proponent should recognize this. The Proponent needs to consider accommodation

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the Penelakut Tribe/CNA’s concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCS relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use,

marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.

- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.

- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Cowichan Tribe's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Penelakut Tribe/CNA, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Penelakut Tribe/CNA's Aboriginal title.

12.1.3.3.10 Semiahmoo First Nation

Context

Semiahmoo are Central Coast Salish and traditionally spoke *SEMYOME*, one of several languages that have been referred to as Northern Straits Salish (MOTI 2016: 10.1-15).

Semiahmoo have one reserve, fronting Semiahmoo Bay (part of northeastern extent of Boundary Bay) at the Canada-US border, adjacent to the city of White Rock (INAC 2017). The reserve is home to 50 of 97 registered members (INAC 2017). The Project Boundary lies approximately 22 km north of the Semiahmoo reserve (**Figure 12.1-A-1**).

Semiahmoo territory is centred on Boundary Bay, taking in the lower Fraser River from upstream of Mission, including part of the Stave River, downstream to the South Arm of the Fraser River, the Salish Sea and all of the Gulf Islands south of Gabriola Island, the San Juan Islands, most of Bellingham Bay, and the Nooksack River (MOTI 2016: 10.1:15, EAO 2017: 424). The Project Boundary lies within this territory (**Figure 12.1-A-7**).

While Semiahmoo was provided with funding for a Project-specific study regarding their Aboriginal Interests in the area of the Project, Semiahmoo did not provide a study to the Proponent.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Semiahmoo First Nation. Additional information regarding consultation with Semiahmoo First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-11 Overview of key consultation activities – Semiahmoo First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Semiahmoo First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
April 11, 2016	Meeting	Introductory meeting between the Proponent Semiahmoo First Nation.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
August 5, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering the BC Environmental Assessment Process.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
May 17, 2017	Meeting	Project update meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Semiahmoo First Nation did not attend the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.

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Date	Type of Engagement	Summary
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Letter	Letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding First Nation procurement concerns.
September 11, 2017	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Semiahmoo First Nation for review and comment.
September 18, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement on the Project.
September 21, 2017	Email	The Proponent shared a copy of the issues and interests list for review and comment.
September 26, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding comments and concerns with respect to procurement opportunities on the Project.
October 2, 2017	Meeting	Meeting between the Proponent and Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation to discuss Project procurement.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 17, 2017	Letter	Letter from the Proponent to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation with updated information regarding First Nation procurement concerns.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Semiahmoo First Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.

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Date	Type of Engagement	Summary
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
February 1, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary for review and comment.
February 7, 2018	Phone call	The Proponent requested information for inclusion in the Land Use chapter of the Application and Semiahmoo First Nation provided this information.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
March 14, 2018	Email	The Proponent shared a Consultation Area Map for Semiahmoo First Nation review and comment.

Date	Type of Engagement	Summary
March 23, 2018	Phone call	Semiahmoo First Nation advised that there are no comments on Aboriginal Consultation Report #1.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 14, 2018	Phone call	Semiahmoo First Nation advised that they reviewed Aboriginal Consultation Report #2 but did not provide comments to the Proponent.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Semiahmoo First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Semiahmoo First Nation during consultation and where possible, worked with Semiahmoo to address and resolve issues and concerns. A table of issues and concerns, previously provided to Semiahmoo for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Semiahmoo First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Semiahmoo First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Semiahmoo First Nation's ability to practice Aboriginal Interests. Based on issues and concerns raised by Semiahmoo First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Semiahmoo First Nation's past, present, and desired future use, as communicated to the Proponent by Semiahmoo or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title.

Impacts on Fishing

Within their traditional territory, Semiahmoo have said that they once fished for salmon, sturgeon, and eulachon, among other freshwater and marine species (MOTI 2016: 10.1-129). Salmon has been described as central to Semiahmoo (MOTI 2016: 10.1-130), while sturgeon has been noted as an important substitute for other fish; eulachon was also consumed (MOTI 2016: 10.1-131).

Important salmon fishing areas have been identified as open-ocean sites off the Point Roberts Peninsula (where the reef-net fishing technique was used), as well as riverine environments, including the Nicomekl and Little Campbell rivers that feed into Boundary Bay from the east (MOTI 2016: 130). These rivers were also used to harvest sturgeon (MOTI 2016: 10.1-130).

Semiahmoo have indicated previously that their traditional economy included fishing in the lower Fraser River, and that this fishing was enabled by relationships with other First Nations (MOTI 2016: 10.1-129). Specifically, they have said they spent the summer season at *Tl'ektines* (also, for example, *Tl'uqtinus*), approximately 10-12 km downstream from the Project Boundary, where access by Semiahmoo was gained via a series of marriage ties with the Cowichan Tribes (MOTI 2016: 130, EAO 2017: 429-430). Semiahmoo have reported that they also had access to Kanaka Creek and the Salmon River, which meet the Fraser River from the north and south respectively in the vicinity of Maple Ridge and Langley (MOTI 2016: 130, EAO 2017: 430), approximately 24-27 km upstream of the Project Boundary.

Available DFO data indicate that Semiahmoo currently fish for FSC purposes upstream of the Port Mann Bridge, and generally between the bridge and Kanaka Creek-Derby Reach (DFO 2017). In 2014 (largely consistent with previous years), they were issued two communal FSC licences to fish for sockeye by drift net (both in the week ending August 10); each opening was of 12 hours duration (DFO 2017). Information available to the Proponent did not indicate how many Semiahmoo boats or members typically participate in these openings, nor how they specifically access this section of the river from their home community.

Semiahmoo FSC allocations for salmon were not identified in sources reviewed nor otherwise reported to the Proponent by Semiahmoo. Semiahmoo has previously reported that they do not currently engage in commercial salmon fisheries (MOTI 2016: 10.1-131).

Semiahmoo First Nation have expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Great concern over the declining fish stocks and availability of salmon, particularly sockeye
- Semiahmoo is strongly concerned with food security
- The decline in the fishery is a form of cultural genocide
- Concern regarding the protection of fish and fish habitat during construction (i.e., sturgeon, eulachon and the five-species of salmon)
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings
- Concern regarding potential interference with Aboriginal fisheries (access and use, etc.)

- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration
- Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery
- Concern regarding water flow changes and impacts on fisheries and fishing
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Semiahmoo First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.

- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition

activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. The Proponent understands that Semiahmoo do not currently engage in commercial salmon fisheries.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

- Based on information available to the Proponent regarding Semiahmoo First Nation's traditional use in relation to the Project area, the Proponent understands that Semiahmoo historically fished on the Fraser River at locations downstream and upstream of the Project area, and that current Semiahmoo fishing for FSC purposes occurs upstream of the Port Mann Bridge, but on a very limited basis.

In consideration of the available information regarding fishing by Semiahmoo First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Semiahmoo First Nation asserted Aboriginal rights to fish including the ability of Semiahmoo First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Semiahmoo harvesting of wildlife, including migratory birds, has been previously reported as formerly concentrated in and around lands to the east of Boundary Bay, on both sides of the Canada-US border (MOTI 2016: 10.1-132). Mountain goat wool was reported as gathered on the north side of the Fraser River, along Kanaka Creek (MOTI 2016: 10.1-132), which meets the Fraser River approximately 24 km upstream of the Project Boundary.

Semiahmoo have said that they have harvested beaver, waterfowl, and migratory birds in proximity to the George Massey Tunnel area of the South Arm of the Fraser River (EAO 2017: 432), approximately 17 km downstream of the Project Boundary.

Information pertaining to past, present, or desired future harvesting of wildlife by the Semiahmoo in the vicinity of the Project Boundary was not identified in sources reviewed or otherwise communicated by Semiahmoo to the Proponent.

Semiahmoo First Nation have raised the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related noise and light effects to terrestrial wildlife

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Semiahmoo First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.

- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to

combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information available to the Proponent regarding Semiahmoo First Nation’s traditional use in relation to the Project area, the Proponent understands that Semiahmoo have harvested beaver, waterfowl, and migratory birds in the vicinity of the George Massey Tunnel on the South Arm of the Fraser River, downstream of the Project Boundary. Information pertaining to past, present, or desired future harvesting of wildlife by the Semiahmoo in the vicinity of the Project Boundary was not identified in sources reviewed or otherwise communicated by Semiahmoo to the Proponent.

In consideration of the available information regarding hunting/trapping by Semiahmoo First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Semiahmoo First Nation's asserted Aboriginal rights to hunt and trap including the ability of Semiahmoo First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Semiahmoo harvested camas, an important trade item, in the San Juan Islands and behind their villages around Boundary Bay (MOTI 2016: 10.1-132). Aquatic plants like bulrushes, tule (thule) rushes, and grasses were also gathered, in the late spring and summer, to manufacture mats that were used for a range of household purposes. Bulrushes and tule were said to have been gathered in locations that included Burns Bog (MOTI 2016: 10.1-132-10.1-133), approximately 8 km downstream of the Project Boundary. Grasses were collected in unspecified parts of the Fraser River valley (MOTI 2016: 10.1-132-10.1-133).

Semiahmoo harvested a range of berries for food, and have said that they practiced selective burning to boost berry-plant growth (MOTI 2016: 10.1-133). Other plants harvested by Semiahmoo included devil's club, rose hip, stinging nettle, and the wood, bark, and roots of various tree species for a range of purposes (MOTI 2016: 10.1-133, EAO 2017: 433).

Semiahmoo have reported that plant harvesting may still be occurring on the South Arm of the Fraser River, in the vicinity of Tilbury and Deas islands (MOTI 2016: 10.1-133, EAO 2017: 434), approximately 7 to 15 km downstream of the Project Boundary. The targeted species, timing, frequency, and duration of that harvesting was not identified in sources reviewed or otherwise identified by Semiahmoo to the Proponent.

Information pertaining to past, present, or desired future harvesting of plants by the Semiahmoo in the vicinity of the Project Boundary was not identified in sources reviewed or otherwise communicated by Semiahmoo to the Proponent.

Semiahmoo First Nation has expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern regarding run-off from the bridge, and potential impacts to the river/vegetation

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Semiahmoo First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as

well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.

- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary (“small wetlands”), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information available to the Proponent regarding Semiahmoo First Nation's traditional use in relation to the Project area, the Proponent understands that Semiahmoo First Nation have harvested plants on the South Arm of the Fraser River, including Burns Bog, downstream of the Project Boundary, and in unspecified parts of the Fraser River valley. Information pertaining to past, present, or desired future harvesting of plants by the Semiahmoo in the vicinity of the Project Boundary was not identified in sources reviewed or otherwise communicated by Semiahmoo to the Proponent.

In consideration of the available information regarding plant harvesting by Semiahmoo First Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Semiahmoo First Nation asserted Aboriginal rights to gather plants including the ability of Semiahmoo First Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Semiahmoo have said that use of their traditional lands and resources, access to which they say is now limited, has a spiritual and sacred element not readily separated from practical considerations (MOTI 2016: 10.1-133, EAO 2017: 434). Legendary stories are also integrated into this world view, which relay that people related to the first ancestors, who descended from the sky, were transformed by Khaals (the Transformer and mythical leader) into physical and biological elements of the landscape, and remain relatives of the Semiahmoo (MOTI 2016: 10.1-133, EAO 2017: 434). The Semiahmoo therefore consider themselves as part of the landscape (their territory), and this landscape serves as their sacred place, history book, storehouse of raw materials, and training ground (MOTI 2016: 10.1-133, EAO 2017: 434). Semiahmoo place names on this landscape include a location along the mainstem of the Fraser River upstream of the Port Mann Bridge, identified as *KITEY* (Katzie) (MOTI 2016: 10.1-133, EAO 2017: 435).

Semiahmoo have previously explained that their traditional economy was based on animals and fish that moved around, and that there is a circulatory effect from the Fraser River into Boundary and Semiahmoo Bays (MOTI 2016: 10.1-129). They have also said that they regularly travelled through and gathered a number of foodstuffs from their traditional territory, including the Fraser River estuary, Boundary Bay, and areas now in Washington State, and that their members continue to use their territory to practice their traditional economy on both sides of the border (MOTI 2016: 10.1-129).

Semiahmoo have previously reported that they understand their Aboriginal rights to include, among other things, the right to practice their culture in its entirety and the right to food security as per their traditional economy (MOTI 2016: 10.1-129); however, they have said that their ability to practice this economy has been severely limited by urbanization and contamination of their traditional food supply (MOTI 2016: 10.1-129, EAO 2017: 435). Accordingly, Semiahmoo have advised that they are seeking to restore or maintain, within their territory, the conditions necessary to promote the exercise of ancestral uses in the future (MOTI 2016: 10.1-129, EAO 2017: 435).

Semiahmoo First Nation has expressed the following concerns regarding other traditional or cultural interests:

- Importance of cultural continuity to the Semiahmoo people.
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.
- Ensuring appropriate protocol and cultural work takes place if ancestral remains may be disturbed.
- Comment that concerted effort should be made to find the transformer stone; if found, suggestion to reinstall on the bank of the river. Measures are required to address the cultural sensitivities and make appropriate restitutions for the spirit site and home of the transformer stone.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Semiahmoo First Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are

expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.

- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with

the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations

near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Semiahmoo First Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Semiahmoo First Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Semiahmoo First Nation's other traditional and cultural interests including the ability of Semiahmoo First Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The Proponent is not aware of Semiahmoo First Nation assertions of Aboriginal title to specific locations in the vicinity of the Project.

Semiahmoo First Nation has expressed the following concern regarding Aboriginal title:

- Comment that the Project is being built on unceded land and Semiahmoo's interests in the land and water need to be taken into account

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupancy; decision-making; and economic benefit. In response to the concerns of Semiahmoo First Nation regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such

as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Semiahmoo First Nation's traditional territory to the support and maintenance of the Semiahmoo First Nation culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Semiahmoo First Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Semiahmoo First Nation's Aboriginal title.

12.1.3.3.11 Squamish Nation

Context

Squamish (*Skwxwú7mesh Úxwumixw*) are Central Coast Salish and speak *Skwxwú7mesh sníchim* (MOTI 2016: 10.1-16).

The Squamish Nation land base is comprised of 24 reserves, with the main community based on Mission 1, on the north shore of Burrard Inlet, between the Lions Gate (First Narrows) and Ironworkers Memorial (Second Narrows) bridges (INAC 2017). The remainder of Squamish reserves are largely within Howe Sound and along the Squamish River. Of 4,280 registered members, 2,237 reside on Squamish reserves (INAC 2017). The Project Boundary does not overlap current or former Squamish reserve lands (**Figure 12.1-A-1**).

Squamish territory has been described as taking in the area from Point Grey in the south to Roberts Creek in the west; then north along the height of land to the Elaho River headwaters including all the islands and drainages in Howe Sound; then southeast to the confluence of the Soo and Green rivers north from Whistler; then south along the height of land to the Port Moody area including the entire Mamquam River and Indian Arm drainages; then west along the height of land to Point Grey (MOTI 2016: 10.1-16). The area in which Squamish asserts Aboriginal fishing rights extends further south, to take in the Fraser River downstream of the Port Mann Bridge (Squamish Nation 2018). The north end of the Project Boundary overlaps this area (**Figure 12.1-A-8**).

Squamish did not prepare a Project-specific study regarding their Aboriginal Interests in the area of the Project; however, Squamish have reviewed the information presented in this section regarding their Aboriginal Interests and their input has been integrated as received (i.e., as identified by the citation, Squamish Nation 2018). Just prior to the submission of the Application, Squamish provided the Proponent with a Project-specific memo regarding their Aboriginal Interests in the area of the Project with a request for the document to be considered during the Application Review Phase and in the development of mitigation and management plans.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Squamish Nation. Additional information regarding consultation with Squamish Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-12 Overview of key consultation activities – Squamish Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Squamish Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
August 5, 2016	Letter	Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Squamish Nation did not attend the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.

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Date	Type of Engagement	Summary
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Squamish Nation for review and comment.
October 10, 2017	Email	The Proponent shared a list of issues and interests that Squamish Nation expressed in relation to the Project.
September 21, 2017	Meeting	Meeting between Squamish Nation and the Proponent.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Squamish Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.

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Date	Type of Engagement	Summary
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 19, 2017	Meeting	Meeting between the Squamish Nation and the Proponent.
December 21, 2017	Email	The Proponent shared the draft AOA for review and comment.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
February 1, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 3, 2018	Email	Squamish Nation provided comments on the Aboriginal Interests Summary.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 8, 2018	Phone call	Squamish Nation advised that there are no comments on the draft Aboriginal Consultation Report #2.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Squamish Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Squamish Nation during consultation and where possible, worked with Squamish Nation to address and resolve issues and concerns. A table of issues and concerns, previously provided to Squamish Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Squamish Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Squamish Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Squamish Nation's ability to practice Aboriginal Interests. Based on issues and concerns raised by Squamish Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Squamish Nation's past, present, and desired future use, as communicated to the Proponent by Squamish or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title.

Impacts on Fishing

Squamish have reported that, historically, they harvested Fraser River sockeye, based on family ties with other First Nations (i.e., Musqueam), and that Squamish presence on the Fraser River is well documented in historic accounts, including from as early as 1827 (MOTI 2016: 10.1-134, Squamish Nation 2018), when Fort Langley was established.

Squamish have stated that, since time immemorial, salmon has been a principal food for Squamish and that the Fraser River has been a major source of that salmon. Historically, Squamish practiced a seasonal pattern of arriving on the Fraser River in April to fish and returning to Burrard Inlet in late September (Squamish Nation 2018).

Squamish Elders have stated that the Squamish people would travel to the Fraser River to catch salmon by way of canoe, travelling around Point Grey and then up the river to their village opposite modern-day New Westminster (*Kikáyt*) (Squamish Nation 2018).

The Cowichan Nation Alliance reported in the context of the Project that they used a "rich [sockeye] fishing ground where the [Fraser] river narrows...adjacent to the Squamish village of *Q'iq'uyht*," near the present-day Pattullo Bridge, where Cowichan, "through arrangements," likely fished on their trading journeys up to Fort Langley (CNA 2017: 30).

Squamish have reported that there is no other source of sockeye in Squamish territory other than the Fraser River, and that fishing sockeye on the Fraser River, while not currently practiced, remains integral to Squamish culture (MOTI 2016: 10.1-134, EAO 2017: 442). Squamish have said they are seeking to re-establish their sockeye fishing practices in the Fraser River and ancestral connections to the area

(EAO 2017: 442-443). Squamish have said that other First Nations currently fish in the Fraser River in the area of the Project may be asked by Squamish to fish on their behalf (EAO 2017: 443); however, at present, Squamish say their sockeye is obtained by a contracted seine boat that harvests the fish in the Johnstone Strait area, outside Squamish territory and traditional fishing areas (MOTI 2016: 10.1-135).

The Squamish Nation's FSC allocation for sockeye has been reported as 20,000 (MOTI 2016: 10.1-134). Squamish have said that this translates into approximately 5 sockeye per member given their large membership, and that this falls far short of their food needs (MOTI 2016: 10.1-134-10.1-135). Squamish have requested that DFO increase this allocation to 70,000, which translates into approximately 17 sockeye per member (MOTI 2016: 10.1-135).

Squamish Nation has expressed the following concerns regarding fish, fish habitat, and/or fishing:

- Potential impacts to the food fishery, including secondary impacts to Squamish Nation from effects on Aboriginal fishers who fish on behalf of Squamish Nation.
- Protection of fish and fish habitat.
- Protection of salmon, eulachin and sturgeon from effects of construction.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).
- Effects of decommissioning the existing bridge on flow, erosion and habitat.
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Increased soil erosion, scouring effects, and slope instability as a result of changes to the Fraser River hydraulics and river morphology (with resulting adverse effects to fish and fish habitat).
- Concern regarding water flow changes and impacts on fisheries and fishing.
- The area is important for Aboriginal use and it is critical to protect Aboriginal access.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Squamish Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.

- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes.
- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human

health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Squamish Nation, the Proponent understands that Squamish do not currently fish for sockeye in the Fraser River, but did so historically in the area of the Project, and are seeking to restore the practice. The Proponent is also aware that Squamish have said that other nations that currently fish in the area of the Project may be asked by Squamish to fish on their behalf, but that this is not the source of sockeye for Squamish at present.

In consideration of the available information regarding fishing by Squamish Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Squamish Nation asserted Aboriginal rights to fish including the ability of Squamish Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Information pertaining to past, present, or desired future harvesting of wildlife by the Squamish Nation in the vicinity of the Project was not identified in sources reviewed or reported by Squamish Nation to the Proponent.

Squamish Nation has expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related noise and light effects to terrestrial wildlife

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Squamish Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land

uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

- The Proponent is not in possession of specific information pertaining to past, present, or desired future harvesting of wildlife by the Squamish Nation in the vicinity of the Project, but acknowledges that Squamish Nation have reported travelling historically up the Fraser River to their village opposite modern-day New Westminster (*Kikáyt*), in the vicinity of which they conceivably engaged in wildlife harvesting in the past.

In consideration of the available information regarding hunting/trapping by Squamish Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Squamish Nation's asserted Aboriginal rights to hunt and trap including the ability of Squamish Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Information pertaining to past, present, or desired future harvesting of plants by the Squamish Nation in the vicinity of the Project was not identified in sources reviewed or reported by Squamish Nation to the Proponent.

Squamish Nation did not express Project-related concerns regarding plants, plant habitat, or plant harvesting.

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. Although Squamish Nation has not expressed concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to

occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.

- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do

not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant harvesting).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- The Proponent is not in possession of specific information pertaining to past, present, or desired future harvesting of plants by Squamish Nation in the vicinity of the Project, but acknowledges that Squamish Nation have reported travelling historically up the Fraser River to their village opposite modern-day New Westminster (*Kikáyt*), in the vicinity of which they conceivably engaged in plant harvesting in the past.

In consideration of the available information regarding plant harvesting by Squamish Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Squamish Nation's asserted Aboriginal rights to gather plants including the ability of Squamish Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Squamish Nation has reported that their Fraser River sockeye fishery was culturally and economically significant to them prior to contact (EAO 2017: 437), and that, while they are not able to currently practice sockeye fishing in the Fraser River, this fishery remains integral to Squamish culture (MOTI 2016: 10.1-134, EAO 2017: 442).

Squamish Nation has expressed the following concerns regarding relating to other traditional/cultural interests:

- Importance of cultural continuity to the Squamish Nation
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Concerns with current lack of accessible and natural shoreline and importance of protecting and restoring areas where possible

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Squamish Nation's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites

identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns

and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.

- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park,

traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Squamish Nation's culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Squamish Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Squamish Nation's other traditional and cultural interests including the ability of Squamish Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The Proponent is not aware of Squamish Nation assertions of Aboriginal title to locations in the vicinity of the Project. Squamish Nation has not expressed concerns regarding Aboriginal title to the Proponent.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the concerns of Indigenous Groups regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.

- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Squamish Nation's traditional territory to the support and maintenance of the Squamish Nation culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Squamish Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Squamish Nation's Aboriginal title.

12.1.3.3.12 Stz'uminus First Nation

Context

Stz'uminus (formerly "Chemainus") are Central Coast Salish and speak the *Hul'q'umi'num* (or Island) dialect of Halkomelem (EAO 2017: 449).

The main Stz'uminus community is based on Chemainus 13, on Stuart Channel near the town of Ladysmith, on the southeast coast of Vancouver Island, about 25 km south of Nanaimo (INAC 2017). Stz'uminus have three other reserves: two south of Chemainus (Say-La-Quas 10, on the Chemainus River, and Squaw-Hay-One 11); and Oyster Bay 12, where the Oyster River meets Ladysmith Harbour (INAC 2017). Of 1,351 members, 739 live on Stz'uminus reserves (INAC 2017). The Project Boundary does not overlap the reserve lands of the Stz'uminus First Nation (**Figure 12.1-A-1**).

Stz'uminus First Nation territory is understood to be represented by the Hul'qumi'num Treaty Group (HTG) Statement of Intent (SOI). The HTG, an affiliation of the Cowichan Tribes, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, and Stz'uminus First Nation,²⁰ formed in 1993 for the purposes of treaty negotiations with Canada and BC. The HTG SOI is made up of two areas: a broader marine fishing territory and a core title territory that both span the Salish Sea. The core title area includes the Fraser River from the mouth of the South Arm up to and including Douglas Island (EAO 2017: 198). The Project Boundary lies within this territory (**Figure 12.1-A-2**).

Cowichan Tribes, Halalt First Nation, Penelakut Tribe, and Stz'uminus First Nation have advised the Proponent that they have come together as the Cowichan Nation Alliance (CNA) to advance their common rights and title interests in the lower mainland region (CNA 2017: 4). The CNA explain that prior to colonization and the subsequent reserve creation process (when they were compartmentalized as a function of the *Indian Act* into their present-day individual bands and reserves), CNA communities were a distinct, trans-Georgia Strait, Coast Salish nation that held rights in their traditional territory, extending

²⁰ The CNA has advised the Proponent that Stz'uminus First Nation is no longer a member of the HTG. To the Proponent's knowledge, the Stz'uminus do not assert a traditional territory that is different from that asserted by the HTG, as presented in **Figure 12.1-A-2**.

from southeastern Vancouver Island, eastward through the Gulf Islands and across the Salish Sea, to encompass the Fraser Delta, its South Arm, and all the way to the vicinity of present-day Yale (CNA 2017: 4). As modern-day successors of this pre-contact Cowichan Nation, the CNA communities report that they also claim Aboriginal title in the lower Fraser River area, including the village site and surrounding lands of *Tl'uq̓tinus*, which they describe as a substantial Cowichan Nation village on the lower South Arm of the Fraser River, from where traditional fishing, hunting, gathering, and cultural activities had taken place since time immemorial (CNA 2017: 4). This area is located approximately 10 km downstream of the Project Boundary (CNA 2017: 29).

Cowichan Nation Alliance prepared the following Project-specific study (CNA Study) regarding their Aboriginal Interests in the area of the Project:

- Pattullo Bridge Replacement Project, Cowichan Nation Alliance Strength of Claim Report (CNA Study 2017)

The spatial area for the identification of Aboriginal Interests in the CNA Study is referred to as the geographical area that will be affected by the construction of the new bridge across the Fraser River (CNA 2017: 2).

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Stz'uminus First Nation. Additional information regarding consultation with Stz'uminus First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

For the Pattullo Bridge Replacement Project, Stz'uminus First Nation participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Halalt First Nation and Penelakut Tribe.

Table 12.1-13 Overview of key consultation activities – Stz'uminus First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Stz'uminus First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
July 14, 2016	Meeting	Meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss capacity funding.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
September 29, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.

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Date	Type of Engagement	Summary
May 15, 2017	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Stz'uminus First Nation did not attend the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2018	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Cowichan Nation Alliance for review and comment.
September 21, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 16, 2017	Report	Cowichan Nation Alliance submitted a Strength of Claim Report in relation to the Pattullo Bridge Replacement Project.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Stz'uminus First Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	Cowichan Tribes submitted comments on the Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies, on behalf of Cowichan Nation Alliance.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 26, 2017	Email	Cowichan Tribes advised that Cowichan Nation Alliance has no comments on the draft Aboriginal Consultation Plan.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.

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Date	Type of Engagement	Summary
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 2, 2017	Letter	The Proponent shared a response to Cowichan Nation Alliance's comments on the Phase B Geotechnical Investigation, Environmental Management Plan and environmental assessment studies.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
January 12, 2018	Meeting	Project update provided to Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation.
January 16, 2018	Email	<p>Cowichan Nation Alliance shared the following documents with the Proponent, for consideration in the preparation of the Application:</p> <ul style="list-style-type: none"> ▪ Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010) ▪ Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011) ▪ Traditional Marine Use and Occupancy Study – Halalt (2013) ▪ Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013)

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Date	Type of Engagement	Summary
		<ul style="list-style-type: none"> ▪ Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014) ▪ Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014) ▪ Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014) ▪ Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014) ▪ National Energy Board - Hearings Stz'uminus and Olsen (2014) ▪ George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015) ▪ British Columbia Supreme Court - Affidavit of Randy Bouchard (2016) ▪ Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016) ▪ Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998) ▪ Past Harvesting Practices and Current Harvesting Needs (date unknown) ▪ Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 23, 2018	Meeting	Project update meeting between the Proponent and Cowichan Tribes, Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation to discuss the Project schedule, request for comment on the draft Aboriginal Interests Summary and draft baseline studies, Project governance and funding and other Project-related matters.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.

Date	Type of Engagement	Summary
May 7, 2018	Letter	Cowichan Tribes provided comments, on behalf of Cowichan Nation Alliance, on the draft Aboriginal Consultation Report #2.
May 18, 2018	Email/Call	Stz'uminus confirmed language for description of Stz'uminus First Nation's traditional territory and mapping in Application.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Stz'uminus First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Stz'uminus First Nation during consultation and where possible, worked with Stz'uminus to address and resolve issues and concerns. A table of issues and concerns, previously provided to Stz'uminus First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Stz'uminus First Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Stz'uminus First Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Stz'uminus First Nation's ability to practice Aboriginal Interests. Based on issues and concerns raised by Stz'uminus First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Stz'uminus First Nation's past, present, and desired future use, as communicated to the Proponent by Stz'uminus First Nation or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the CNA Study (CNA 2017).

In mid-January 2018, the CNA also provided several other documents to the Proponent for consideration:

- Past Harvesting Practices and Current Harvesting Needs [no date, no identified author]
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley – Summary Report, prepared by Precision Identification Biological Consultants, June 1, 1998

- BC Supreme Court – Affidavit of Barbara Lane (*Cowichan Tribes v. Minister of Aboriginal Relations and Reconciliation*), September 12, 2007
- Historical Geography of Cowichan Land Use and Occupancy, Lower Fraser River – Map Series and Report, prepared by K. Brealey, May 31, 2010
- Analysis of Cartographic and Archaeological Evidence to locate Tl'Eqtinus, 19th Century Cowitchen Village on Lulu Island, prepared by John Dewhirst, November 22, 2010
- Pre-Consultation Analysis of Potential Aboriginal Interests – Fraser Richmond Lands, Lulu Island, prepared by John Dewhirst, September 27, 2011
- Traditional Marine Use and Occupancy Study – Halalt, prepared by Halalt First Nation, Loraine Littlefield, and Darlene August, October 31, 2013
- Traditional Marine Use and Occupancy Study – Cowichan Final Report (Draft), prepared by Cowichan Tribes Traditional Marine Use Study Team and Traditions Consulting Services Inc., November 28, 2013
- Fraser River Head Lease Transition Area – Cowichan Nation Alliance – FLNRO Map of CNA Use and Occupancy, prepared by the Ministry of Forests, Lands and Natural Resource Operations, May 7, 2014
- Fraser River Head Lease Areas – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, July 10, 2014
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use – Final Report, prepared by D. Kennedy, Bouchard and Kenndy Research Consultants, September 22, 2014
- Qualitative Fisheries Impact Study – Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report), prepared by Inlailwatash Natural Resources Services and AquaTerra Environmental Ltd., October 6, 2014
- National Energy Board – Hearings (Trans Mountain Expansion Project), Stz'uminus First Nation, November 25, 2014
- George Massey Tunnel Replacement Project – Cowichan Occupation and Use of the Project Lands Report, prepared by D. Kennedy, Bouchard and Kennedy Research Consultants, August 25, 2015
- BC Supreme Court – Affidavit of Randy Bouchard (*Cowichan Tribes v. Canada*), April 1, 2016
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia – Review of Ethnographic and Historical Sources, prepared by Ministry of Justice, Legal Services Branch, Aboriginal Research Division, May 17, 2016

Having reviewed this additional material, the Proponent is satisfied that the CNA Study (CNA 2017) has captured the salient information regarding the Aboriginal Interests of the Stz'uminus First Nation in relation to the Project.

Impacts on Fishing

The CNA Study explains that salmon is fundamental to the life of Central Coast Salish peoples, both as a resource and spiritually, and that salmon of any sort found in the waters of the lower Fraser River region have, and continue to be, absolutely integral to the Cowichan Nation (CNA 2017: 18).

Salmon harvesting coincided with the runs in the Fraser River: Chinook (June into November), sockeye (*Thuqi'*; late June well into September), pink (*Haan'*; mid-August into mid-October), chum (mid-September well into November), and coho (late September to early November) (CNA 2017: 14, 15, 32). Steelhead (rainbow trout) were available May through July and again in October through to mid-November, while cutthroat trout could be found at tributary mouths in August and September (CNA 2017: 14-15). The predictability and abundance of the runs allowed Central Coast Salish to maintain permanent villages, as they could return annually to the same fisheries, at a specific time (more or less), and depending on the technology, harvest thousands of fish in a day (CNA 2017: 18-19).

The CNA Study indicates that the Fort Langley journals for the 1827-1830 period note that the "Cowichan people travelled back and forth between southeastern Vancouver Island, the Gulf Islands, and the lower Fraser River throughout the year, including at times when the journals report salmon and sturgeon being plentiful," and being harvested in large quantities (CNA 2017: 14). For example, "an immense amount" of sockeye salmon was documented as having been dried and bundled before the Cowichan left the Fraser River in fall (CNA 2017: 14).

A Hudson's Bay Company official had also documented that the Cowichan "who prized [sturgeon] highly, were loath to part with sturgeon in trade" (CNA 2017: 15). The Cowichan are described in the Fort Langley journals as having been harvesting sturgeon (*Qw-taythun*) on the Fraser River near the establishment in November 1827 and April 1829, or as having been present on the river when sturgeon would have been available (i.e., late April and early May 1828) (CNA 2017: 15-16, 32).

Sturgeon follow eulachon (*Sh-wi'wi*), and eulachon spawning season on the Fraser River is typically between March and May, lasting for upwards of three weeks (CNA 2017: 16-17, 32). These fish (and their roe) would be gathered by rake or dip nets (CNA 2017: 17).

The CNA Study reports that sockeye and pink salmon, sturgeon, eulachon, and flounder (*P'uwi'*) were predominantly obtained in the lower Fraser River as an integral part of the Cowichan Nation's traditional economy, as they were not available in any abundance in other parts of their traditional territory (CNA 2017: 21, 32).

In addition to *Tl'uq'tinus* as a fishing base, the CNA Study explains that Cowichan oral history refers to a number of sites along the Fraser River in the vicinity of the Project Boundary that were likely seasonal occupations and located primarily in close proximity to other communities (i.e., Katzie), to whom Cowichan were allied. The CNA Study also identifies a "rich [sockeye] fishing ground where the river narrows...adjacent

to the Squamish village of *Q'iq'uyht*," near the present-day Pattullo Bridge, where Cowichan, "through arrangements," likely fished on their trading journeys up to Fort Langley (CNA 2017: 30).

Cowichan Nation's traditional use of the Fraser River fisheries continued throughout the colonial period and well after Confederation (1871). In 1878, the reserve commissioner remarked about the Cowichan Nation's "continued practice of occupying their Lulu Island village, while fishing salmon during the summer and early fall runs up the Fraser River, as they had always done" (CNA 2017: 18).

The CNA has advised that they were accustomed to fish along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30). The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of fishing were not provided to the Proponent.

Information pertaining to where CNA member First Nations currently fish for FSC purposes outside the Fraser River, the timing, frequency, and duration of that fishing, number of fish caught, or participation levels of community boats and members in FSC fishing, was not provided to the Proponent.

Member communities of the CNA fish for commercial purposes in the Fraser River under licences held by the Hul'q'umi'num Fisheries Limited Partnership. Details regarding their commercial fishing may be found in **Section 6.1 Marine Use**.

Stz'uminus First Nation/CNA has expressed the following concerns relating to fish, fish habitat, and/or fishing:

- Cowichan Nation Alliance has fishing rights in the area and is concerned with any impacts to these rights
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings
- Concern regarding potential interference with Aboriginal fisheries (access and use)
- Concern regarding potential Project-related impacts to fish and fish habitat and interest in opportunities for habitat enhancement/restoration
- Concern regarding water flow changes and impacts on fisheries and fishing

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Stz'uminus First Nation/CNA's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels

that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.

- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC

purposes. As reported in **Section 6.1 Marine Use**, Stz'uminus First Nation, in partnership with Halalt, Lake Cowichan, Lyackson, and Penelakut as part of the Hul'q'umi'num Fisheries Limited Partnership, holds 22 commercial licences and two quotas under the Total Allowable Catch for seven different species, including five Salmon Gill Net Area E licences that can be fished in the LSA, by one vessel based in Ladysmith, B.C. (Vancouver Island).

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Stz'uminus First Nation/CNA, the Proponent understands that Stz'uminus First Nation were accustomed to fishing along the banks of the Fraser River, including within the Project Boundary, from pre-contact into the historical period, and that Stz'uminus First Nation is demanding to resume harvesting fish for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to fish. While Penelakut Stz'uminus First Nation do not appear to fish in the area for FSC purposes at present, the Proponent acknowledges the potential for the resumption of that fishing.

In consideration of the available information regarding fishing by Stz'uminus First Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Stz'uminus First Nation's asserted Aboriginal rights to fish including the ability of Stz'uminus First Nation to exercise its Aboriginal rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

The CNA has advised that they were accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were wildlife resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*) (CNA 2017: 21, 32).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting wildlife were not provided to the Proponent.

Stz'uminus First Nation/CNA has expressed the following concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting:

- Concern regarding Project-related effects to terrestrial wildlife, including effects from noise and light

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Stz'uminus First Nation/CNA's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish**

and Fish Habitat, Section 4.7 Noise and Vibration, and Section 6.7 Lighting, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).
- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of

cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).

- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Stz'uminus First Nation, the Proponent understands that Stz'uminus First Nation was accustomed to harvesting animals along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Stz'uminus First Nation is demanding to resume harvesting of wildlife for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to hunt and trap. As reported by the Stz'uminus First Nation/CNA, some of the wildlife resources formerly harvested on the Fraser River included muskrat (*Sq'ulh-q'ulh*) and ducks (*Ma'uqw*), which were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Stz'uminus First Nation does not appear to hunt or trap in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding hunting/trapping by Stz'uminus First Nation/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Stz'uminus First Nation's asserted Aboriginal rights to hunt and trap including the ability of Stz'uminus First Nation/CNA to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

The CNA has advised that they were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries through the region, including the Project Boundary and beyond during both the pre-contact and historical period (CNA 2017: 29-30).

The CNA has advised that there were plant resources predominantly found in the lower Fraser River that were not available in any abundance in other parts of Cowichan Nation territory, but were integral to their traditional economy. These included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule (CNA 2017: 21, 32). At *Tl'uqtinus*, in addition to the village and “fishermen’s camp,” colonial surveyors (ca. 1859) had noted trails that connected “stretches of blueberry bushes” (CNA 2017: 24).

According to the CNA Study, it is estimated that at least 10% of the diet was likely made up of fruits and vegetables, and some of the most sought-after fruits and vegetables, such as berries (as an example), were only available to the Cowichan Nation on the east side of the Salish Sea (e.g., Lulu Island) (CNA 2017: 22). Cattails, which was not a food source but an important weaving material for baskets, were harvested from certain areas of the Fraser River because of their high quality (CNA 2017: 22). According to an 1865 account, “Fraser river hemp” was also used by Cowichan to make lines and nets for salmon fishing (CNA 2017: 25).

The CNA have advised that they are demanding to resume harvesting of traditional food and material resources as formerly on the lower Fraser River, including in the Project area, as part of their culturally integral Aboriginal rights (CNA 2017: 30). Desired levels of future access and use within the Fraser River in the vicinity of the Project for the purposes of harvesting plants were not provided to the Proponent.

Stz'uminus First Nation/CNA has expressed the following concerns regarding plants, plant habitat, and/or plant harvesting:

- Concern that storm water runoff from drill pads, and plans to direct it into vegetated areas will potentially impact vegetation or result in deleterious substances leaching into the ground and request for information regarding the types of deleterious substances in runoff and vegetative cover
- Need for invasive plants management during construction activities. Request to see invasive species control included in machinery maintenance and cleaning
- Importance of replanting areas with native riparian and forage plants as the project location was a traditional site of gathering for the historic Cowichan Nation and a request for input into plant selection. Vegetation health, in particular in the riparian area, is inextricably linked to fish health

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Stz'uminus First Nation/CNA's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary (“small wetlands”), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Stz'uminus First Nation, the Proponent understands that Stz'uminus First Nation were accustomed to harvesting plants along the banks of the lower Fraser River main stem and in numerous stream tributaries, including in the Project Boundary, during both the pre-contact and historical period, and that the Stz'uminus First Nation are demanding to resume harvesting of plants for traditional purposes on the Fraser River, including the Project area, as part of their asserted right to gather plants. As reported by the Stz'uminus First Nation/CNA, some of the plant resources formerly harvested on the Fraser River included horsetail (*Sxum'xum'*), wapato (*Sqewth*), cattail (*Wool'*), bog cranberry (*Qwum'tsol's*) and bog blueberry, wild clover, silverweed, crabapple (*Qwa'up*), Indian hemp (*Tth'uxtth'ux*), Labrador tea (*Me'uhwulhp*), and thule, which they say were not available in any abundance in other parts of Cowichan Nation territory, but were nonetheless integral to their traditional economy. While Stz'uminus First Nation do not appear to gather plants in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Stz'uminus First Nation/CNA for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Stz'uminus First Nation's asserted Aboriginal rights to gather plants including the ability of Squamish Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

The Fraser River has been described by the CNA as both the home of the Cowichan Nation permanent village of *Tl'uqtinus* and the abundant and lucrative salmon resource that was critical to their social and economic success (CNA 2017: 19). *Tl'uqtinus* served as the basis for harvesting of fish and other resources; their trade in camas, clams, and other products for salmon and other resources, including mountain goat wool that Cowichan used in ceremonial regalia; and for providing an opportune time for families of high status to meet and arrange marriages, which were economic unions, and to engage in other ceremonial occasions (e.g., feasts) that acknowledged and escalated the wealth of these high status families (CNA 2017: 20). In this way, the activities of the Cowichan Nation while resident at this permanent village ensured that their permanent winter villages on Vancouver Island and the Gulf Islands, and their trans-Georgia Strait culture and traditions, continued to be supported and maintained (CNA 2017: 19).

The CNA Study reviews the historical circumstances that led to the gradual alienation of *Tl'uq̓tinus* (both the village and the surrounding berry fields) by the late 1870s. While the Cowichan Nation had resisted this alienation, and the government was aware of the Cowichan Nation's resistance and ongoing desire for the lands at *Tl'uq̓tinus* to be reserved to them, no reserves in this area were ultimately assigned, largely because the lands had already been sold to settlers (CNA 2017: 26-28). The CNA Study also reports that, on the opening of the canneries, licences to fish for salmon had been issued to the Cowichan Nation, and this practice had continued "year after year" until 1889-1890, when they were told that "none but the Fraser River Indians could obtain a licence" (CNA 2017: 28). The Cowichan Nation petitioned the government well into the 1900s to have their Fraser River lands and resources returned to them (CNA 2017: 28-29).

The loss of the *Tl'uq̓tinus* lands and access to the Fraser River have combined with other cumulative factors (e.g., ongoing government regulation, privatization of traditional lands, environmental destruction), all of which have contributed to the shift of the Cowichan Nation diet from one heavily dependent on traditional foods to market foods. A survey conducted by the HTG showed that levels of available traditional foods fall far short of levels required by almost all Cowichan Nation communities who wish to engage in traditional/harvesting practices (CNA 2017: 23). Those required levels were not reported to the Proponent.

In January 2016, the CNA issued a "Declaration for Reconciliation" to the government regarding *Tl'uq̓tinus*, expressing their desire that the reconciliation of Crown sovereignty with Cowichan Nation Aboriginal rights, including title, on the South Arm of the Fraser River be consistent with Cowichan Nation land and resource use objectives for that area (CNA 2017: 31). These objectives include: the recovery and restoration of *Tl'uq̓tinus*; reestablishment of the Cowichan Nation's residence and river access at *Tl'uq̓tinus*, as well as their culturally integral practices (e.g., harvesting fish, waterfowl, and plants); the realization of Cowichan Nation revenue, economic, and development opportunities and benefits that are compatible with their land and resource use objectives; and promotion of education regarding the presence and interests of the Cowichan Nation at and about *Tl'uq̓tinus* (CNA 2017: 31).

Stz'uminus First Nation/CNA has expressed the following concerns regarding other traditional or cultural interests:

- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage
- Importance of Indigenous cultural/archaeological monitors being onsite during construction and of Aboriginal participation in monitoring

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Stz'uminus First Nation/CNA's concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of

practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.

- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Stz'uminus First Nation's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Stz'uminus First Nation/CNA, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible** impacts to Stz'uminus First Nation's other traditional and cultural interests including the ability of Stz'uminus First Nation/CNA to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Asserted Aboriginal Title

The CNA report that it is likely that late eighteenth century Spanish and British explorers had met Cowichan people during their early map-making work in the Salish Sea, having recorded, in the summer of 1792, Indigenous people moving their houses and possessions across the strait, as the Cowichan did (CNA 2017: 5). The CNA also report that, Simon Fraser, when he led his expedition down the Fraser River in 1808, was aware of Cowichan occupation of the South Arm at the time of his visit, choosing to take the North Arm downstream to the sea after having been warned away from the South Arm by upstream Indigenous people, “because of the presence [there] of ferocious people from the sea and islands” (CNA 2017: 5).

In 1824, the Hudson’s Bay Company, arriving from the south (i.e., Fort Vancouver at the mouth of the Columbia River), conducted an initial reconnaissance of the Fraser River to locate a suitable site for a fort, which would be established three years later, in 1827, at Fort Langley (CNA 2017: 5). The CNA note that the fort was constructed under the protection of “Cowichan Chief Shashia,” who “appears frequently” in the fort’s journals (CNA 2017: 6, n. 6).

In 1827, on their way up the river to build Fort Langley, a Hudson’s Bay Company official recorded travelling by three Cowichan villages situated side-by-side at Lulu Island on the South Arm of the Fraser River, mid-point between New Westminster and the river’s end—that is, at *Tl’uq̓tinus* (CNA 2017: 5). The names of the villages were recorded as Saumnause (Somenos), Pinellahutz (Penelakut), and Quomitzen (Quamichan) (CNA 2017: 6, 10). The CNA have said that a further 10 Cowichan communities likely had a presence in this area (i.e., Stz’uminus, Taatka, Halalt, Koksilah, Yewkwelos, Comiakem, Sickameen, Th’xyun’q̓sun, Clemclemaluts, and Lamalchi) (CNA 2017: 6, n. 3).²¹

A British Admiralty chart that the CNA report was based on survey work completed in 1846 and published in 1849, but essentially copied from a map created in 1827, is labelled “Cowitchin Villages” on the south shore of Lulu Island, downstream of Annacis Island (also labelled) and across from an island now known as Tilbury Island (CNA 2017: 6-11).

The CNA advise that the Project Boundary is approximately 10 km upstream from this area, which they characterize as the extent of exclusive Cowichan Nation territory on the South Arm of the Fraser River (CNA 2017: 29).

Stz’uminus First Nation/CNA has expressed the following concerns regarding Aboriginal title :

- Importance of Aboriginal Interests in the land and water being taken into account
- Noted that there is a direct relationship between accommodation and Strength of Claim, and the Proponent should recognize this. The Proponent needs to consider accommodation
- Aboriginal Interests in the land and water need to be taken into account

²¹ “Taataka” and “Th’xyun’q̓sun” are also rendered and *T’eeet’qe’* and *Tth’hwumq̓sun*.

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the Stz'uminus First Nation/CNA's concerns regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.
- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such

as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Fraser River to the support and maintenance of Cowichan Tribe's culture and traditions, particularly in and around *Tl'uq̓tinus*, downstream of the Project Boundary. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Stz'uminus First Nation/CNA, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Stz'uminus First Nation/CNA's Aboriginal title.

12.1.3.3.13 Tsawwassen First Nation

Context

Tsawwassen First Nation are Coast Salish and speak a dialect of the *Hun'qum'i'num* language (TFNFA 2009: Preamble, Tsawwassen 2018a).

Tsawwassen First Nation, Canada, and BC are parties to the Tsawwassen First Nation Final Agreement (the Treaty), which became effective on April 3, 2009 (TFN 2017: [6]).

Under the Treaty, Tsawwassen Lands, which lie on the upland areas between the BC Ferry Terminal at Tsawwassen and Deltaport, are owned and governed by the Tsawwassen First Nation (TFN 2017: [7]). Use of Tsawwassen Lands is subject to Tsawwassen Law and the Tsawwassen First Nation Land Use Plan (EAO 2017: 473, Tsawwassen 2018a). Roughly half of nearly 500 Tsawwassen Members reside on Tsawwassen Lands (TFN 2017: [6]). The Project Boundary lies approximately 20 km northeast of Tsawwassen Lands (**Figure 12.1-A-1**).

Tsawwassen First Nation also owns in fee simple 62 ha of land near Boundary Bay and on the Fraser River along Canoe Pass. These lands are currently under the jurisdiction of the Corporation of Delta (EAO 2017: 473); however, the Treaty provides a mechanism for Tsawwassen First Nation to add these and other lands that it owns in fee simple to Tsawwassen Lands in the future (Tsawwassen 2018a). The Boundary Bay and Fraser River lands do not overlap the Project Boundary (**Figure 12.1-A-9**).

The Treaty also defines Tsawwassen Territory. As described by Tsawwassen, this territory is bordered on the northeast by the watersheds that feed into Pitt Lake, down the Pitt River to Pitt Meadows, where they empty into the Fraser River. It includes Burns Bog and part of New Westminster, following the outflow at the Fraser River just south of Sea Island. From Sea Island, it cuts west across the Salish Sea to Galiano Island and includes all of Salt Spring, Pender, and Saturna islands. From there, the territory continues northeast to include the Point Roberts Peninsula and the watersheds of the Serpentine and Nicomeckl rivers (TFN 2017: [6]). Tsawwassen have advised that their land base – their Traditional Territory – is deeply connected to their identity (TFN 2017: [6]). The Project Boundary lies within Tsawwassen Territory (**Figure 12.1-A-9**).

Under the Treaty, the Tsawwassen may exercise harvesting rights in specific areas that lie within Tsawwassen Territory, subject to measures necessary for conservation, public health, or public safety (EAO 2017: 473). As **Figure 12.1-A-9** indicates, the Project Boundary lies within the Tsawwassen Fishing Area, where Tsawwassen First Nation has the right to harvest fish and aquatic plants; the Tsawwassen Wildlife Harvest Area, where Tsawwassen First Nation has the right to harvest wildlife; and within the Tsawwassen Migratory Bird Harvest Area, where Tsawwassen First Nation has the right to harvest migratory birds. The Project Boundary also lies approximately 7 km northeast of Burns Bog, a Tsawwassen Plant Gathering Area, where Tsawwassen First Nation has the right to gather plants.

Tsawwassen First Nation prepared the following study (TFN Study) regarding their Aboriginal Interests in the area of the Project:

- Patullo [*sic*] Bridge Replacement Project Impact Study: An Assessment of Potential Impacts of the Patullo [*sic*] Bridge Replacement on Aspects of the “Tsawwassen First Nation Final Agreement”, and Other Considerations, August 16, 2017 (TFN 2017)

Tsawwassen have advised the Proponent that the Project may have an adverse impact on the following Treaty rights of the Tsawwassen First Nation (TFN 2017: [8]):

- Tsawwassen Fishing Right
- Tsawwassen Right to Harvest Wildlife
- Tsawwassen Right to Harvest Migratory Birds
- Tsawwassen Right to Harvest Plants

Tsawwassen are of the view that the Project may also impact other values that are not captured or expressed explicitly in the Treaty, but that relate to how Tsawwassen Members practice their culture (TFN 2017: [20]). The Proponent considers these values as associated with the Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Tsawwassen First Nation. Additional information regarding consultation with Tsawwassen First Nation can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-14 Overview of key consultation activities – Tsawwassen First Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Tsawwassen First Nation about the Project.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
November 14, 2016	Phone call	The Proponent shared that the Section 10 Order was issued the previous week.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
December 14, 2016	Meeting	Introductory meeting between the Proponent and Tsawwassen First Nation.
February 15, 2017	Meeting	Meeting between the Proponent and the Tsawwassen First Nation Natural Resources Committee.
March 13, 2017	Meeting	Meeting between the Proponent and Tsawwassen First Nation to discuss economic development opportunities.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Tsawwassen First Nation attended the Working Group meeting.
July 14, 2017	Meeting	Tsawwassen First Nation attended a tour of the hydraulic model.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
August 24, 2018	Email	Tsawwassen First Nation provided a Treaty Impact Study for the Pattullo Bridge Replacement Project.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 14, 2018	Email	The Proponent shared a copy of the issues and interests list for review and comment.
September 15, 2017	Meeting	Project update meeting between the Proponent and Tsawwassen First Nation.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Tsawwassen First Nation for review and comment.

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Date	Type of Engagement	Summary
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 11, 2017	Email	Tsawwassen First Nation provided comments on: <ul style="list-style-type: none"> ▪ Phase B geotechnical investigation materials. ▪ Noise, visual and vegetation environmental assessment consultation package. ▪ The draft Aboriginal Consultation Plan.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 23, 2017	Working Group Meeting	Tsawwassen First Nation attended the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.
October 24, 2017	Letter	The Proponent provide responses to Tsawwassen First Nation comments on the Phase B geotechnical investigation program materials.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 29, 2017	Email	Tsawwassen First Nation provided the traditional names of species in response to the Proponent's request for input.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 1, 2017	Email	Tsawwassen First Nation provided comments on the Test Pile materials.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2018	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2018	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.

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Date	Type of Engagement	Summary
November 17, 2018	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 21, 2017	Email	The Proponent shared the revised Aboriginal Consultation Plan and Appendix A.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 6, 2017	EAO-led conference call	Tsawwassen First Nation participated in an EAO-led conference call specific to fish and fish habitat.
December 8, 2017	Letter	The Proponent responded to Tsawwassen First Nation comments on the Test Pile Program materials.
December 8, 2017	Meeting	Project update meeting between Tsawwassen First Nation and the Proponent.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 21, 2017	Email	The Proponent shared the draft AOA for review and comment.
January 2, 2018	Letter	Tsawwassen First Nation submitted Part 1 of the vegetation survey to the Proponent.
January 15, 2018	Email	The Proponent shared the Draft Tsawwassen First Nation Treaty Rights Summary for review and comment.
January 15, 2018	Email	The Proponent shared responses to Tsawwassen First Nation comments on the noise, visual and vegetation consultation package.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 18, 2018	Email	The Proponent shared the Tsawwassen First Nation Consultation Area map that will be included within the Application, for review and comment.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary for review and comment.
February 2, 2018	Meeting	Project update meeting between the Proponent and Tsawwassen First Nation.
February 2, 2018	Email	The Proponent shared a marine use questionnaire for comment by Tsawwassen First Nation.
February 2, 2018	Email	The Proponent shared Tsawwassen First Nation Consultation Area Map for review and comment.

Date	Type of Engagement	Summary
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 16, 2018	Email	Tsawwassen First Nation submitted comments on the marine use questionnaire.
February 16, 2018	Email	Tsawwassen First Nation submitted comments on the Tsawwassen First Nation Consultation Area Map.
February 23, 2018	Email	Tsawwassen First Nation submitted comments on the Treaty Rights Summary.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
February 26, 2018	Email	The Proponent shared a revised Consultation Area Map with Tsawwassen First Nation, incorporating comments received, for final review.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
May 3, 2018	Email	Tsawwassen First Nation provided comments regarding the draft Aboriginal Consultation Report #2.
May 7, 2018	Email	The Proponent provided information to Tsawwassen First Nation regarding how input on the draft Aboriginal Consultation Report #2 would be reflected in the revised document.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Tsawwassen First Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Tsawwassen First Nation during consultation and where possible, worked with Tsawwassen to address and resolve issues and concerns. A table of issues and concerns, previously provided to Tsawwassen First Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Tsawwassen First Nation's Treaty Rights under the Tsawwassen First Nation Final Agreement

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally, which includes Treaty rights, are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on the Treaty rights of

the Tsawwassen First Nation. These potential impacts are characterized by considering how the Project could affect several factors important to Tsawwassen First Nation's ability to practice their Treaty rights. Based on the TFN Study (TFN 2017) and key issues and concerns raised by Tsawwassen First Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Treaty rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use, where identified by Tsawwassen First Nation
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Treaty rights

A summary of information about Tsawwassen First Nation's exercise of harvesting rights in the vicinity of the Project Boundary, as communicated to the Proponent by Tsawwassen First Nation or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to Tsawwassen First Nation Fishing Rights, including Harvesting Aquatic Plants; Tsawwassen First Nation Right to Harvest Wildlife and Right to Harvest Migratory Birds; Tsawwassen First Nation Right to Gather Plants; and Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture. The key information source for the following summary is the TFN Study (TFN 2017).

General Concerns Regarding Potential Impacts on Tsawwassen First Nation's Treaty Rights

Tsawwassen First Nation raised the following general concerns with potential Project impacts relating to their Treaty rights:

- Tsawwassen First Nation are participating in consultation on the environmental assessment of the Project according to the relevant provisions (i.e., in Chapter 3 and Chapter 15) of the Treaty.
- Adverse impacts on Treaty rights should be avoided to the greatest extent possible, followed by mitigation or compensation, as necessary.
- The Treaty contemplates future harvesting opportunities that may not be based on past or present practices (e.g., new and emerging fisheries).
- Resources harvested pursuant to Treaty rights are not only harvested for food, but also for the creation of utilitarian and artistic objects, ceremonial regalia, and trade.
- The exercise of harvesting rights facilitates the accumulation and transmission of traditional knowledge, the maintenance of traditions (including the use of the *Hunqum'i'num* language) and social relationships and institutions, and opportunities for first-hand observations of natural resources and their habitats, which is critical to inform conservation efforts and perpetuate knowledge.
- Changes in the exercise of harvesting rights can have economic, cultural, and health impacts, not only for Tsawwassen Members, but for other Indigenous groups that Tsawwassen engages with, now and into the future.

- Protection of Aboriginal Groups' rights to harvest within the Project area.
- Concern that, given the level of development that has occurred on the Fraser River over the past number of years, there is a risk that incremental development (such as the Project) could cause a collapse of species to which Tsawwassen First Nation has constitutionally protected Treaty rights to harvest.
- Concern regarding Proponent, EAO and VFPA setting conditions for the Project. Tsawwassen First Nation is of the view that commitments in their Treaty should be made into valued components, since effects are not limited to the natural environment and Indigenous groups have modified their ways and the exercising of treaty interests may be impacted.
- Tsawwassen proposes that Tsawwassen Treaty rights be added as VCs to be studied in the Environmental Assessment process, and help the proponent develop options to mitigate impacts on those values, through changes in design or other methods. Comment that the Project will have an impact on natural resources and important ecological functions. These impacts should be measured and negative effects should be mitigated. Tsawwassen proposes that along with Treaty rights, the associated wildlife and fish species that are targeted for harvesting under these rights be identified as VCs.

Impacts on Tsawwassen First Nation Fishing Rights, including Harvesting Aquatic Plants

Tsawwassen reports that their ancestors were accomplished fishers and that fishing is one of the cornerstones of Tsawwassen's identity. For Tsawwassen, fishing's cultural and economic importance cannot be overstated (TFN 2017: [5, 11]).

Tsawwassen have said that they located themselves strategically on the edge of the Salish Sea, near the mouth of the Fraser River to access saltwater, anadromous, and freshwater fish (TFN 2017: [11]). Tsawwassen report that salmon, eulachon, and sturgeon have been staple Tsawwassen foods for millennia (TFN 2017: [5, 11]).

The Tsawwassen Fishing Right is described in Chapter 9 of the Treaty. Resources covered by the Tsawwassen Fishing Right (i.e., fish and aquatic plants) were and continue to be harvested for personal use, community use, and economic purposes, such as trade with other Indigenous groups (TFN 2017: [11]). The Treaty (TFNFA 2009) defines "fish" as fish (finfish), intertidal bivalves and other shellfish, crustaceans, and marine animals (excluding cetaceans), the parts of these fish, as well as their eggs, sperm, spawn, larvae, spat, juvenile stages, and adult stages. "Intertidal bivalves" are more specifically defined as manila clams, littleneck clams, butter clams, horse clams, soft-shell clams, varnish clams, blue mussels, cockles, and oysters (TFNFA 2009). "Aquatic plants," including attached and detached kelp and seaweeds, are specifically defined as all benthic and detached algae, brown algae, red algae, green algae, golden algae and phytoplankton, and all marine and freshwater flowering plants, ferns and mosses, growing in water or soils that are saturated during most of the growing season (TFNFA 2009).

The Tsawwassen Fishing Right may be exercised throughout the Tsawwassen Fishing Area and is not site-specific. Tsawwassen report that Tsawwassen Members actively fish in the Fraser River (downstream of the Port Mann Bridge) and within the Project Boundary (TFN 2017: [12]).

Tsawwassen report that salmon harvests occur from June through October (TFN 2017: [11]). Within this period of the year, Tsawwassen are fishing for salmon weekly, with licence openings ranging from 4 hours to 48 hours (MOTI 2016: 10.1-142-10.1-143). Tsawwassen report that a very limited eulachon harvest occurs from mid-April to mid-May (TFN 2017: (11)). Typically, only 6 or fewer licences have been issued to Tsawwassen in this period given low eulachon numbers, with openings lasting about 6 hours (MOTI 2016: 10.1-143-10.1-144).

The Tsawwassen Fishing Right is an allocation based formula to provide for fish for FSC or domestic purposes (TFN 2017: [11]). The Treaty (TFNFA 2009: Appendix J-2) specifies the following allocations for salmon:

- Sockeye:

In any year, the Tsawwassen Fishing Right Allocation for sockeye salmon will be:

- a) when the Canadian Total Allowable Catch for Fraser River sockeye salmon is 500,000 or less, 1.0% of the Canadian Total Allowable Catch for Fraser River sockeye salmon;
- b) when the Canadian Total Allowable Catch for Fraser River sockeye salmon is greater than 500,000 and less than 3.0 million, then 5,000 Fraser River sockeye salmon plus 0.40904% of that portion of the Canadian Total Allowable Catch for Fraser River sockeye that is greater than 500,000 and less than 3.0 million; and
- c) when the Canadian Total Allowable Catch for Fraser River sockeye salmon is equal to or greater than 3.0 million, then 15,226 Fraser River sockeye salmon.

- Chum:

In any year, the Tsawwassen Fishing Right Allocation for chum salmon will be 2.58% of the Terminal Surplus of Fraser River chum salmon to a maximum of 2,576 Fraser River chum salmon.

- Pink:

In any year, the Tsawwassen Fishing Right Allocation for pink salmon will be that number of fish caught incidentally in the harvest of Tsawwassen Allocation for sockeye salmon, up to a maximum of 2,500 Fraser River pink salmon.

- Chinook:

In any year, the Tsawwassen Fishing Right Allocation for Chinook salmon will be determined by an abundance based formula, based on Canadian Total Allowable Catch that produces an average annual harvest of 625 Fraser River chinook salmon based on Fraser River Chinook salmon returns for the 1982 to 2004 time period.

- Coho:

In any year, the Tsawwassen Allocation for coho salmon is an amount of Fraser River coho salmon that will result in an annual average harvest of 500 Fraser River coho salmon and will be harvested:

- a) incidentally in fisheries that target other species; or
- b) using selective harvesting techniques to capture specific coho stocks.

When eulachon openings are permitted, harvests are restricted to small quantities (about 50 lbs or 23 kg) to support ceremonial purposes (MOTI 2016: 10.1-143). Numerous other species of fish (e.g., trout, char) and aquatic plants do not have specific allocations. For unallocated species, Tsawwassen First Nation may harvest to meet the FSC needs of the Nation, as long as conservation goals have first been met (TFN 2017: [11]).

Tsawwassen Members also fish for commercial purposes. On the effective date of the Treaty, Tsawwassen First Nation, Canada and British Columbia entered into the Tsawwassen First Nation Harvest Agreement, which sets out a process for issuing commercial salmon and crab licences to Tsawwassen First Nation (Tsawwassen 2018a). The Tsawwassen First Nation Harvest Agreement is a side agreement to the Treaty (Tsawwassen 2018a), which requires compensation to Tsawwassen First Nation if Canada reduces the number of commercial licences or terminates the agreement (TFN 2017: [12]). Canada also agreed to provide Tsawwassen with funds to enhance their commercial fishing capacity for salmon and crab (TFN 2017: (12)). Details regarding Tsawwassen participation in fishing for commercial or economic purposes are included in **Section 6.1 Marine Use**.

Tsawwassen First Nation identified several concerns related to potential effects to fish and fish habitat, including:

- Impacts on water quality, which could in turn affect fisheries resources that Tsawwassen depends on
- Direct impacts on fish and fish habitat, which would directly affect the Tsawwassen Fishing Right.
- Concern regarding the protection of fish and fish habitat during construction. Sturgeon, eulachon and the five-species of salmon have been specifically identified
- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration

Tsawwassen First Nation identified several concerns related to potential effects to specific fishing locations and access, including:

- Direct impacts on Tsawwassen fishing locations due to bridge components (e.g., pilings, foundations)
- Interference or displacement of Tsawwassen fishing opportunities within or near the Project area

- Concern regarding navigability and access restrictions during construction of the new bridge and decommissioning of the old bridge
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.)
- Concern regarding water flow changes and impacts on fisheries and fishing
- Concern that the exercise of Tsawwassen Fishing Right will be impacted by Project-related activities in the design phase, including geo-technical testing in the Fraser River
- Comment that Project activities may also impact on the ability of Tsawwassen Members to participate in commercial fisheries, either under the authority of the Tsawwassen Harvest Agreement or as participants in the general commercial fishery

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Tsawwassen First Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.
- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing

for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.

- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).
- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-

commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1**, Tsawwassen First Nation hold a commercial Salmon Gill Net Area E licence that can be fished in the LSA, and two individual Tsawwassen Members hold commercial Salmon Gill Net Area E licences. Tsawwassen informed the Proponent that their preferred fishing areas within the Fraser River have moved upriver toward New Westminster in the last five to ten years due to increased vessel traffic in the South Arm of the Fraser River and accretions at Canoe Pass. Tsawwassen also informed the Proponent that some Tsawwassen Members use their fishing vessels for tourism opportunities, such as wildlife tour guides or fishing charters, on a casual basis and to supplement other work.

- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with

Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Tsawwassen First Nation, the Proponent understands that the area around Pattullo Bridge has become an increasingly important fishing area within the Tsawwassen Fishing Area given incremental changes in fishing conditions in other areas of the Tsawwassen Fishing Area within the Fraser River (i.e., downstream, in the South Arm). Short-term, sporadic effects on Tsawwassen fishing access and environmental conditions (noise, visual) may not be completely avoidable during construction. It may also take time for mitigation measures related to fish and fish habitat to become effective.

In consideration of the available information regarding fishing by Tsawwassen First Nation for purposes provided for in its Treaty, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Minor-to-Moderate** impacts to the Tsawwassen Fishing Right including the ability of Tsawwassen First Nation to exercise its rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Tsawwassen First Nation Right to Harvest Wildlife and Migratory Birds

Tsawwassen report that the area of the Project is home to many wildlife and migratory species that are valued by Tsawwassen Members (TFN 2017: [15, 17]).

The Tsawwassen Right to Harvest Wildlife is described in Chapter 10 of the Treaty. Resources covered by the Tsawwassen Right to Harvest Wildlife include all vertebrate and invertebrate animals, including mammals, birds, reptiles, and amphibians, and the eggs, juvenile stages, and adult stages of these animals. The definition does not include fish (see above) or migratory birds (see below) (Tsawwassen 2018a). Wildlife species of concern to Tsawwassen, and identified as having consumptive and/or non-consumptive values to Tsawwassen Members, are as follows (TFN 2017: [16]):

- Mammals – Striped Skunk, Spotted Skunk, Beaver, Red Fox, Black-tailed Deer, Eastern Cottontail, Coyote, Muskrat, Douglas' Squirrel, River Otter, and Mink
- Non-migratory Birds – Great Blue Heron, Raptors (e.g, Bald Eagle, hawks, falcons, owls), Sandhill Crane, Belted Kingfisher
- Reptiles and Amphibians – Frogs, snakes, turtles

The Tsawwassen Right to Harvest Migratory Birds is described in Chapter 11 of the Treaty. Resources covered the Tsawwassen Right to Harvest Migratory Birds include birds, as defined under federal law enacted further to international conventions, and their eggs. Migratory bird species of concern to Tsawwassen, and identified as having consumptive and/or non-consumptive values to Tsawwassen Members, are as follows (TFN 2017: [17]):

- Canada Goose
- Lesser Snow Goose
- Brant
- Ducks, including but not limited to:
 - Mallard
 - Gadwall
 - Northern Pintail
 - Green-winged, Cinnamon, and Blue-winged Teal
 - American Widgeon
 - Common and Barrow's Goldeneye
 - Bufflehead
 - Canvasback
- Gulls
- Songbirds

Tsawwassen Members may trade and barter harvested wildlife and migratory birds amongst themselves and other Indigenous peoples resident in British Columbia (TFN 2017: [15, 17]). They may also sell wildlife and migratory bird parts, to the extent that such sale is permitted by federal, provincial, and Tsawwassen law (TFN 2017: [15, 17]).

Wildlife and migratory birds may be harvested by Tsawwassen Members in the Tsawwassen Wildlife Harvest Area and Tsawwassen Migratory Bird Harvest Area, which are co-extensive with Tsawwassen Territory. These areas include the Project Boundary. Both the wildlife and migratory bird harvesting rights may be exercised on private land, but only with the consent of the landowner, and only if such harvesting is permissible by law (e.g., not within a “no-shooting zone”) (TFN 2017: [14, 17]). The Treaty acknowledges that the Tsawwassen Wildlife Harvest Area is within and adjacent to a heavily urbanized area with limited wildlife habitat, such that BC’s ability to authorize uses or dispositions of provincial Crown land “may result in Tsawwassen First Nation being without any meaningful opportunity to harvest under the Tsawwassen Right to Harvest Wildlife” (EAO 2017: 490).

Over much of the area in which Tsawwassen First Nation holds rights to harvest wildlife and migratory birds, there are existing restrictions on the discharge of firearms. Within and adjacent to the Project Boundary, the discharge of firearms is prohibited by municipal or city by-laws or other agencies or institutions. The closest area where firearms may be discharged (with conditions), is in the South Arm of the Fraser River (TFN 2017: [15]), beginning approximately 2 km downstream of the Project Boundary.

Tsawwassen First Nation identified concerns related to potential effects to wildlife and migratory birds, including:

- Disturbance and displacement of wildlife and migratory birds
- Loss or degradation of wildlife and migratory bird habitat
- Increased wildlife and migratory bird mortality due to vehicle collisions, and, in the case of birds, collisions with infrastructure
- Concern regarding Project-related effects to terrestrial wildlife

Tsawwassen First Nation identified concerns related to potential effects to access to wildlife and migratory birds and harvesting activities, including:

- Loss or restriction of harvest opportunity over the status quo.
- Comment that it is likely that opportunities for Tsawwassen Members to harvest wildlife would be diminished during construction, and depending on the extent of the Project footprint, areas where harvesting is currently permissible will likely be lost due to infrastructure footprint and/or safety concerns
- Concern that the exercise of the Tsawwassen Right to Harvest Wildlife, to Harvest Migratory birds, and to Harvest Plants may be impacted by the displacement of wildlife species in the area that are available to hunt, due to the presence of workers and equipment, and activities related to the Project

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Tsawwassen First Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of

timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- The Proponent understands that wildlife and migratory bird species of concern to Tsawwassen, and identified as having consumptive and/or non-consumptive values to Tsawwassen Members were specifically assessed in the wildlife assessment. The Proponent understands that the Project lies within the Tsawwassen Wildlife Harvest Area and Tsawwassen Migratory Bird Harvest Area. The Proponent is not in possession of specific information regarding whether and to what extent Tsawwassen Members are actively pursuing these harvesting rights in the Project area, but the potential for these activities to be occurring at present or in the future is acknowledged.

In consideration of the available information regarding hunting/trapping by Tsawwassen First Nation pursuant to the Tsawwassen Right to Harvest Wildlife and Tsawwassen Right to Harvest Migratory Birds, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Tsawwassen First Nation's treaty rights to harvest wildlife and migratory birds including the ability of Tsawwassen First Nation to exercise such treaty rights and the quality of the outcomes of exercising such rights.

Impacts on Tsawwassen First Nation Right to Gather Plants

The Tsawwassen Right to Gather Plants is described in Chapter 13 of the Treaty. Resources covered by the Tsawwassen Right to Gather Plants include all flora and fungi, with the exception of aquatic plants (included in the definition for fish), and trees, with the exception of their bark, branches, and roots.

Tsawwassen have indicated that the Project Boundary is in proximity to Tsawwassen Plant Gathering Areas defined under the Treaty (TFN 2017: (18)). There are four gathering areas defined under the Treaty (MOTI 2016: 10.1-148), two of which are approximately 30 km to the northeast of the Project Boundary, adjacent to Pitt Lake (one on the east side and one on the west side); the other two are to the southwest of the Project Boundary (i.e., the South Arm Marshes Wildlife Management Area at the mouth of the Fraser River, approximately 20 km downstream of the Project Boundary, and the other in Burns Bog, approximately 10 km from the Project Boundary).

Specifically in the South Arm Marshes Wildlife Area, plants gathered by Tsawwassen include *Quxmin* (*Lomatium nudicaule*), Salal, Bog Blueberries, Indian Hemp (*Apocynum cannabinum*), cattails and rushes, St. John's Wort, Western Red Cedar, Douglas Fir, Western Hemlock, Western Yew, Black Cottonwood, Red-osier Dogwood, and Red Alder (TFN 2017: (18)). The frequency and duration of this harvesting was not reported by Tsawwassen. Plant harvesting for traditional purposes in areas outside of the Tsawwassen Plant Gathering Areas, other than in and around Tsawwassen Lands (EAO 2017: 491), was also not reported.

Tsawwassen First Nation identified concerns related to potential effects to plants and gathering activities, including:

- Changes in river hydrology affecting shorelines, tidal wetlands, mudflats, drainage channels, and uplands of the South Arm Marshes Wildlife Management Area and adjoining areas that may lead to changes impacting the ability of Tsawwassen Members to gather and use plants
- Loss or degradation of habitat, including damage by invasive species, that supports the growth of species that are gathered
- Loss or restriction of plant-gathering opportunity over the status quo
- Request for the use of traditional plants and trees in revegetation plans
- Concern regarding the introduction of invasive species/management of invasive species

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Tsawwassen First Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.
- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary ("small wetlands"), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat

assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.

- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminister, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).

- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.
- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Tsawwassen First Nation, the Proponent understands that Tsawwassen First Nation
- The Proponent understands that two of four Tsawwassen Plant Gathering Areas – Burns Bog and the South Arm Marshes Wildlife Management Area – lie along and within the Fraser River downstream of the Project Boundary (between 10 and 20 km downstream), and that the other two are approximately 30 km upstream (approximately 30 km), adjacent to Pitt Lake. The frequency and duration of plant harvesting within these area was not reported by Tsawwassen to the Proponent. Plant harvesting for traditional purposes in areas outside of the Tsawwassen Plant Gathering Areas, other than in and around Tsawwassen Lands, was also not identified to the Proponent.

In consideration of the available information regarding plant gathering by Tsawwassen First Nation pursuant to the Tsawwassen Right to Gather Plants, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Tsawwassen First Nation's treaty rights to gather plants including the ability of Tsawwassen First Nation to exercise such rights and the quality of the outcomes of exercising such rights.

Impacts on Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture

The Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture, as well as to use the *Hun'qum'i'num* language, is described in Chapter 14 of the Treaty.

Tsawwassen have advised that, for thousands of years, Tsawwassen people travelled the Lower Fraser River and the Salish Sea/Georgia Strait (TFN 2017: 5). Several *Hun'qum'i'num* place names for important heritage sites in the vicinity of the Project are identified in the Treaty (Appendix O-3 and O-4). Among the list of cultural and historic sites of significance to Tsawwassen First Nation to be designated as provincial heritage sites is Poplar Island or *Sk'ək'wex'qən* (identified as DhRr-000 or “not registered”), which lies in the North Arm of the Fraser River, approximately 3 km downstream of the Project Boundary. Geographic features to be named with Tsawwassen names that are in or near the Project Boundary include the Pattullo Bridge, or *Qiqay't*, and New Westminster, or *Sx'wa'ayməł*.

Tsawwassen Members continue to use the Fraser River for transportation, recreation, and cultural purposes (TFN 2017: [19]). Members navigate the Fraser River using powered fishing vessels, pleasure craft, and unpowered craft, such as canoes, to get to and from other First Nation communities, sites for harvesting activities, and ceremonial activities, such as the First Salmon ceremony (TFN 2017: [19]).

Tsawwassen report that the viewscape at culturally important locations is tied to the quality of experience that Tsawwassen Members have when engaging in ceremonial and spiritual activities or during those times when Tsawwassen Members are observing and documenting changes in the environment to transmit knowledge to younger generations (TFN 2017: [19]).

Tsawwassen First Nation identified concerns related to potential effects to the practice of Tsawwassen First Nation culture, including:

- Concern that the Project will permanently alter the viewscape of the area, which will impact upon the quality of the experience that Tsawwassen Members have when using the area for ceremonial or spiritual activities, or during those times when Tsawwassen Members are observing and documenting changes in the environment to transmit knowledge to younger generations.
- Importance of cultural continuity to the Tsawwassen First Nation.
- Tsawwassen's members are most likely to experience the bridge from the water. It's desirable to minimize the visual impact of the structure from that viewpoint. It's not necessary to focus on aesthetic treatments beyond minimization from that viewpoint as people are too busy when they are fishing to notice visual details.
- Concern about visual impacts of cables, particularly from the river (when fishing). Request for a colour other than white, noting that the Alex Fraser and SkyTrain bridges have less prominent cables than Port Mann as they are a darker colour).
- Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.

- Comment that heritage activities of Aboriginal people extend into the present time and into the future. Heritage practises that need to come in the future need to be taken into consideration in the environmental assessment.
- Comment that members navigate the Fraser River using powered fishing vessels, pleasure craft and unpowered craft such as canoes to get to and from other First Nation communities, sites for harvesting activities, and ceremonial activities, such as the First Salmon ceremony. Concern that the Project is likely to hamper or interfere with these movements and activities.

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Tsawwassen First Nation's concerns regarding the practice of Tsawwassen First Nation culture, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).
- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.

- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.
- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address

potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).

- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.
- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.

- The Proponent is aware that the Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture is a treaty right pursuant to the Tsawwassen First Nation Final Agreement (TFNFA), and that several *Hun'qum'i'num* place names for important heritage sites in the vicinity of the Project are identified in the TFNFA. The Proponent understands that Tsawwassen Members continue to use the Fraser River for transportation, recreation, and cultural purposes, including to get to and from other First Nation communities, sites for harvesting activities, and ceremonial activities, such as the First Salmon ceremony. The Proponent also acknowledges Tsawwassen's perspective that the viewscape at culturally important locations is tied to the quality of experience that Tsawwassen Members have when engaging in ceremonial and spiritual activities or during those times when Tsawwassen Members are observing and documenting changes in the environment to transmit knowledge to younger generations. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Tsawwassen First Nation pursuant to the Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible-to-Minor** impacts to Tsawwassen First Nations' treaty rights to culture including the ability of Tsawwassen First Nation to exercise such treaty rights as do exist and the quality of the outcomes of exercising such rights.

12.1.3.3.14 Tsleil-Waututh Nation

Context

Tsleil-Waututh are Central Coast Salish and speak the *Hən̓q̓əmi̓nəm̓* (or Downriver) dialect of Halkomelem (TWN 2016: 29-37).

The main Tsleil-Waututh community is located in North Vancouver, on the shore of Burrard Inlet, approximately 2 km east of the north end of the Second Narrows Bridge, on Burrard Inlet 3 (INAC 2017). Two other reserves, Inlailawatash 4 and Inlailawatash 4A, are located on Indian Arm. Of 593 registered members, 288 reside on Tsleil-Waututh reserves (INAC 2017). The Project Boundary does not overlap any current or former reserve lands of the Tsleil-Waututh Nation (**Figure 12.1-A-1**).

Based on a map included within the Tsleil-Waututh Stewardship Policy (TWN 2015: ii), Tsleil-Waututh Nation's Consultation Area extends from the vicinity of Mount Garibaldi in the north to the 49th parallel (and beyond) in the south, Gibsons in the west, and Coquitlam Lake in the east. The Tsleil-Waututh Stewardship Policy explains that this Consultation Area captures documented Tsleil-Waututh use and occupancy information, and as such is the area in relation to which the Tsleil-Waututh requires

consultation to assess potential impacts of proposed land and resource developments on Tsleil-Waututh interests (TWN 2015). Tsleil-Waututh have clarified that this Consultation Area is not an exhaustive representation of Tsleil-Waututh’s use of the land, waters, and resources, and that Tsleil-Waututh have and continue to use areas beyond the Consultation Area boundary (TWN 2018a,b). The Project Boundary lies within Tsleil-Waututh’s Consultation Area (**Figure 12.1-A-10**).

Tsleil-Waututh have said that their Consultation Area includes the lands and waters draining into Burrard Inlet and Indian Arm, as well as the Fraser River and other areas in the vicinity of the Project (TWN 2018a,b).

Tsleil-Waututh Nation prepared the following study (TWN Study) regarding their Aboriginal Interests in the area of the Project:

- Tsleil-Waututh Nation Traditional Use Study Review in Relation to the [Pattullo Bridge Replacement Project] (TWN 2016)

The spatial area for the identification of Aboriginal Interests in the TWN Study is referred to as the Traditional Use (TU) Study Area (TWN 2016: 5). The TU Study Area is a stretch of the Fraser River main stem and adjacent lands downstream of the Port Mann Bridge to the upper portions and adjacent lands of the North Arm (including the Queensborough area) and South Arm (including Annacis Island). The TU Study Area includes the Project Boundary.

Involvement in the Consultation Process

This section summarizes initial and Pre-Application phase consultation undertaken with Tsleil-Waututh Nation. Additional information regarding consultation with Tsleil-Waututh Nation, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Table 12.1-15 Overview of key consultation activities – Tsleil-Waututh Nation

Date	Type of Engagement	Summary
February 16, 2016	Letter	Notified Tsleil-Waututh Nation about the Project.
March 9, 2016	Meeting	Introductory meeting between Tsleil-Waututh Nation and the Proponent.
March 21, 2016	Email	The Proponent shared information regarding upcoming geotechnical investigations for review and comment.
June 6, 2016	Email	The Proponent shared a letter with information regarding the upcoming public open houses.
November 18, 2016	Email	The Proponent shared that the Section 10 Order was issued the previous week.
October 3, 2016	Email	The Proponent shared a letter from TransLink to the Mayors of Metro Vancouver regarding public consultation on the Project and advised that the Project Description has been submitted to the BCEAO.
November 14, 2016	Email	Tsleil-Waututh Nation shared a Traditional Use and Occupancy Study for the Pattullo Bridge Replacement Project.

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Date	Type of Engagement	Summary
November 17, 2016	Email	The Proponent shared the Section 10 Order from BCEAO and the Project Description.
February 17, 2017	Tour	Tsleil-Waututh Nation participated in a tour of the hydraulic model.
April 19, 2017	Meeting	Project update meeting between Tsleil-Waututh Nation and the Proponent.
April 20, 2017	Site Visit	Tsleil-Waututh Nation participated in a site visit.
May 10, 2017	Meeting	Meeting between Tsleil-Waututh Nation and the Proponent to discuss capacity funding and the preparation of a Traditional Use Study.
May 19, 2017	Email	The Proponent shared a description of geotechnical investigations scheduled to take place in July/August 2017, for review and comment.
June 22, 2017	Working Group Meeting	Tsleil-Waututh Nation attended the Working Group meeting.
August 21, 2017	Email	The Proponent shared a list of hydraulic modelling locations for review and comment.
September 8, 2017	Email	The Proponent shared information related to the noise visual and vegetation studies that will inform the Project's environmental assessment, for input from Aboriginal Groups.
September 8, 2017	Email	The Proponent shared Phase B geotechnical investigation program materials with Aboriginal Groups for review and comment.
September 11, 2017	Email	The Proponent shared the draft Aboriginal Consultation Plan for review and comment.
September 18, 2017	Email	The Proponent shared a draft summary of consultation with Tsleil-Waututh Nation for review and comment.
September 21, 2017	Email	The Proponent shared a copy of the issues and interests list for review and comment.
October 10, 2017	Email	The Proponent shared the draft procurement schedule with Aboriginal Groups, for information.
October 13, 2017	Letter	Tsleil-Waututh Nation provided comments on the Phase B geotechnical investigation program materials.
October 17, 2017	Email	The Proponent shared the Marine Stakeholders Presentation with Aboriginal Groups, for information.
October 17, 2017	Email	The Proponent shared a Project update memo, with information regarding the reference concept, with Aboriginal Groups, for information.
October 18, 2017	Meeting	Meeting between the Proponent and Tsleil-Waututh Nation to discuss the EAO Working group meeting, the reference concept, Aboriginal consultation, geotechnical investigations, the environmental assessment consultation package, the procurement schedule, the environmental assessment review schedule, the Application review phase funding and Project design.
October 23, 2017	Working Group Meeting	Tsleil-Waututh Nation did not attend the Working Group meeting.
October 24, 2017	Email	The Proponent shared a draft list of species that may be used in the Project Application, for review and comment.

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Date	Type of Engagement	Summary
October 24, 2017	Letter	The Proponent provided responses to Tsleil-Waututh Nation's comments on the Phase B geotechnical program materials.
October 25, 2017	Email	The Proponent shared the draft Fish Habitat Assessment Terms of Reference for review and comment.
October 27, 2018	Letter	Tsleil-Waututh Nation provided comments on the draft Aboriginal Consultation Plan and Appendix.
October 31, 2017	Email	The Proponent shared the draft Terrestrial Wildlife Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Vegetation Survey for review and comment.
October 31, 2017	Email	The Proponent shared the draft Scope of Work and Environmental Management Plan for review and comment.
November 1, 2017	Email	Tsleil-Waututh Nation provided additional comments regarding the chance-find procedure for the Phase B geotechnical program.
November 9, 2017	Email	The Proponent shared updated Test Pile Program documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 9, 2017	Email	The Proponent shared updated Phase B Geotechnical Investigation documents, which incorporated changes that were made based on input from Aboriginal Groups.
November 15, 2017	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
November 16, 2017	Email	The Proponent shared the draft Historical Heritage Study for review and comment.
November 17, 2017	Email	The Proponent shared the draft Soil and Groundwater Report for review and comment.
November 17, 2017	Email	The Proponent shared the draft Sediment and Surface Water Quality Report for review and comment.
November 20, 2017	Email	Tsleil-Waututh Nation provided comments on the draft Terrestrial Wildlife Report.
November 21, 2017	Email	Tsleil-Waututh Nation provided comments on the draft Vegetation Survey.
November 21, 2017	Email	The Proponent shared the environmental monitoring checklist for the Phase B geotechnical investigations.
November 22, 2017	Letter	The Proponent responded to Tsleil-Waututh Nation comments on the draft Aboriginal Consultation Plan and provided the revised Plan.
November 23, 2017	Email	The Proponent shared the draft Fish and Fish Habitat report for review and comment.
November 24, 2017	Email	Tsleil-Waututh Nation provided comments on the Test Pile Program materials.
November 27, 2017	Email	The Proponent shared a procurement schedule update with Aboriginal Groups for information.

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Date	Type of Engagement	Summary
November 30, 2017	Email	The Proponent shared an overview of construction with Aboriginal Groups for information.
December 4, 2017	Email	The Proponent shared the draft Aboriginal Consultation Report #1 for review and comment.
December 4, 2017	Letter	The Proponent responded to Tsleil-Waututh Nation's comments on the Test Pile Program materials and provided updated materials.
December 11, 2017	Email	The Proponent shared a response to Tsleil-Waututh Nation comments on the species list.
December 6, 2017	EAO-led conference call	Tsleil-Waututh Nation participated in an EAO-led conference call specific to fish and fish habitat.
December 14, 2017	Email	The Proponent shared the draft Visual Assessment and Photographic Inventory for review and comment.
December 21, 2018	Email	Tsleil-Waututh Nation provided comments on the draft Historic Heritage study.
December 21, 2018	Email	The Proponent provided the draft AOA for review and comment.
December 20, 2017	Email	Tsleil-Waututh Nation provided comments on the draft Sediment and Surface Water Quality Report.
January 5, 2018	Email	Tsleil0-Waututh Nation provided comments on the draft Aboriginal Consultation Report #1.
January 10, 2018	Email	Tsleil-Waututh Nation provided comments on the draft Fish and Fish Habitat Report.
January 12, 2018	Email	Tsleil-Waututh Nation provided comments on the draft Soil and Groundwater Report.
January 15, 2018	Email	The Proponent responded to Tsleil-Waututh Nation comments on: <ul style="list-style-type: none"> ▪ Vegetation Survey ▪ Terrestrial Wildlife Survey ▪ Historical Heritage Study
January 15, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary with Tsleil-Waututh Nation for review and comment.
January 15, 2018	Email	The Proponent requested information regarding marine Use from Tslil-Waututh Nation.
January 16, 2018	Email	Tsleil-Waututh Nation provided comments on the draft Visual Quality and Photographic Assessment Report.
January 17, 2018	Email	The Proponent shared a procurement schedule update with Aboriginal Groups.
January 17, 2018	Email	The Proponent shared the Tsleil-Waututh Nation Consultation Area Map for review and comment.
January 17, 2018	Email	Tsleil-Waututh Nation confirmed that the Consultation Area Map is accurate.
January 30, 2018	Email	The Proponent shared the draft Aboriginal Interests Summary and mapping for review and comment.

PATTULLO BRIDGE REPLACEMENT PROJECT EAC APPLICATION
PART C SECTION 12.0 ABORIGINAL CONSULTATION

Date	Type of Engagement	Summary
February 6, 2018	Email	Tsleil-Waututh Nation provided comments on the draft Aboriginal Interests Summary.
February 14, 2018	Email	The Proponent shared an updated Project boundary with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent shared a Ministry of Transportation and Infrastructure Project Update with Aboriginal Groups for information.
February 26, 2018	Email	The Proponent provided an update regarding the timing upcoming Test Pile Program work.
February 27, 2018	Email	The Proponent responded to Tsleil-Waututh Nation comments on: <ul style="list-style-type: none"> ▪ Draft Soil and Groundwater Report ▪ Draft Sediment and Water Quality Report ▪ Draft Visual Quality Assessment and Photographic Inventory ▪ Draft Fish and Fish Habitat Report
March 5, 2018	Conference call meeting	Conference call meeting between the Tsleil-Waututh Nation and the Proponent regarding Tsleil-Waututh Nation comments on the draft Aboriginal Interests Summary.
March 5, 2018	Email	Tsleil-Waututh Nation shared their Stewardship Policy with the Proponent to be used in the context of addressing Tsleil-Waututh Nation feedback on the Draft Aboriginal Interests Summary.
March 12, 2018	Meeting	Meeting between Tsleil-Waututh Nation Economic Development Department and the Proponent.
March 15, 2018	Email	The Proponent shared responses to Tsleil-Waututh Nation's additional comments on the draft Wildlife Survey.
March 23, 2018	Email	The Proponent responded to additional Tsleil-Waututh Nation concerns regarding the Test Pile Program.
April 11, 2018	Email	The Proponent shared the draft Aboriginal Consultation Report #2 with Appendix A for review and comment.
April 13, 2018	Email	The Proponent shared a procurement approach and schedule update with Aboriginal Groups for information.
April 18, 2018	Email	The Proponent provided responses to questions from Tsleil-Waututh Nation regarding the hydraulic model and the Project boundary Map.
April 19 2018	Email	Tsleil-Waututh Nation provided an additional comment regarding the draft Terrestrial Wildlife Study.
April 25, 2018	Email	The Proponent shared responses to Tsleil-Waututh Nation's wildlife-related follow-up questions.
April 27, 2018	Email	The Proponent shared a Test Pile Program update with Aboriginal Groups for information.
April 27, 2018	Email	The Proponent provided responses to Tsleil-Waututh Nation comments on the draft Aboriginal Consultation Report #1, as well as the revised document.
May 2, 2018	Email	Tseil-Waututh Nation provided comments on the draft Aboriginal Consultation Report #2 and Appendix A.

Summary of Key Issues and Concerns Raised

In addition to Aboriginal Interests-related issues that are discussed in the next section, Tsleil-Waututh Nation identified other issues and concerns during Initial and Pre-Application consultation phases. In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Tsleil-Waututh Nation during consultation and where possible, worked with Tsleil-Waututh to address and resolve issues and concerns. A table of issues and concerns, previously provided to Tsleil-Waututh Nation for review and comment, can be found in Aboriginal Consultation Report #2 (**Attachment 12.1-B**).

Potential Impacts of the Project to Tsleil-Waututh Nation's Aboriginal Interests

The Proponent's assessment approach and understanding of the potential direct and indirect impacts of the Project on Aboriginal Interests generally are provided in **Section 12.1.3.1**. The discussion in this section focuses on potential impacts of the Project on Tsleil-Waututh Nation's Aboriginal Interests. These potential impacts are characterized by considering how the Project could affect several factors important to Tsleil-Waututh Nation's ability to practice Aboriginal Interests. Based on the TWN Study (TWN 2016) and key issues and concerns raised by Tsleil-Waututh Nation during consultation on the Project, the Proponent considered the following:

- Biophysical effects to values linked to Aboriginal rights (e.g., fish) that were assessed in **Part B** of this Application
- Impacts on specific sites (locations) of traditional use
- Impacts on social, cultural, spiritual, and experiential aspects of exercising Aboriginal Interests

A summary of the information about Tsleil-Waututh Nation's past, present, and desired future use, as communicated to the Proponent by Tsleil-Waututh or otherwise available from other information sources reviewed to inform this section, is provided in the subsections below that pertain to freshwater fishing/marine fishing and harvesting, hunting/trapping, plant gathering, other traditional and cultural interests, and title. The key information source for the following summary is the TWN Study (TWN 2016).

Impacts on Fishing

The most important resources historically harvested by Tsleil-Waututh Nation on the Fraser River were sockeye salmon and eulachon (TWN 2016: 24). Eulachon were fished in the spring, while sockeye were fished in the summer (TWN 2016: 24). As they were "mass-harvested," with "hundreds of kilograms" preserved (i.e., smoked) and stored for future use, they functioned as staples of the Tsleil-Waututh diet (TWN 2016: 24). Other species of salmon, steelhead, and sturgeon were also harvested by Tsleil-Waututh on the Fraser River (TWN 2016: 24).

A Tsleil-Waututh hereditary chief, Sla-holt, was included among Indigenous signatories to an 1867 petition asserting their right to fish "where our fathers fished" (TWN 2016: 22). For Tsleil-Waututh, fishing locations on the Fraser River were based on kinship connections; specifically, with Musqueam at the mouth of the Fraser River, and with Kwantlen and Kwikwetlem around *Qiqá:yt* (at the south end of the existing Pattullo Bridge) and the mouth of the Coquitlam River (TWN 2016: 24).

Tsleil-Waututh have reported that *Qiqá:yt* was the location of an Indigenous settlement and a very productive place to fish for salmon (TWN 2016: 13). Tsleil-Waututh have also identified a “temporary” settlement (i.e., “a place where one camped for one to a few nights”) near the south end of the Alex Fraser Bridge, at the eastern margin of the TU Study Area. This campsite is said to have been used in conjunction with salmon fishing in the Fraser River (TWN 2016: 17).

Tsleil-Waututh have identified a canoe route as a primary means of traditional access to the area of the Project from Burrard Inlet, where their villages were located. This route is described in the TWN Study as extending from Coquitlam River to the North Arm of the Fraser River, and as such passing directly through the Project Boundary. The TWN Study indicates that it is not known when this route was last travelled by traditional means (i.e., in a dugout canoe) (TWN 2016: 18-19).

Tsleil-Waututh have also described three overland trails as a primary means of traditional access to the Project area from Burrard Inlet. These trails are identified in historic documents (ca. 1859, 1955) as leading from the TU Study Area (i.e., around Sapperton), to Port Moody (North Road Trail), Burnaby Lake/False Creek (Kingsway), and Hastings Mill (near the PNE), respectively (TWN 2016: 18-20).

Tsleil-Waututh have advised that, currently, their primary resource harvesting activity in the immediate area of the Project is salmon harvesting (TWN 2016: 13), although harvesting of (pink) salmon eggs downstream of the Project Boundary is also reported (TWN 2016: 14).

While Tsleil-Waututh can harvest salmon anywhere on the Fraser River for FSC purposes from the mouth to the Port Mann Bridge (TWN 2016: 13) – an area that is larger than the TU Study Area – they have indicated that the TU Study Area includes one of only a few areas where Tsleil-Waututh can harvest sockeye and Chinook (TWN 2016: 27). Tsleil-Waututh have mapped relatively dense concentrations of fish harvesting at two locations immediately upstream of the Project Boundary (i.e., in Queens Reach, including at the mouth of the Coquitlam River) and one location immediately downstream of the Project Boundary (i.e., in the stretch between Westminster Pier Park on the north bank and Tannery Park on the south bank) (TWN 2016: 13-14). At these specific locations, neither the frequency of harvesting nor the quantity of fish taken during harvesting events was reported in the TWN Study.²²

Available DFO data from years prior to 2015 indicate that Tsleil-Waututh’s largest fishing effort for salmon on the Fraser River occurs in August (DFO 2017). The frequency of this effort varies depending on the number and duration of licence openings issued by DFO in a given year. In 2014, nine communal licences (including with limited participation) for sockeye salmon were issued to Tsleil-Waututh on four occasions (August 10, 17, 24, 31), with durations of 7 hours to 56 hours (DFO 2017). Two communal licences with limited participation were issued on August 31 for Chinook, both of which were 12 hours in duration (DFO 2017).

Tsleil-Waututh are allocated 7,000 sockeye annually for food, social and ceremonial (FSC) purposes, but depending on local conditions, they do not always obtain that many (TWN 2016: 27). For example, in 2016, which was a poor sockeye year, Tsleil-Waututh’s allocations were 100 Chinook, 2,500 chum, and

²² The TWN Study reports that it relied on traditional use information that was collected using methodologies that identified only the spatial extent of Tsleil-Waututh use activities, but not the intensity, timing, or duration of those activities (TWN 2016: 8).

1,000 pink salmon. The allocations for chum and pink are recent additions (i.e., added in 2016) and are not as desirable to Tsleil-Waututh as sockeye and Chinook, which have specific uses for which other species are not appropriate substitutions (TWN 2016: 27).

It has been previously reported that in years where there have been no conservation concerns (e.g., 2014), Tsleil-Waututh have fulfilled their communal allocation for sockeye (MOTI 2016: 10.1-152).

Both sockeye and Chinook are preferred food species for Tsleil-Waututh people; however, sockeye is the most important traditional food that Tsleil-Waututh can still access, and the Fraser River is the sole source of sockeye in Tsleil-Waututh territory. Sockeye are occasionally used for exchange by Tsleil-Waututh people for other food sources that are unavailable or only available in low numbers in Tsleil-Waututh territory; they are also occasionally given away as gifts to other Indigenous communities (TWN 2016: 27).

Trout harvesting (likely steelhead) was reported at one location in the TU Study Area, but it is unknown whether this harvesting was targeted or incidental (TWN 2016: 15). Currently, steelhead cannot be retained, but as indicated above, it was harvested by Tsleil-Waututh on the Fraser River in the past (TWN 2016: 24).

Eulachon harvesting along the Fraser River (ca. 1950s) was also reported within the TU Study Area (TWN 2016: 15). Tsleil-Waututh report that more recent reported instances of eulachon harvesting are absent from the reviewed data, suggesting that eulachon may not have been harvested by Tsleil-Waututh in the vicinity of the Project area since around the mid-1950s (TWN 2016: 15). The Proponent is aware that Tsleil-Waututh have made several requests to DFO over the years for an allocation of eulachon, but that these requests have been denied (MOTI 2016: 10.1-152). Tsleil-Waututh report that they continue to receive eulachon as gifts from their Katzie and Kwantlen relatives who have access to Fraser River eulachon (TWN 2016: 15, 27).

Tsleil-Waututh participates in commercial fisheries through Salish Seas Limited Partnership, a business owned jointly by Tsleil-Waututh Nation and Sliammon First Nation (MOTI 2016: 10.1-20). Details regarding Tsleil-Waututh participation in fishing for non-FSC purposes are included in **Section 6.1 Marine Use**.

Tsleil-Waututh Nation identified several concerns related to potential effects to fish and fish habitat, including:

- Concern that more bridge piers increases the potential for effects on juvenile salmon.
- Concern for fish habitat generally.
- Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns.
- Concern regarding the protection of fish and fish habitat during construction. Sturgeon, eulachon and the five-species of salmon have been specifically identified.

- Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.
- Concern regarding the exclusion of Nooksack dace in the fish and fish habitat report. It is a SARA listed species that is only found in four creeks in Canada; one of those creeks is the Brunette River, which is just on the outside of the LSA boundary. Tsleil-Waututh feels that though this is outside of the LSA boundary it is close enough to be relevant and thus potentially affected by the Project, and needs to be assessed accordingly.

Tsleil-Waututh Nation identified concerns related to potential effects to fish harvesting and access, including:

- Potential effects to Tsleil-Waututh's only sockeye fishery, their most important food fish, as a result of the new bridge and associated infrastructure and decommissioning of the existing bridge.
- Concern the Project will further impact availability and access to eulachon.
- Concern regarding navigability and access restrictions during construction of the new bridge and decommissioning of the old bridge.
- Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.).
- Concern regarding water flow changes and impacts on fisheries and fishing.

Section 12.1.3.2.1 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with fishing, including access and navigation. In response to Tsleil-Waututh Nation's concerns regarding fish, fish habitat, and/or fishing, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.1**:

- As assessed in **Section 4.1 River Hydraulics and Morphology**, residual effects as a result of the Project are not expected in relation to velocities or water levels.
- Project-related changes in river hydraulics and morphology (e.g., water flows) were considered in **Section 4.3 Fish and Fish Habitat** for the potential to cause alteration in fish habitat, but the mitigation measures proposed in **Section 4.1 River Hydraulics and Morphology** are expected to address that potential effect pathway, with no residual or cumulative effects.
- As assessed in **Section 4.3 Fish and Fish Habitat**, residual effects are expected after the application of mitigation to address potential changes in aquatic and/or riparian habitat due to Project footprint disturbance during operations and effects on fish through exposure to underwater noise during construction. The magnitude and likelihood of these residual effects on Key Fish Species, including those of importance to Indigenous Groups, are predicted as

moderate (noise) to high (footprint disturbance) but have been determined by the Proponent in **Section 4.3** to be not significant. To counterbalance the identified residual effects, a Fish Habitat Offset Plan will be designed and implemented, in consultation with Indigenous Groups and regulatory agencies. Effectiveness and compliance monitoring will also be conducted as part of the Fish Habitat Offset Plan and Project CEMP, which includes a Fish and Fish Habitat Management Plan and Underwater Noise Mitigation and Monitoring Plan. Cumulative effects on fish and fish habitat are not expected.

- **Section 6.1 Marine Use** predicts no effect on commercial and recreational fishing as a result of changes in productivity and sustainability of harvested fish species; however, the Proponent recognizes there is a difference between fishing for commercial and recreational ends and fishing for cultural purposes, and specifically that the thresholds of acceptability in changes in productivity and sustainability of harvested fish species may be different for Indigenous Groups, particularly in the context of already significantly reduced fish populations of cultural importance.
- In addition to the measures referred to above pertaining to fish and fish habitat, the Proponent will retain an Independent Environmental Monitor, with monitoring of mitigation effectiveness extending into the operation phase if necessary. The Proponent will involve Indigenous Groups in the selection of the Independent Environmental Monitor. Continued consultation by the Proponent with Indigenous Groups is also proposed regarding the development of monitoring and follow-up strategies, provision of reports to Indigenous Groups throughout implementation of monitoring and follow-up strategies, and provision of opportunities for members of Indigenous Groups to participate in monitoring activities during Project construction, including monitoring of construction activities that may affect Aboriginal Interests and related environmental values.
- With regard to navigation and access, **Section 1.1.5 Marine Structures and Navigation Envelope** describes that the Project will comprise the placement of no more than four new piers located within the Fraser River. Demolition of the existing Pattullo Bridge will result in removal of six piers from the Fraser River. The four-lane, long span bridge will clear existing navigation channels: the main navigation channel, designated as a two-directional deep-sea channel; and the secondary channel, designated as a domestic channel predominantly for low draft vessels that do not require an opening of the NWRB swing span. During construction, a combination of existing navigation channels will be available at all times, governed by a Construction Staging Plan, Demolition Staging Plan, and Marine Access Management Plan. A Navigation Protection Zone (NPZ), with both horizontal and vertical boundaries has also been proposed for the operations period, wherein no permanent infrastructure will be permitted. On the Surrey side of the NPZ, an Administrative Safety Zone (ASZ) has also been proposed, wherein the building of permanent infrastructure is not precluded, but if any permanent infrastructure were to be considered, navigation implications would have to be reviewed prior to construction.
- **Section 6.1 Marine Use** concludes that there would be no residual effects on navigation after the implementation of avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP).

- **Section 6.1 Marine Use** considers potential Project-related effects on commercial and non-commercial marine area use and access, including for commercial and recreational fishing. No effect on commercial marine area use and access is anticipated as a result of the placement or size of the bridge piers within the river (i.e., during operations). A minor displacement effect on commercial or recreational marine vessels' access to and use of commercial or recreational marine use areas outside of the navigational channels, including commercial and recreational fish harvesting activity and fish landings, is identified as a result of transiting around construction/demolition staging areas within closed segments of existing navigational channels, which may increase travel time but not prevent access. The presence of construction marine traffic within the Marine Use VC LSA is expected to have a minor effect on commercial and non-commercial marine area use and access, but this is not expected to translate into an economic impact on commercial harvesters (including Indigenous harvesters) holding commercial fishing licences. The marine use assessment notes, however, that Project construction and demolition activities and construction marine vessel traffic could affect Indigenous peoples who derive economic benefit from engaging in commercial marine use activities (other than commercial fishing) in areas that overlap the Marine Use VC LSA (which takes in the entire South Arm of the Fraser River). **Section 6.1 Marine Use** indicates that construction activities associated with a higher number of vessel movements and delivery of materials by marine transportation will be timed to avoid commercial (DFO) fishery openings (identified as generally occurring during periods between July and October). Over and above avoidance measures, the marine use assessment expects the combination of the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, and MCP to be moderately effective at reducing effects to commercial and non-commercial marine area use and access, including commercial and recreational fishing; however, a residual (low, local, short-term, reversible, sporadic) effect on this use and access is expected during construction. This residual effect has been determined by the Proponent in **Section 6.1** to be not significant, but it is expected to interact cumulatively with other foreseeable projects and activities. The marine use assessment has indicated that residual effects on commercial and non-commercial marine area use and access will be monitored through ongoing Project consultation with marine users, including Indigenous Groups engaged in such use for non-domestic/FSC purposes. As reported in **Section 6.1**, Tsleil-Waututh Nation, in partnership with Musqueam and Tla'amin as part of the Salish Seas Limited Partnership, hold a commercial Salmon Gill Net Area E licence that can be fished in the LSA. Tsleil-Waututh Nation also holds two communal commercial Salmon Gill Net Area E licences that can be fished in the LSA.
- The Proponent is committed to further engagement with Indigenous Groups that actively use the area for fishing once construction details are better known, and specifically to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and the potential cultural and socio-economic effects that could result from such impediments.
- With regard to social, cultural, spiritual, and experiential factors related to fishing, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of

the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Tseil-Waututh Nation, the Proponent understands that salmon (and particularly sockeye) fishing for FSC purposes, including EO fisheries, is Tseil-Waututh's primary resource harvesting activity in the immediate area of the Project, but that the frequency of access is relatively limited (generally confined to August). Short-term, sporadic effects on Tseil-Waututh fishing access and environmental conditions (noise, visual) may not be completely avoidable during construction. It may also take time for mitigation measures related to fish and fish habitat to become effective.

In consideration of the available information regarding fishing by Tseil-Waututh Nation for traditional (FSC) purposes, the Proponent's proposed mitigation measures, and the Proponent's analysis of residual and cumulative effects to river hydraulics and morphology, fish and fish habitat, marine use, noise and vibration, and visual quality, the Project is expected to result in **Minor** impacts to Tseil-Waututh Nation asserted Aboriginal rights to fish including the ability of Tseil-Waututh Nation to exercise its rights to fish and the quality of the outcomes of exercising such rights.

Impacts on Hunting and Trapping

Tseil-Waututh indicate that other activities, such as the hunting of seals, were likely undertaken in conjunction with fishing (TWN 2016: 24).

Current harvesting of marine mammals or terrestrial wildlife by Tseil-Waututh in the TU Study Area was not reported in the TWN Study.

Tseil-Waututh identified concerns related to potential effects to marine mammals and terrestrial wildlife, including:

- A desire to see marine mammals and terrestrial wildlife included as VCs in the assessment
- Concern regarding Project-related effects to terrestrial wildlife
- Concern regarding bat species not being included in the wildlife assessment

Section 12.1.3.2.2 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with hunting/trapping. In response to Tsleil-Waututh Nation's concerns regarding wildlife, wildlife habitat, and/or wildlife harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.2**:

- **Section 4.5 Wildlife** indicates that, as there are no wetlands to support breeding amphibians or water birds in the LSA, nor forest habitat for species at risk that could potentially occur in the LSA (i.e., red-legged frog, western toad, or western screech-owl), the Project is predicted to have no interaction with these species.
- For wildlife components that were identified as having a potential interaction with the Project (refer to **Section 12.1.3.2.2**), the potential for sensory disturbance (noise, light)--as well as habitat loss, habitat degradation, direct mortality, and movement patterns--during construction and operation was assessed. **Section 4.5 Wildlife** identifies measures to reduce potential Project-related effects on wildlife, including habitat management and species protection through use of timing constraints, pre-construction surveys, wildlife salvages, and lighting management. Pre-construction surveys will include, among other activities, a visual encounter survey of the Fraser River shoreline (south side) to confirm that there are no denning mink or otter pairs, which are species that Indigenous Groups have noted as traditionally trapped in the area. Habitat enhancement and restoration measures, including invasive species management and the planting of native herbs, shrub, and tree species under the existing bridge, along the Pattullo Channel, will provide for a more natural and structurally diverse habitat than is presently available anywhere in the Surrey part of the LSA. Habitat offsetting for peregrine falcons will also be undertaken. Measures proposed in **Section 4.2 Surface Water and Sediment**, **Section 4.3 Fish and Fish Habitat**, **Section 4.7 Noise and Vibration**, and **Section 6.7 Lighting**, are carried forward to the wildlife assessment. Overall, the Proponent considers the measures identified in the wildlife assessment as highly effective for wildlife components except Pacific water shrew, for which the identified measures are considered moderately effective. Residual and cumulative effects are not anticipated, and no follow-up strategy is proposed.
- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use**

acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to hunting/trapping).

- The Proponent is aware that the discharge of firearms on the New Westminster and Surrey sides of the bridge, as well as within the Fraser River downstream of the existing bridge, is prohibited by municipal by-law (MFLNRO 2018). The discharge of firearms within the Fraser River upstream of the existing bridge is prohibited by other agencies or institutions (MFLNRO 2018). These existing prohibitions, and therefore opportunities to harvest wildlife by firearm, are not expected to change as a result of the Project.
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of wildlife species of cultural importance to resume with the implementation of proposed habitat enhancement, restoration, and offsetting in the post-construction period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Tsleil-Waututh, the Proponent understands that harvesting of wildlife in the vicinity of the Project was likely undertaken in the past by Tsleil-Waututh while engaged in fishing in the area. The Proponent is not in possession of specific information pertaining to present or desired future harvesting of wildlife by the Tsleil-Waututh in the vicinity of the Project.

In consideration of the available information regarding hunting/trapping by Tsleil-Waututh Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.2**), and the Proponent's analysis of residual and cumulative effects to wildlife (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Tsleil-Waututh Nation's asserted Aboriginal rights to hunt and trap including the ability of Tsleil-Waututh Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Plant Gathering

Tsleil-Waututh have identified three relatively large plant harvesting areas along the shore of the Fraser River near the Project Boundary (TWN 2016: 16). One of these areas overlaps the Project Boundary on both the north and south sides of the Fraser River, while the other two are located downstream, on and in the vicinity of Annacis Island (TWN 2016: 16). Two of the locations pertain to the harvesting of blueberries, while the other pertains to the harvesting of wild onions (TWN 2016:16). Tsleil-Waututh report that the harvesting of wild onions was specifically undertaken in conjunction with salmon fishing (TWN 2016: 16).

Tsleil-Waututh also report that they were signatories to an 1870 petition to the colonial government that objected to their alienation from cranberry harvesting areas on the Lower Fraser River (TWN 2016: 23).

Tsleil-Waututh Nation identified concerns related to potential effects to vegetation, including:

- Concerns that the Project will impact traditional plant gathering areas
- Comment regarding environmental integrity and the importance of using an ecosystem approach, with a net environmental benefit to the area

Section 12.1.3.2.3 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests associated with harvesting of vegetation for traditional purposes. In response to Tsleil-Waututh Nation's concerns regarding plants, plant habitat, and/or plant harvesting, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.3**:

- **Section 4.4 Vegetation** indicates that overall habitat disturbance from the Project would generally be relatively small (a net loss of up to 16.75 ha of disturbed vegetation), consisting mainly of lawns (7.79 ha) and grass/shrub patches growing on undeveloped lots (3.51 ha), as

well as grass- or shrub-bordered ditches (2.57 ha), given that the majority of the Project is designed to occur within the existing road network rights-of-way or on land that is already developed and highly disturbed.

- The vegetation assessment indicates that the Project may result in loss/degradation of at-risk ecosystems, degradation of small wetlands (as there are no wetlands per se in the LSA, but there are widened sections of the local ditch/channel network within the Project Boundary (“small wetlands”), such as the Pattullo Channel), and loss of rare plants.
- Avoidance measures include the design of the Project to overlap the existing roadway network rights-of-way, reducing the risk of affecting natural vegetation in the LSA. Other avoidance measures identified in the vegetation assessment include locating and designing temporary facilities, site access roads, and laydown areas away from unmanicured vegetation patches and waterbodies (Pattullo Channel, ditches), where many rare plant species have the potential to occur, where feasible and with appropriate setbacks. Measures to reduce potential Project-related effects on vegetation include small wetland protection, protection of rare plants (per a Vegetation Protection Plan), and invasive species management (per an Invasive Species Management Plan, which will be part of the Vegetation Protection Plan). The Proponent has also proposed measures that would enhance or restore plant habitat, including post-construction site revegetation that will involve native plants using native plant species found within the RSA, including paper birch, red alder, and salmonberry, which are described as ideal as dominant species because they transplant easily and are well adapted to disturbed sites, making them good competitors against aggressive, invasive species. Native material will also be salvaged from the Project Boundary as much as possible because local plants are best adapted to local site conditions. The vegetation assessment indicates that Indigenous Groups will be consulted by the Proponent to confirm specific species and revegetation plans, and that restoration works will be undertaken in and along Pattullo Channel to align with traditional harvesting values identified by Indigenous Groups. Habitat offsetting is considered not necessary by the vegetation assessment.
- As outlined in **Section 4.1 Fish and Fish Habitat**, revegetation with native plants will include native riparian vegetation to replace the loss of shading from the existing bridge as part of proposed habitat enhancement and restoration (as reviewed above). The fish and fish habitat assessment also explains that a Stormwater Management Plan will include the collection and treatment of runoff using biofiltration which will also mitigate the temperature effects resulting from the greater extent of paved surfaces. As a result of this mitigation, and the known stability of water temperature in watercourses within the LSA, no detectable changes from existing conditions are anticipated, resulting in no linkage to effects on fish and fish habitat.
- As there are no natural ecosystems in the LSA according to the vegetation assessment, and as the vegetation assessment reports a high level of confidence in the proposed mitigation for potential Project-related effects on vegetation, the Project is not expected to result in residual or cumulative effects on vegetation/ecosystems of concern, and no follow-up strategy is therefore proposed.

- **Section 6.2 Land Use** describes the Project as a major construction/demolition undertaking in a built-up suburban environment that would be constructed and operated on lands primarily within the existing road network rights-of-way. Existing land uses near the Project Boundary are identified as including a high-density, mixed use urban core with several public parks in New Westminster, and industrial, commercial, residential, transportation infrastructure, and park lands in Surrey.
- **Section 6.2 Land Use** considers the consistency of the Project with existing land use plans, including relevant Indigenous Group land use plans, and Project-related disturbance to existing land uses. The land use assessment acknowledges the presence of two former Indian Reserves in the Surrey portion of the LSA (Musqueam 1, Langley 8); however, as there are no existing Indian Reserves or treaty settlement lands in the LSA, the land use assessment concludes that there are no Indigenous Group land use plans relevant to the assessment, and that the Project is consistent with existing local, regional, and provincial land uses plans. **Section 6.2 Land Use** acknowledges the concern raised by Indigenous Groups that non-Indigenous land use plans covering the LSA do not necessarily reflect the desired uses of that land by Indigenous Groups, particularly in the context of historic and ongoing activities that have eroded the quality of, and ability to access, the north and south shorelines for traditional use. With regard to existing land uses, the land use assessment concludes that the Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way; however, the ongoing importance of Brownsville Bar Park to Indigenous Groups is acknowledged in the land use assessment. Residual effects on land use are expected due to construction noise and vibration, but have been determined by the Proponent in **Section 6.2** to be not significant and are not expected to combine cumulatively with other reasonably foreseeable projects or activities. A follow-up strategy to monitor residual effects related to noise and vibration is proposed (refer to the “social, cultural, spiritual, experiential factors” bullet below for further consideration of environmental conditions related to plant gathering).
- Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest plants for traditional purposes given existing quality and access conditions, but the Proponent acknowledges that there may be an opportunity for the harvesting of plant species of cultural importance to resume with the implementation of proposed habitat enhancement and restoration during and after the construction/demolition period (i.e., after 2024).
- With regard to social, cultural, spiritual, and experiential factors related to hunting/trapping, the Proponent has taken into account noise and vibration, human health (noise, vibration, air quality, and exposure to contaminants in edible resources), and visual quality. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible. Within areas of the Fraser River and surrounding lands proximate to the bridge that have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring in fishing areas on the

Fraser River to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment. The Proponent has committed to ongoing engagement with Indigenous Groups in relation to residual effects on visual quality, to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area.

- The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.
- Based on information provided to the Proponent by Tsleil-Waututh Nation, the Proponent understands that harvesting of plants by Tsleil-Waututh in the vicinity of the Project has occurred in the past, including within the Project Boundary, on both the north and south sides of the Fraser River. While Tsleil-Waututh do not appear to gather plants in the area at present, the Proponent acknowledges the potential for the resumption of that activity in the future.

In consideration of the available information regarding plant harvesting by Tsleil-Waututh Nation for traditional purposes, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.3**), and the Proponent's analysis of residual and cumulative effects to vegetation (no residual effects), land use, noise and vibration, and visual quality, the Project is expected to result in **Negligible** impacts to Tsleil-Waututh Nation's asserted Aboriginal rights to gather plants including the ability of Tsleil-Waututh Nation to exercise such Aboriginal rights and the quality of the outcomes of exercising such rights.

Impacts on Other Traditional and Cultural Interests

Tsleil-Waututh have identified tangible and intangible Coast Salish cultural heritage in the TU Study Area, including place names, Transformer sites, archaeological sites, and a place of First Contact. Tsleil-Waututh describe these places as important "because they mark significant spiritual connections between Coast Salish people, their ancestors, supernatural beings, and the landscape" (TWN 2016: 29).

Tsleil-Waututh have identified 18 named places (e.g., settlements, Transformer sites, natural features), within the TU Study Area (TWN 2016: 30-31).

Three transformation events involving Khaals, the Transformer, are associated with New Westminster/*Qiqá:yt* and the mouth of the Coquitlam River (TWN 2016: 32).

Tsleil-Waututh report that at least two archaeological sites – DhRr 2 and DhRr 74 – are located within or overlap the Project Boundary and are associated with *Qiqá:yt*, the village or large fishing camp used by Indigenous peoples well into the historic era (TWN 2016: 33).

Tsleil-Waututh have indicated that Simon Fraser, on his descent of the Fraser River in 1808, stopped somewhere near or at *Qiqá:yt*, which was occupied by Indigenous peoples at the time (TWN 2016: 37). The historic importance of this First Contact event is captured in Fraser's and Indigenous accounts (TWN 2016: 37).

The historic importance of *Qiqá:yt* as an Indigenous settlement is reflected in it being established as an Indian Reserve (TWN 2016: 33), first in 1860 for Musqueam, then in 1861 for Kwantlen (Crockford 2010: 10-17).

Tsleil-Waututh have characterized the general vicinity of the Project as an “inter-tribal gathering place where a lot of trading occurred” (TWN 2016: 17). A Tsleil-Waututh hereditary chief, Sla-holt, was included among Indigenous signatories to an 1867 petition that articulated concerns regarding the payment of fees by Indigenous peoples to transport goods “in our canoes on the river of our ancestors” (TWN 2016: 22). Tsleil-Waututh report that Sla-holt’s inclusion among Indigenous signatories on this and other petitions regarding the Fraser River demonstrates Tsleil-Waututh’s Aboriginal Interests in the Fraser River, and the recognition of these Aboriginal Interests by other Indigenous peoples (TWN 2016: 22).

Tsleil-Waututh Nation identified concerns related to potential effects on other traditional and cultural interests, including:

- Concern with potential impacts to Coast Salish cultural heritage, including named places, Transformer sites, *Qiqá:yt*, a large archaeological site known to contain human remains, and other archaeological sites
- Concern about impacts to cultural and spiritual practices and places, cultural transmission, and cultural travel
- A desire to see within the assessment relating to the social determinants of health, a link to cultural health, as informed by effects on Indigenous language, places, and sacred/heritage spaces
- Importance of cultural continuity

Section 12.1.3.2.4 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on other traditional and cultural interests linked to the exercise of Aboriginal Interests. In response to Tsleil-Waututh Nation’s concerns regarding other traditional or cultural interests, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.4**:

- As assessed in **Section 7.1 Heritage Resources**, the Project has the potential to disturb protected and unprotected heritage, change landscapes, change land use, and erode riverside archaeological resources upstream and downstream of the Project. Avoidance, minimization, documentation, restoration, and interpretation are recommended strategies to address these potential Project effects. Of particular note with regard to landscapes, which will necessarily change because of the replacement of the old bridge with a new one, the heritage assessment indicates that the Proponent will take opportunities to remediate or restore landscapes where possible, and incorporate interpretation and commemoration into the Heritage Management Plan, which will include an Ancestral Remains Protocol. The effectiveness of the proposed measures is considered in the heritage assessment to be high, with moderate to high certainty, with no measurable residual effects related to changes to land use or riverside archaeological resources (refer to **Section 4.1 River Hydraulics and Morphology**, which compared the location of

archaeological sites of importance to Indigenous Groups with plots of modelled velocity and bed level changes from the morphodynamic model sites, and concluded that the Project is not expected to result in any significant changes in river velocity or bed elevations at the sites identified by Indigenous Groups). Moderate to high magnitude, permanent residual effects are expected in relation to disturbance to protected and unprotected heritage and changing landscapes, but have been determined by the Proponent in **Section 7.1** to be not significant. The heritage assessment concludes that pre-existing cumulative effects associated with loss of cultural materials to urban development within the LSA over time will be considered and included in the Heritage Management Plan to reduce the Project's incremental contribution to cumulative effects, which are already considered significant (refer to **Section 7.1.6.3.1**).

- The heritage assessment reports that the Proponent will include Indigenous Groups in the research, planning, and execution of ongoing heritage assessments and the development of management recommendations.
- **Section 6.4 Visual Quality** explains that the selection of viewing locations for the visual quality assessment was informed, in part, through input from Indigenous Groups received during Project-related consultation and in Project-specific studies regarding use of lands and resources for traditional purposes. Photographic field surveys were conducted at the identified viewpoints, with members of the Kwikwetlem First Nation in attendance. Six viewpoints are identified in the visual quality as associated with Indigenous use or values, including Albert Crescent Park (VP#3), Sapperton Landing Greenway (VP#4), Port Royal (VP#5), Brownsville Bar Park (#6), and the Fraser River itself, upstream and downstream of the Project (VP#10, VP#11). The perspectives of Indigenous Groups were therefore factored into the understanding of existing conditions and viewer sensitivity in relation to changes in visual quality at these locations. Potential effects Project-related effects were identified, including a temporary change in visual quality during daytime viewing from construction activities, change in visual quality during daytime viewing associated with operation of new bridge and approaches, temporary change in visual quality during night-time viewing associated with lighting for construction, and change in visual quality during night-time viewing associated with operational lighting. Mitigation measures identified in the visual quality assessment to address these potential effects include the incorporation of practices into the CEMP to manage obtrusive lighting; the development of a Lighting (Management) Plan; incorporating practices into the Vegetation Protection Plan to minimize the extent of site clearing so as to reduce the visual impact on existing vegetation and to retain potential screening and natural landscape features during pre-construction and construction; and the development of a Landscape Management Plan that would serve to enhance or restore visual quality. Even with the Vegetation Protection Plan, Lighting Plan, and Landscape Management Plan, low to moderate residual effects on daytime viewing and low residual effects on nighttime viewing are anticipated during construction and operation, but have been determined by the Proponent in **Section 6.4** to be not significant. **Section 6.4 Visual Quality** also expects these residual effects to combine with other certain and reasonably foreseeable projects and activities, resulting in moderate magnitude residual cumulative effects for as long as the projects are operational.

- As reported in **Section 6.4 Visual Quality**, the Proponent has committed to undertaking engagement with Indigenous Groups to identify enhancement opportunities that allow for viewers to observe visual reference to Indigenous use and values associated with the Project area, with the opportunity to provide positive benefit to the visual environment, while addressing concerns and recommendations relating visual impacts identified by Indigenous Groups to the Proponent (i.e., loss of valued place characteristics that support cultural continuity and sense of place), recognizing that this is in a context of cumulative visual and landscape changes to date. A residual effect on daytime viewing by Indigenous receptors is not expected during construction or operations assuming engagement with Indigenous Groups is successful.
- Biophysical and location-specific (access) factors related to marine- and land-based harvesting are reviewed above in **Sections 12.1.3.2.1** through **12.1.3.2.3**. The Proponent is committed to further engagement with Indigenous Groups to avoid impediments to fishing access for FSC purposes during DFO licence openings, including EO licence openings, and thereby address potential Project-related cultural and socio-economic costs and safety risks when navigating and fishing in the Fraser River for traditional purposes. Based on information provided by Indigenous Groups, the Project area is not currently being used to harvest wildlife or plants for traditional purposes given existing quality and access conditions (except Musqueam, who report some plant gathering).
- **Section 6.1 Marine Use** considers potential Project-related effects on navigation, which is associated with marine access to a culturally important transportation route (i.e., the Fraser River) and specific cultural sites. No effect on navigation from a change in river bed levels is predicted; however, the marine use assessment predicts an effect on navigation use and navigability that are unrelated to bed level changes. These effects are expected to be mitigated through avoidance and minimization measures, such as the Construction Staging Plan, Demolition Staging Plan, Marine Access Management Plan, ASZ, and NPZ referenced above, as well as through a Marine Communications Plan (MCP). No residual Project effects on navigation are therefore anticipated.
- **Section 4.7 Noise and Vibration** evaluated specific concerns related to noise and vibration raised by Indigenous Groups, including those related to use of areas for fishing and other activities, including associated knowledge transfer, at locations on the river and along the south shore (Brownsville Bar Park). Noise-sensitive locations near the waters of the Fraser River have been identified by Indigenous Groups as traditionally used for harvesting, teaching, and learning. The zone of influence of bridge traffic noise will shift upstream, where noise levels at the river near the new bridge alignment are expected to be similar to those at corresponding locations near the existing alignment. As the new bridge alignment is farther from Brownsville Bar Park, traffic noise at the park is expected to reduce by approximately 5 dBA with the northward relocation of the bridge. Residual effects from construction noise and vibration (both from general construction and pile driving), and operational noise are expected. Noise levels will be elevated at certain locations during construction and demolition, especially during pile installation if and where driven piles are employed. The follow-up strategy will include a Construction Noise and Vibration Management Plan, which will be developed once construction phases, equipment, and

schedules are known, and will include consultation with affected Indigenous Groups during development and implementation. Within areas of the Fraser River and surrounding lands proximate to the bridge which have been identified as of interest to Indigenous Groups, there are expected to be both increases and off-setting reductions in operational (traffic) noise levels compared to existing conditions, these effects being largely due to the relocation of the bridge. Follow-up operational noise monitoring to estimate change in atmospheric noise due to operations is proposed in the noise and vibration assessment.

- The Proponent has taken into account human health-related effects stemming from potential changes in noise, vibration, air quality, and exposure to contaminants in edible resources. Residual effects on human health have been determined by the Proponent in **Section 8.1** to be negligible.
- The Proponent is aware that Tsleil-Waututh have identified tangible and intangible Coast Salish cultural heritage in the vicinity of the Project, including place names, Transformer sites, archaeological sites, and a place of First Contact. Tsleil-Waututh describe these places as important because they mark significant spiritual connections between Coast Salish people, their ancestors, supernatural beings, and the landscape. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding other traditional and cultural interests of the Tsleil-Waututh Nation, the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.4**), and the Proponent's analysis of residual and cumulative effects to heritage (no residual effects), visual quality, biophysical and access factors, and noise and vibration, the Project is expected to result in **Negligible-to-Minor** impacts to Tsleil-Waututh Nation's other traditional and cultural interests including the ability of Tsleil-Waututh Nation to exercise such Aboriginal rights as they may exist and the quality of the outcomes of exercising such rights.

Impacts on Aboriginal Title

Tsleil-Waututh Nation has not reported an assertion of Aboriginal title to locations within the TU Study Area.

Tsleil-Waututh identified the following concern related to title:

- Protection of Aboriginal Groups' rights to harvest within the Project area

Section 12.1.3.2.5 presents a summary of key factors that the Proponent has considered when assessing the potential impacts of the Project on Aboriginal Interests in Aboriginal title, including three components of Aboriginal title overlapping the Project area: use and occupation; decision-making; and economic benefit. In response to the concerns of the Tsleil-Waututh Nation regarding Aboriginal title, the Proponent notes the following key factors and mitigation measures reviewed in **Section 12.1.3.2.5**:

Use and occupancy

- The Project would be constructed and operated on lands primarily within the existing road network rights-of-way, in a industrialized and previously disturbed built-up suburban environment.
- The Project is not expected to result in unplanned changes to existing land uses or future land uses, other than for the small incremental land areas required for Project construction and operational rights-of-way.
- As assessed in **Section 7.1**, while the new bridge is replacing an existing bridge a short distance downstream, the new bridge would result in permanent changes to the landscape, which could impact the use of the area by Indigenous Groups in the vicinity of the Project, related in particular to noise, visual, light, and other sensory disturbances in areas that, at present, may be relatively less subject to noise, visual, light, and other impairments because there is currently no bridge over the river at that specific location. On the other hand, decommissioning of the existing bridge will remove existing bridge-related sensory disturbance in an area that has been identified as important for past, present, and desired use for traditional purposes (i.e., Brownsville Bar Park), potentially enhancing cultural use of this area, particularly once the Project is operational.
- As described in **Section 6.1**, the new bridge would be required to be constructed in such a way as to maintain access to the Fraser River for navigation and fishing during construction as well as operations.
- Potential residual effects on ICs/VCs relevant to related Aboriginal Interests characterized in this Application range in magnitude from low to high, including effects related to river hydraulics and morphology, fish and fish habitat, noise and vibration, air quality, economic activity and land use, marine use, and heritage, but are expected to be not significant. Residual effects are not expected in relation to wildlife or vegetation. Habitat enhancement and restoration may result in increased wildlife and plant harvesting opportunities over existing conditions.
- The Proponent has committed to measures that are intended to specifically address the concerns of Indigenous Groups related to potential Project effects on Aboriginal Interests, including but not limited to ongoing consultation on the design of infrastructure for the Project, the development of the CEMP generally and specific management plans within the CEMP, selection of the Independent Environmental Monitor, the development of monitoring and follow-up strategies for VCs and ICs with identified residual or cumulative effects, reporting related to the implementation of monitoring and follow-up strategies, participation in monitoring activities during Project construction, and the identification of cultural recognition and reconciliation opportunities.

Decision making component

- The Project is occurring on Crown land (provincial/federal), which will continue to be Crown land, with small parcels purchased from private landowners. The direct net effect of the Project will be to increase the stock of Crown lands.
- Concerns raised by Indigenous Groups in relation to how the Project could affect their ability to manage and make decisions over the Project area in accordance with their practices, customs, traditions, now and into the future, and whether the Project is consistent with their cultural, economic, or other objectives in the area.

- Concerns raised by Indigenous Groups regarding the Project's role in the further growth and industrialization of the Fraser River and the cumulative effects to the Fraser River as a whole and to the estuary.
- Should the Project proceed, the Proponent will continue to consult with potentially affected Schedule B Indigenous Groups to finalize the development of mitigation measures, management plans, and monitoring and follow-up programs intended to avoid, reduce, or otherwise manage potential effects of the Project on locations and resources that are of importance to Indigenous Groups in the exercise of their Aboriginal Interests, thereby facilitating an ongoing opportunity for Indigenous Groups to manage and make decisions over the area impacted by the Project, recognizing that the Project may not be consistent with the land use objectives of every potentially affected Indigenous Group.

Economic benefits

- Indigenous Groups' have expressed concern that the Project may reduce their economic development aspirations for lands (including former reserve lands) that will continue to be limited by physical works. The Proponent is of the view that this potential effect is not exacerbated or worsened due to the Project, which is a like-for-like structural replacement, one that involves constructing the new bridge parallel to the existing bridge, optimizing the existing road network and travel patterns, and decommissioning of the existing bridge.
- Based on **Section 6.1 Marine Use**, the Project area is currently used for economic purposes by Indigenous groups (i.e., for the purposes of deriving business revenue or personal income), including fishing under DFO commercial and EO licences and through eco-tourism ventures (wildlife tours, fishing charters). Indigenous Groups have expressed concern about potential adverse effects of the Project on fisheries, including active commercial fisheries interests. As indicated in **Section 6.1 Marine Use** and **Section 12.1.3.2.1** above, the Proponent is proposing measures to ensure that commercial and EO fisheries are not impeded during DFO fishing openings.
- Indigenous Groups have expressed interest in Project-related opportunities, including training and employment opportunities for their members. The Proponent has been actively exploring opportunities to provide benefits, both economic and non-economic, to Indigenous Groups, such as through training, employment, and contracting, as well as through participation in environmental enhancements associated with the Project, if approved. Measures designed to assist Indigenous Groups with deriving direct and/or indirect economic benefits of the Project, if approved, include but are not limited to navigation protection (i.e., NPZ, APZ); marine access management and communications; avoidance of Project-related activities during DFO licence openings; traffic management; noise management; cultural recognition and reconciliation opportunities; training, employment, and contracting opportunities; and opportunities to actively participate in environmental monitoring activities.

The Proponent acknowledges the ongoing importance of the Tsleil-Waututh Nation's traditional territory to the support and maintenance of the Tsleil-Waututh Nation culture and traditions. The Proponent is committed to ongoing consultation with Indigenous Groups regarding cultural recognition and

reconciliation opportunities with the potential to enhance access and use of the Project area that help to facilitate important cultural pursuits and objectives (e.g., increasing a sense of place, cultural continuity, cultural revitalization), and that accordingly have the potential to reduce the existing cultural stress and associated health effects reported by Indigenous Groups.

In consideration of the available information regarding Aboriginal title of the Tsleil-Waututh Nation, the limited and already disturbed area of Project impact, and the Proponent's proposed mitigation measures (as listed in **Section 12.1.3.2.5**), the Project is expected to result in **Negligible** impacts to Tsleil-Waututh Nation's Aboriginal title.

12.1.3.3.15 Upper Stó:lō Groups – People of the River Referrals Office/Seabird Island (Schedule C)

As reviewed in **Section 12.1.1** above, Schedule C of the EAO's Section 11 Order for the Project identifies the following Indigenous Groups for notification:

- People of the River Referrals Office
 - Soowahlie
 - Shxw'ow'hamel First Nation
 - Skawahlook First Nation
- Seabird Island

Schedule B and Schedule C of the Section 11 Order relate to the EAO's preliminary assessment of where the identified Indigenous Groups lie on the consultation spectrum. While the Proponent is only required to provide information on Schedule B Indigenous Groups in this section (**Part C**) of the Application, statutory requirements pursuant to CEAA 2012 5(1)(c) that relate to potential Project-related effects of a change to the environment on Indigenous peoples are not dependent upon where Indigenous Groups fall on the consultation spectrum, and therefore upon the schedules to the Section 11 Order. To inform the analysis of potential Project-related effects of a change to the environment on Indigenous peoples pursuant to CEAA 2012 5(1)(c) in **Section 11** of the Application, and specifically 5(1)(c)(iii) regarding the current use of lands and resources for traditional purposes, limited contextual and baseline information regarding Schedule C Indigenous Groups has been included here for reference.

Context

Soowahlie, Shxw'ow'hamel, Skawahlook, and Seabird Island are Stó:lō, and specifically Coast Salish speakers of *Halq'eméylem*, or the "Upriver" dialect of Halkomelem. Like other Stó:lō communities that traditionally speak *Halq'eméylem*, these four communities are based on upper portion of the lower Fraser River below Yale (**Figure 12.1-A-1**).

There are several organizations to which the Soowahlie, Shxw'ow'hamel, Skawahlook, Seabird Island, and other Stó:lō communities are or have been affiliated, as follows:

- Stó:lō Nation (SN) – Aitchelitz, Leq'á:mel, Matsqui, Popkum, Shxwhá:y, Skawahlook, Skowkale, Squiala, Sumas, Tzeachten, Yakweakwoose.
- Stó:lō Tribal Council (STC) – Formed around 2005 from the following former members of the SN: Chawathil, Cheam, Kwantlen,²³ Kwaw-kwaw-Apilt, Scowlitz, Seabird Island, Shxw'ow'hamel, and Soowahlie.
- Ts'elxweyeqw (Ch-'ihl-kway-uk or “Chilliwack”) Tribe (TT) – Aitchelitz, Shxwhá:y, Skowkale, Soowahlie, Squiala, Tzeachten, Yakweakwoose. The TT represents its members (a mix of SN and STC groups) in a number of economic, business, and cultural initiatives, largely in the forestry and natural resource sector.
- People of the River Referrals Office (PRRO) – Formed in 2012 as a virtual office of technical staff from the SN, STC, and TT. The office provides administrative, research, and technical support for consultation with 16 of the 19 SN, STC, and TT groups that are signatories to the Stó:lō Strategic Engagement Agreement with the Province of BC.²⁴

Four other Stó:lō groups that are not affiliated with the organizations listed above, but that reside along the upper portion of the lower Fraser River below Yale are Chehalis (around Harrison), Skwah (at Chilliwack), Peters (east of Chilliwack towards Hope), and Union Bar (at Hope).

In 2003, the SN filed a Protective Writ on behalf of their members, which at the time was 18 of the 23 Stó:lō communities identified above. The writ asserts Aboriginal rights and title to a broad area encompassing all of the Lower Mainland from the mouth of the Fraser River in the west, along the Canadian border in the south to Manning Park in the east, and north around Harrison Lake and Fire Lake and into Garibaldi Park (EAO 2017a: 416). The majority of Stó:lō communities identified in the Protective Writ have identified individual boundaries for the purposes of consultation; however, the entire writ boundary continues to be the asserted traditional territory and used for the purposes of consultation for Soowahlie, Shxw'ow'hamel, Skawahlook, and Seabird Island (EAO 2017a: 417). The Project Boundary lies within the territory identified in the Protective Writ (**Figure 12.1-A-11**).

Involvement in the Consultation Process

Consistent with the requirements of the Section 11 Order regarding Schedule C Indigenous Groups, the Proponent has not engaged directly with Soowahlie, Shxw'ow'hamel, Skawahlook, or Seabird Island, and none has provided the Proponent with information regarding their use of lands and resources for traditional purposes in the vicinity of the Project. Below, the Proponent has summarized publicly available information from the EAO (2017: 416-423) regarding Upper Stó:lō use of the lower Fraser River near the Project area for traditional purposes.

²³ As reviewed in **Section 12.1.3.3.4, Kwantlen First Nation** are traditionally speakers of Downriver Halkomelem, but they have been politically affiliated with Upriver Halkomelem (Stó:lō) groups through the STC. Kwantlen consult independently of this affiliation. Refer to **Section 12.1.3.3.4** regarding the Aboriginal Interests of the Kwantlen First Nation.

²⁴ Chawathil, Cheam, Leq'á:mel, Scowlitz, Shxw'ow'hamel, Skawahlook, Sumas, Aitchelitz, Shxwhá :y, Skowkale, Soowahlie, Squiala, Tzeachten, Yakweakwoose, Kwaw-Kwaw-Apilt, and Skwah.

Upper Stó:lō Use of Lands and Resources for Traditional Purposes

EAO has previously reported that salmon fishing contributed the greatest amount of food to the Upper Stó:lō diet, and that, as with other Central Coast Salish, dried salmon was a particularly important stored winter food (EAO 2017: 421). The five miles of the Fraser River Canyon upstream of Yale were particularly important for catching and drying salmon (EAO 2017: 421). Salmon were caught in the canyon with dip nets and in smaller rivers with gaff hooks, weirs, and by other means, including in smaller streams in the lower Fraser Valley (EAO 2017: 421-422). Other fish caught by Upper Stó:lō included sturgeon, trout, and eulachon (EAO 2017: 422). Upper Stó:lō reportedly fished for eulachon in the vicinity of Fort Langley and at the mouth of the Pitt River (EAO 2017: 422). The Upper Stó:lō are also understood to have traded for fresh or dried clams with Indigenous groups located further downstream along the Fraser River (EAO 2017: 422).

EAO has previously reported that Upper Stó:lō individuals may have used the South Arm of the Fraser River in accordance with Coast Salish kinship protocols and as an important travel corridor, as it was for all Coast Salish (EAO 2017: 416-423); however, the EAO also reported that, of ethnographic and historical accounts reviewed, none indicated traditional use or occupation by Upper Stó:lō groups in the South Arm (EAO 2017: 417). Rather, the information reviewed suggested that the traditional territories of Upper Stó:lō were understood by ethnographers to include parts of the Fraser Valley, the Lower Mainland east of Abbotsford, and the Harrison Lake watershed (EAO 2017: 417).

Based on a review of recent DFO fisheries data (DFO 2017), Upper Stó:lō do not appear to have FSC access to Fraser River fisheries downstream of the Port Mann Bridge. Most Upper Stó:lō groups appear to access the Fraser River for FSC purposes in DFO management areas upstream of Mission to Sawmill Creek, which meets the Fraser River upstream of Hope (DFO 2017). The exception is Matsqui, who fish between the Port Mann Bridge and Mission (DFO 2017), along with Katzie and Kwantlen (see **Section 12.1.3.3.3** and **Section 12.1.3.3.4**). The Port Mann Bridge is 6 km upstream of the Project Boundary, while Mission is approximately 42 km upstream.

As Soowahlie, Shxw'ow'hamel, Skawahlook, and Seabird Island are listed on Schedule C of the Section 11 Order, potential direct and indirect impacts of the Project on the Aboriginal Interests of these groups have not been assessed by the Proponent. As the Project is subject to a section 67 review under CEAA 2012, the summary of information presented above regarding the use of lands and resources for traditional purposes in the vicinity of the Project by Soowahlie, Shxw'ow'hamel, Skawahlook, and Seabird Island has been used to inform the assessment of potential Project-related effects on the current use of lands and resources for traditional purposes presented in **Part B Section 11** of the Application.

12.1.3.4 Summary of Impacts to Aboriginal Interests by Indigenous Group

Table 12.1-16 Summary of Impacts to Aboriginal Interests by Indigenous Group

Aboriginal Group	Proponent's Assessed Impact on Aboriginal Interest					Greatest Assessed Impact on Aboriginal Interests
	Fishing	Hunting and Trapping	Plant Gathering	Other Traditional and Cultural Interests	Aboriginal Title	
Cowichan Tribes	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Halalt First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Katzie First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Kwantlen First Nation	Negligible	Negligible	Negligible	Negligible	Moderate	Moderate
Kwikwetlem First Nation	Minor-to-Moderate	Negligible	Negligible	Minor	Negligible	Minor-to-Moderate
Lake Cowichan First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Lyackson First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Musqueam Nation ²⁵	Minor-to-Moderate	Negligible	Negligible-to-Minor	Minor	Moderate	Moderate
Penelakut Tribe	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Semiahmoo First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Squamish Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Stz'uminus First Nation	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Tsawwassen First Nation	Minor-to-Moderate	Negligible	Negligible	Negligible-to-Minor	N/A (Treaty Nation)	Minor-to-Moderate
Tsleil-Waututh Nation	Minor	Negligible	Negligible	Negligible-to-Minor	Negligible	Minor

12.2 OTHER MATTERS OF CONCERN TO INDIGENOUS GROUPS

This section discusses other matters of concern related to potential environmental, economic, social, heritage and health effects of the proposed Project identified by Aboriginal Groups during consultation, which have not already been considered in in **Section 12.1, Aboriginal Interests** or in **Section 11, Summary Of Statutory Requirements Under CEAA 2012**. For each of these other matters of concern, relevant IC and VC assessments in **Part B** of the Application and the assessment presented in

²⁵ "Cultural Continuity" and "Sense of Place and Spirituality" were assessed in place of "Other Traditional and Cultural Interests" for Musqueam Nation, per their request (see **Section 12.1.3.3.8**).

Section 12.1 were reviewed to identify applicable measures to avoid, reduce, or otherwise manage the effects of the Project associated with the concern. Where required, additional mitigation or management measures were identified to address specific concerns.

Matters of concern related to potential Project-related environmental, economic, social, heritage and health effects identified by Aboriginal Groups that are not discussed in **Part B** or **Section 12.1** are listed in **Table 12.2-1** Other Matters of Concern to Aboriginal Groups. The table also identifies the Application section where applicable mitigation measures or management strategies proposed for addressing each matter of concern is discussed, and includes additional mitigation measures where relevant. The matters in the table below do not address asserted or determined Aboriginal rights, including title, and treaty rights.

Table 12.2-1 Summary of Impacts to Aboriginal Interests by Indigenous Group

Concern	Aboriginal Group(s)	Proposed Mitigation	Section with Mitigation	Other Relevant Sections
Environmental				
Potential effects of spills from accidents or malfunctions during construction	Tsawwassen First Nation, Lake Cowichan First Nation, Musqueam Indian Band	Development and implementation of a Emergency Response and Spill Prevention Plan that describes how construction personnel will prevent, prepare for, and respond to incidents involving spills	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	4.2 Surface Water and Sediment Quality 4.3 Fish and Fish Habitat 4.4 Vegetation 4.5 Wildlife 4.6 Soil and Groundwater
Potential effects related to contaminated sites	Kwikwetlem First Nation, Musqueam Indian Band	A Contaminated Sites Management Plan will be developed to guide the management of known contaminated soils and groundwater within the Project area, and to address the possibility that construction may encounter previously unknown contaminated materials	14.4 Contaminated Sites Management Plan	4.2 Surface Water and Sediment Quality 4.3 Fish and Fish Habitat 4.4 Vegetation 4.6 Soil and Groundwater 8.1 Physical Determinants of Human Health
Waste management	Kwikwetlem First Nation, Musqueam Indian Band, Tseil-Watuth	Development and implementation of a Construction Environmental Management Plan which will include a Hazardous Materials Management Plan and a Non-Hazardous Waste Management Plan, as well as a Construction Staging Plan that identifies construction waste to be tracked in accordance with the above waste/materials management plans	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	4.2 Surface Water and Sediment Quality

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Concern	Aboriginal Group(s)	Proposed Mitigation	Section with Mitigation	Other Relevant Sections
Untreated water runoff from bridge surfaces	Lake Cowichan	Design that ensures no direct discharge of untreated runoff from impervious surfaces created by the Project into the river or other water courses - stormwater flowing along the affected roadways will be managed and treated appropriately, and all stormwater runoff from the new bridge will be collected and treated using biofiltration methods before being released.	1.1.4.3.9 Grading and Drainage	4.2 Surface Water and Sediment Quality 4.3 Fish and Fish Habitat 4.6 Soil and Groundwater Section 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions
Heritage				
Potential for any cultural recognition efforts to facilitate archeological looting	Tsawwassen First Nation	Archaeological and Historical Resources Management Plan will be developed to guide identification, protection, reporting and management of archaeological and historical resources. Plan will summarize archaeological sensitivities in a manner that respects the confidentiality requirements of Aboriginal Groups and BC Archaeology Branch. Safeguards are in place to obscure the location of archaeological and historical resources within the Project area.	14.2 Archaeological and Historical Resources Management Plan Section 7.1 Heritage Resources	
Health				
Safety of cyclists on the new bridge	Tsawwassen First Nation	The new bridge will include dedicated walking and cycling lanes that are median-separated from automobile traffic	1.1 Description of the Proposed Project	6.2 Land Use 6.3 Community Cohesion 6.4 Visual Quality 8.2 Social Determinants of Human Health
Potential for suicide attempts from the new bridge	Katzie First Nation, Lake Cowichan First Nation	Installation of a suicide prevention barrier on the outer edge of each multi-use path	1.1.4.2.2 River Crossing Project Components	

All other matters of concern raised by Indigenous Groups with respect to potential environmental, economic, social, heritage and health effects of the proposed Project have been considered in **Section 11** and/or **Section 12.1**.

12.3 ISSUE SUMMARY TABLE

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Table 12.3-1 Summary Table of the Results of Indigenous Consultation related to Aboriginal Interests/Other Matters of Concern to Indigenous Groups

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
Environmental										
Fraser River Hydraulics and Morphology (Section 4.1)	<ul style="list-style-type: none"> Changes in current velocities Changes in water levels Changes in bed levels 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> Upgrade existing scour protection Pier location and configuration 	<ul style="list-style-type: none"> Bed level increases in the downstream navigation channel Bed level increase downstream of North and South pylons Bed level decreases between existing Pattullo piers 5 and 6 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.		
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise Treaty rights to fish. Negligible effect on quality of outcomes from exercising Treaty rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Surface Water and Sediment Quality (Section 4.2)	<ul style="list-style-type: none"> ▪ Accidental spills of toxic or hazardous materials (e.g. hydrocarbon fuels, lubricants, concrete) ▪ Decommissioning and construction of piers in the Fraser River ▪ Ground disturbance ▪ Runoff from road services ▪ 	<ul style="list-style-type: none"> ▪ Construction ▪ Operations 	<ul style="list-style-type: none"> ▪ Employ erosion and sediment control measures near water courses ▪ Utilize best-practices for in-stream works ▪ Offset by removal of existing bridge and roadways ▪ Collection of runoff on the bridge and treatment in settlement and biofiltration ponds on land upstream of where streams discharge into the Fraser River 	None	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Discharge of untreated run-off	1.1.4.3.9 Grading and Drainage	Resolved
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
								Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution	

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise treaty rights to fish. Negligible effect on quality of outcomes from exercising treaty rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
Fish and Fish Habitat (Section 4.3)	<ul style="list-style-type: none"> Project-related Changes to Surface Water and/or Sediment Quality from Spills or Release of Hazardous Substances Physical Injury or Mortality to Fish through Crushing Project-related Changes in Water Temperature Causing an Alteration if Fish Habitat Project-related Changes to Ambient Water Quality affecting Fish Health Project-related Changes to Night-Time Light affecting Fish and Fish Habitat Project-related Changes to Shading affecting Fish and Fish Habitat Project-related Changes to Fraser River Hydraulics and Morphology causing alterations to fish habitat Changes to aquatic and/or riparian habitat due to Project footprint disturbance Effects on fish through exposure to underwater noise during construction 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> Erosion and sediment control Spill Contingency Stormwater management Side-scan sonar Gradual ramp up of inwater pile installation Isolation of work site in mainstem Fraser River Riparian setbacks Stormwater management Restore on-site Mitigation measures identified for Surface Water and Sediment Quality Mitigation measures identified for Lighting Avoidance of upland fishbearing watercourses Restore on-site Fish Habitat Offset Plan Noise reduction system for pile installation Side-scan sonar Compliance and effectiveness mitigation monitoring Mitigation measures identified in Section 4.1 River Hydraulics and Morphology 	<ul style="list-style-type: none"> Changes to aquatic and riparian habitat of the mainstem Fraser River due to project footprint disturbance Effects on fish through exposure to underwater noise during construction 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
								Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Discharge of untreated run-off	1.1.4.3.9 Grading and Drainage	Resolved
						Lyackson First Nation	Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
							Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
								Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution
								Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matter of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise Treaty rights to fish. Negligible effect on quality of outcomes from exercising Treaty rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights to fish. Negligible effect on quality of outcomes from exercising Aboriginal rights to fish, including traditional uses of fish.	Consultation	Ongoing resolution
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
Vegetation (Section 4.4)	<ul style="list-style-type: none"> ▪ Loss/degradation of ecosystems ▪ Degradation of small wetlands ▪ Loss of rare plants 	<ul style="list-style-type: none"> ▪ Construction 	<ul style="list-style-type: none"> ▪ Sediment and erosion control ▪ Hazardous waste management ▪ Spill prevention and clean up 	None	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
			<ul style="list-style-type: none"> Emergency Response Pre-construction vegetation survey; relocation of rare plants/ seed bank 				Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
								Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	Discharge of untreated run-off	1.1.4.3.9 Grading and Drainage	Resolved
						Lyackson First Nation	Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
							Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Musqueam Nation	Asserted Aboriginal Rights/Title	<p>Construction: Measurable effect on the ability to exercise Aboriginal rights in relation to vegetation.</p> <p>Operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.</p>	Consultation	Ongoing resolution
					Other Matters of Concern		Potential effects of spills from accidents or malfunctions during construction	<p>14.7 Emergency Response and Spill Prevention Plan</p> <p>9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions</p>	Ongoing resolution	
							Potential effects related to contaminated sites	<p>14.4 Contaminated Sites Management Plan</p>	Ongoing resolution	
					Waste management		<p>14.3 Construction Environmental Management Plan</p> <p>14.5 Construction Management Plans</p> <p>14.12 Hazardous Materials Management Plan</p>	Ongoing resolution		
					Penelakut Tribe	Asserted Aboriginal Rights/Title	<p>Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.</p>	Consultation	Ongoing resolution	
						Other Matters of Concern	N/A	N/A	N/A	

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights and Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise treaty rights in relation to vegetation. Negligible effect on quality of outcomes from exercising treaty rights in relation to vegetation, including traditional uses of vegetation.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to vegetation. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to vegetation, including traditional uses of vegetation	Consultation	Ongoing resolution
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
Wildlife (Section 4.5)	<ul style="list-style-type: none"> ▪ Habitat loss, sensory disturbance and direct mortality of nesting birds ▪ Habitat loss (relocation of structures ≤ 30m) for Barn Swallows ▪ Sensory disturbance of Common Nighthawk ▪ Sensory disturbance of Raptors ▪ Habitat loss, Sensory disturbance of Peregrine Falcon ▪ Lights as attractants or inducing confusion, Collision for Migrating Birds ▪ Habitat loss, Habitat alteration, Wildlife mortality for Pacific 	<ul style="list-style-type: none"> ▪ Construction ▪ Operation 	<ul style="list-style-type: none"> ▪ Least-risk window ▪ Pre-clearing and pre-mobilization surveys ▪ Protective buffers ▪ Timing of building relocation ▪ Nesting platform ▪ Directional lighting, shielded from the top for Migrating birds ▪ Presence/ absence surveys, Possible salvage 	None	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
Water Shrew						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution
								Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	Discharge of untreated run-off	1.1.4.3.9 Grading and Drainage	Resolved
						Potential effects of spills from accidents or malfunctions during construction		14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution	

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
								Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution
							Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution	
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise treaty rights in relation to wildlife. Negligible effect on quality of outcomes from exercising treaty rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tseil-Waututh Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to wildlife. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to wildlife, including traditional uses of wildlife.	Consultation	Ongoing resolution
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
Soil and Groundwater (Section 4.6)	<ul style="list-style-type: none"> Spills, accidents, hazardous materials handling Exposure to Pre-Existing contamination Long-term effects of Project Operation 	<ul style="list-style-type: none"> Construction Operation 	<ul style="list-style-type: none"> Follow Hazardous Materials Management Plan and Emergency Response and Spill Contingency Plan Minimize the use of hazardous chemicals Remediate any spills in accordance with Contaminated Sites Regulation Identification, Characterization and Handling of Contaminated Materials according to BC CSR and CEPA Removal of existing bridge and roadways; 	<ul style="list-style-type: none"> Degradation in shallow soil and groundwater along new road alignments 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation.		
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
			bridge and roadway design					Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
							Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
						Lake Cowichan First Nation	Other Matters of Concern	Discharge of untreated run-off	1.1.4.3.9 Grading and Drainage	Resolved
						Lake Cowichan First Nation	Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
						Lyackson First Nation	Other Matters of Concern	N/A	N/A	N/A
							Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
						Musqueam Nation	Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
								Potential effects related to contaminated sites	14.4 Contaminated Sites Management Plan	Ongoing resolution

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Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
								Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: See Fish and Fish Habitat; Vegetation		

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Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	Potential effects of spills from accidents or malfunctions during construction	14.7 Emergency Response and Spill Prevention Plan 9.4 Likelihood, Consequence, and Risk of Potential Accidents and Malfunctions	Ongoing resolution
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: See Fish and Fish Habitat; Vegetation		
							Other Matters of Concern	Waste management	14.3 Construction Environmental Management Plan 14.5 Construction Management Plans 14.12 Hazardous Materials Management Plan	Ongoing resolution
Noise and Vibration (Section 4.7)	<ul style="list-style-type: none"> Changes in Atmospheric Noise during construction Ground-borne Vibration Changes in Atmospheric Noise during Operations 	<ul style="list-style-type: none"> Construction Operation 	<ul style="list-style-type: none"> Standard best practices Control of noise at the Source Use of Temporary Construction Noise Barriers Community Consultation Selection of Construction Equipment and Processes that inherently create less vibration Hours of work limitations Mitigation of Project- 	Change in atmospheric noise during construction <ul style="list-style-type: none"> Context: Low Magnitude: General construction – Minor to Moderate; Pile installation Minor to Severe Extent: Local Duration: Short-term to Long Term Reversibility: Reversible Frequency: Infrequent to Continuous 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

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Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
			related traffic noise at sensitive receptors informed by the MoTI Policy 2014	<p>Ground-borne vibration during construction</p> <ul style="list-style-type: none"> ▪ Context: Low ▪ Magnitude: General Construction – Minor to Moderate; Pile installation – Minor to Severe ▪ Extent: Local ▪ Duration: Short-term to Long Term ▪ Reversibility: Reversible ▪ Frequency: Infrequent to Continuous <p>Change in atmospheric noise during operations</p> <ul style="list-style-type: none"> ▪ Context: Neutral ▪ Magnitude: Minor / Moderate ▪ Extent: Local ▪ Duration: Long-term ▪ Reversibility: Irreversible ▪ Frequency: Continuous 		Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

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Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise treaty rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising treaty rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights in relation to fish, wildlife, vegetation or other traditional/cultural practices. Negligible effect on quality of outcomes from exercising Aboriginal rights in relation to fish, wildlife, vegetation, or other traditional/cultural practices.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Air Quality (Section 4.8)	<ul style="list-style-type: none"> Respiratory and nuisance effects of diesel particulate matter and road dust 	<ul style="list-style-type: none"> Construction 	Industry best practices	Locally high concentrations of diesel particulate matter and road dust: <ul style="list-style-type: none"> Local Short-term Reversible Infrequent 	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsawwassen First Nation	Tsawwassen Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on the ability to exercise treaty rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising treaty rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights as a consequence of air quality. Negligible effect on quality of outcomes from exercising Aboriginal rights as a consequence of air quality.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Economic										
Economic Activity (Section 5.1)	<ul style="list-style-type: none"> Noise and vibration from general construction and piling activities (mainly businesses in Bridgeview and near the Scott Road Station "Transit-Oriented Urban Village") 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> For general construction activities, noise reduction measures and community/business consultation For noise and vibration from piling activities, selection of construction equipment and processes that inherently create less noise and/or 	Changes to business activity due to noise from noise and vibration <ul style="list-style-type: none"> Context: Medium to High Magnitude: Low Extent: Local Duration: Short term to Medium term Reversibility: Irreversible Frequency: Sporadic to regular 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
			vibration; community/business consultation	Changes to business activity due to changes in motor vehicle access			Other Matters of Concern	N/A	N/A	N/A
			<ul style="list-style-type: none"> Maintain traffic on existing Pattullo Bridge and along major roads until Project operations, maintain access to all businesses Business consultation Adverse effects due to changes in access from Scott Rd Extension would likely be offset by generalized access enhancements provided by Scott Road Extension Project landscaping improvements, and direct consultation with affected parties 	<ul style="list-style-type: none"> Context: Low to High Magnitude: Low Extent: Local Duration: Short term to Medium term Reversibility: Irreversible Frequency: Sporadic to regular 		Katzie First Nation	Asserted Aboriginal Rights/Title	<p>Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities.</p> <p>Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities.</p>	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	<p>Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities.</p> <p>Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities.</p>	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	<p>Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities.</p> <p>Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities.</p>	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	<p>Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities.</p> <p>Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities.</p>	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Asserted Aboriginal Rights/Title	Construction: Measurable effects on free access through the Project Area by boat, potentially impacting treaty rights to fish. Operation: Negligible effect on the ability to exercise treaty rights associated with economic activities. Negligible effect on quality of outcomes from exercising treaty rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tseil-Waututh Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with economic activities. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with economic activities	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Social										
Marine Use (Section 6.1)	<ul style="list-style-type: none"> Effects on commercial and recreational fishing from sustainability and productivity of fish harvest Effects on 	<ul style="list-style-type: none"> Construction Operation 	<ul style="list-style-type: none"> Adjust construction vessel movement and marine delivery schedule to avoid short commercial fisheries openings Minimize disruption of 	Effect on Commercial and Non-Commercial Marine Area Use and Access <ul style="list-style-type: none"> Context: High Magnitude: Low Extent: Local 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
	<p>commercial activities from air quality.</p> <ul style="list-style-type: none"> Effect on navigation Effects on commercial and non-commercial marine area use and access during construction Effect on Recreational Fishing, Marine Tourism and Recreational Boating Environmental Setting 		<p>commercial and recreational area use and access in Project boundary</p> <ul style="list-style-type: none"> Communication and engagement on construction and demolition works with Aboriginal Groups, other marine users and foreshore tenure holders 	<ul style="list-style-type: none"> Duration: Short term Reversibility: reversible Frequency: Sporadic <p>Effect on Aboriginal and Recreational Fishing, Marine Tourism and Recreational Boating Environmental Setting</p> <ul style="list-style-type: none"> Context: High Magnitude: Low Extent: Local (noise) to high (visual quality) Duration: Short term (noise) to long term (visual quality) Reversibility: reversible Frequency: regular 		Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction: Measurable effect on ability to exercise Aboriginal rights associated with marine use. Operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction: Measurable effect on ability to exercise Aboriginal rights associated with marine use. Operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction: Measurable effect on ability to exercise Aboriginal rights associated with marine use. Operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on the ability to exercise Aboriginal rights associated with marine use. Negligible effect on quality of outcomes from exercising Aboriginal rights associated with marine use	Consultation	Ongoing resolution
							Other Matter of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen Fishing Right Tsawwassen Right to Practice Tsawwassen First Nation Culture	Construction: Measurable effect on ability to exercise treaty rights associated with marine use. Operation: Negligible effect on the ability to exercise treaty rights associated with marine use. Negligible effect on quality of outcomes from exercising treaty rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction: Measurable effect on ability to exercise treaty rights associated with marine use. Operation: Negligible effect on the ability to exercise treaty rights associated with marine use. Negligible effect on quality of outcomes from exercising treaty rights associated with marine use	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
Land Use (Section 6.2)	<ul style="list-style-type: none"> Noticeable levels of general construction noise and vibration levels from construction activities may be experienced at several community infrastructure and service facilities, including several public parks such as Brownsville Bar Park. 	<ul style="list-style-type: none"> Construction 	<ul style="list-style-type: none"> For general construction activities, noise reduction measures and community consultation For noise and vibration from piling activities, selection of construction equipment/processes that inherently create less noise and/or vibration, and community consultation Aboriginal consultation regarding use of Brownsville Bar. 	Disruptions to community infrastructure and services due to noise and vibration <ul style="list-style-type: none"> Context: Low to High Magnitude: Low to Moderate Extent: Local Duration: Short term to Medium term Reversibility: Irreversible Frequency: Sporadic to Regular 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Kwkwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matter of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect from noise and vibration on ability to exercise treaty rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising treaty rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect from noise and vibration on ability to exercise Aboriginal rights on land. See Marine Use (Section 6.1) for effects on water. Negligible effect from noise and vibration on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Community Cohesion (Section 6.3)	<ul style="list-style-type: none"> Effect of increased traffic congestion and access disturbances on motor vehicle connectivity Effect of access disturbances on connectivity for non-motorized traffic (pedestrian and bicycles) Potentially vulnerable neighbourhoods / population nearest to Project Boundary 	Construction	Develop Traffic Management Plan that will aim to safety mitigate potential adverse effects of roadway construction and maintain mobility and worker safety, maintain non-motorized access to and from residences, community infrastructure and services and businesses;	None	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved						

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
	may be adversely affected by noise, vibration, and access disturbances if notification and consultation strategies are less effective in these neighbourhoods		community consultation <ul style="list-style-type: none"> As part of community consultation, commitment by MoTI to work with Fraser Health and other stakeholders and where warranted, specific outreach to potentially affected vulnerable populations in neighbourhoods nearest to Project Boundary 				Other Matters of Concern	N/A	N/A	N/A
						Kwkwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: No impact on treaty rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: No impact on Aboriginal rights.	N/A	Resolved
							Other Matters of Concern	N/A	N/A	N/A
Visual Quality (Section 6.4)	<ul style="list-style-type: none"> Removal of existing vegetation and potential screening Disturbance of areas for temporary staging and laydown areas Construction of new interchange and new roads Loss of valued place characteristics that support cultural continuity and sense of place Lighting spillage from 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> Landscape design of interchange areas and new roads Engagement with Aboriginal Groups to develop cultural representation elements Develop a lighting plan that will include measures to avoid or minimize adverse Project-related lighting effects 	Change in visual quality <ul style="list-style-type: none"> Context: High Magnitude: Low - Moderate Extent: Local Duration: Long-term Reversibility: Reversible Frequency: Continuous 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
	temporary construction and security lighting <ul style="list-style-type: none"> ▪ Increase in direct lighting sources during operation ▪ Light trespass outside direct area of illumination during operation 					Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction: Negligible effect from change in visual quality on Aboriginal rights Measurable effect from change in visual quality on quality of outcomes from exercising Aboriginal rights to fish. Operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction: Negligible effect from change in visual quality on Aboriginal rights Measurable effect from change in visual quality on quality of outcomes from exercising Aboriginal rights to fish. Operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Squamish Nation	Asserted Aboriginal Rights	Construction: Measurable effects of visual quality in relation to Aboriginal rights to fish. Operation: Negligible effect from change in visual quality on Aboriginal rights	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights on land.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction: Negligible effect from change in visual quality on treaty rights Measurable effect from change in visual quality on quality of outcomes from exercising treaty rights to fish. Operation: Negligible effect from change in visual quality on treaty rights Negligible effect from change in visual quality on quality of outcomes from exercising treaty rights.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction: Negligible effect from change in visual quality on Aboriginal rights Measurable effect from change in visual quality on quality of outcomes from exercising Aboriginal rights to fish. Operation: Negligible effect from change in visual quality on Aboriginal rights Negligible effect from change in visual quality on quality of outcomes from exercising Aboriginal rights.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Heritage										
Heritage Resources (Section 7.1)	<ul style="list-style-type: none"> Disturbance of protected heritage resources Disturbance of unprotected heritage resources Changing landscapes Changes to land use 	<ul style="list-style-type: none"> Construction Operations 	<ul style="list-style-type: none"> Avoidance Reburial of ancestral remains and protection in accordance with Project's ancestral remains protocol Minimize disturbance in accordance with Heritage Management Plan, informed by the results of the Heritage assessment Document remains using appropriate and standards and guidelines under permit Interpretation and commemoration Document resources using appropriate standards and guidelines Restoration and 	<ul style="list-style-type: none"> Site Disturbance/ Destruction Exhumation and Reburial of Ancestral Remains Exposure of Heritage Sites and Materials 	Not significant	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Measurable effect on Aboriginal rights to title from change in land use.	Consultation	Ongoing resolution

PART B						PART C					
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)	
							Other Matters of Concern (Section 12.2)				
			conservation <ul style="list-style-type: none"> ▪ Design that integrates landscapes and deeply rooted connections to heritage landscapes ▪ Maximize interpretive potential of protected and unprotected historical heritage resources ▪ Maximize interpretive potential of deeply buried or other protected sites 				Other Matters of Concern	N/A	N/A	N/A	
						Kwkwetlem First Nation	Asserted Aboriginal Rights/Title	Construction: Measurable effects from impacts to cultural heritage. Operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution	
								Other Matters of Concern	N/A	N/A	N/A
							Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
								Other Matters of Concern	N/A	N/A	N/A
							Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
								Other Matters of Concern	N/A	N/A	N/A
							Musqueam Nation	Asserted Aboriginal Rights/Title	Construction/operation: Measurable effect on Aboriginal rights to title from change in land use. Measurable effects from impacts to cultural heritage.	Consultation	Ongoing resolution
								Other Matters of Concern	N/A	N/A	N/A
							Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen Right to Practice Tsawwassen First Nation Culture	Construction/operation: Negligible effect on treaty rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising treaty rights.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential for cultural recognition efforts to facilitate archaeological looting.	14.2 Archaeological and Historical Resources Management Plan Section 7.1 Heritage Resources	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tseil-Waututh Nation	Asserted Aboriginal Rights	Construction: Measurable effects from impacts to cultural heritage. Operation: Negligible effect on Aboriginal rights from impacts to cultural heritage. Negligible effect from impacts to cultural heritage on quality of outcomes from exercising Aboriginal.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Health										
Physical Determinants of Health (Section 8.1)	<ul style="list-style-type: none"> Acute and chronic health effects stemming from changes in air quality Sleep disturbance, disruption of speech comprehension and annoyance resulting from noise and vibration 	<ul style="list-style-type: none"> Construction Operation 	<ul style="list-style-type: none"> Air quality management practices and mitigation measures (see Section 4.9 Air Quality) Noise and vibration mitigation measures (see Section 4.10 Noise and Vibration) 	No	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	Potential for suicide attempts from new bridge	1.1.4.2.2 River Crossing Project Components	Resolved
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern			
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	Potential for suicide attempts from new bridge	1.1.4.2.2 River Crossing Project Components	Resolved
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Atmospheric Noise	Consultation	Ongoing resolution

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Atmospheric Noise	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: See Air Quality, Atmospheric Noise	Consultation	Ongoing resolution
							Other Matters of Concern	Safety of cyclists on new bridge	1.1 Description of the Proposed Project	Resolved

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: See Air Quality, Noise and Vibration	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
Social Determinants of Health (Section 8.2)	<ul style="list-style-type: none"> Disruption of access to needed health and social services Disruption of access to friends, family, neighbours and public places Disruption of access for customers and suppliers to business establishments 	Construction	<ul style="list-style-type: none"> Manage road closures, demolition, and Project traffic to reduce interactions and effects on access to, service, to each other and to public places/spaces Manage road closures, demolition and Project traffic to reduce interactions and effects on customer of and suppliers to local business establishments Manage road closures, demolition, and Project traffic to reduce interactions and effects on people's access to facilities and opportunities for active living, including active transportation and active commuting 	None	N/A	Cowichan Tribes	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Halalt First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Katzie First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential for suicide attempts from new bridge	1.1.4.2.2 River Crossing Project Components	Resolved
						Kwantlen First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Kwikwetlem First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Lake Cowichan First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	Potential for suicide attempts from new bridge	1.1.4.2.2 River Crossing Project Components	Resolved

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Lyackson First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Musqueam Nation	Proven Aboriginal Right to Fish (FSC) Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Penelakut Tribe	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Semiahmoo First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Squamish Nation	Asserted Aboriginal Rights	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Stz'uminus First Nation	Asserted Aboriginal Rights/Title	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

PART B						PART C				
Relevant SC/VC	Potential Effects	Project Phase	Proposed Mitigation	Residual Effects	Significance	Aboriginal Group	Aboriginal Interests (Section 12.1.3)	Potential Incremental Effect on Aboriginal Interests or Other Matters of Concern After Consideration of Proposed SC/VC Mitigation (i.e., no effect, negligible effect, measurable effect)	Additional Proposed Mitigation	Ministry's Perspective on Status of Issue (e.g., resolved, ongoing resolution, referred to agency, etc.)
							Other Matters of Concern (Section 12.2)			
						Tsawwassen First Nation	Tsawwassen First Nation Fishing Right Tsawwassen First Nation Right to Harvest Wildlife Tsawwassen First Nation Right to Harvest Migratory Birds Tsawwassen First Nation Right to Gather Plants Tsawwassen First Nation Right to Practice Tsawwassen First Nation Culture	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on treaty rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A
						Tsleil-Waututh Nation	Asserted Aboriginal Rights	Construction/operation: No anticipated impact on social determinants of human health. Negligible effect on Aboriginal rights from impacts to human health.	Consultation	Ongoing resolution
							Other Matters of Concern	N/A	N/A	N/A

12.4 REFERENCES

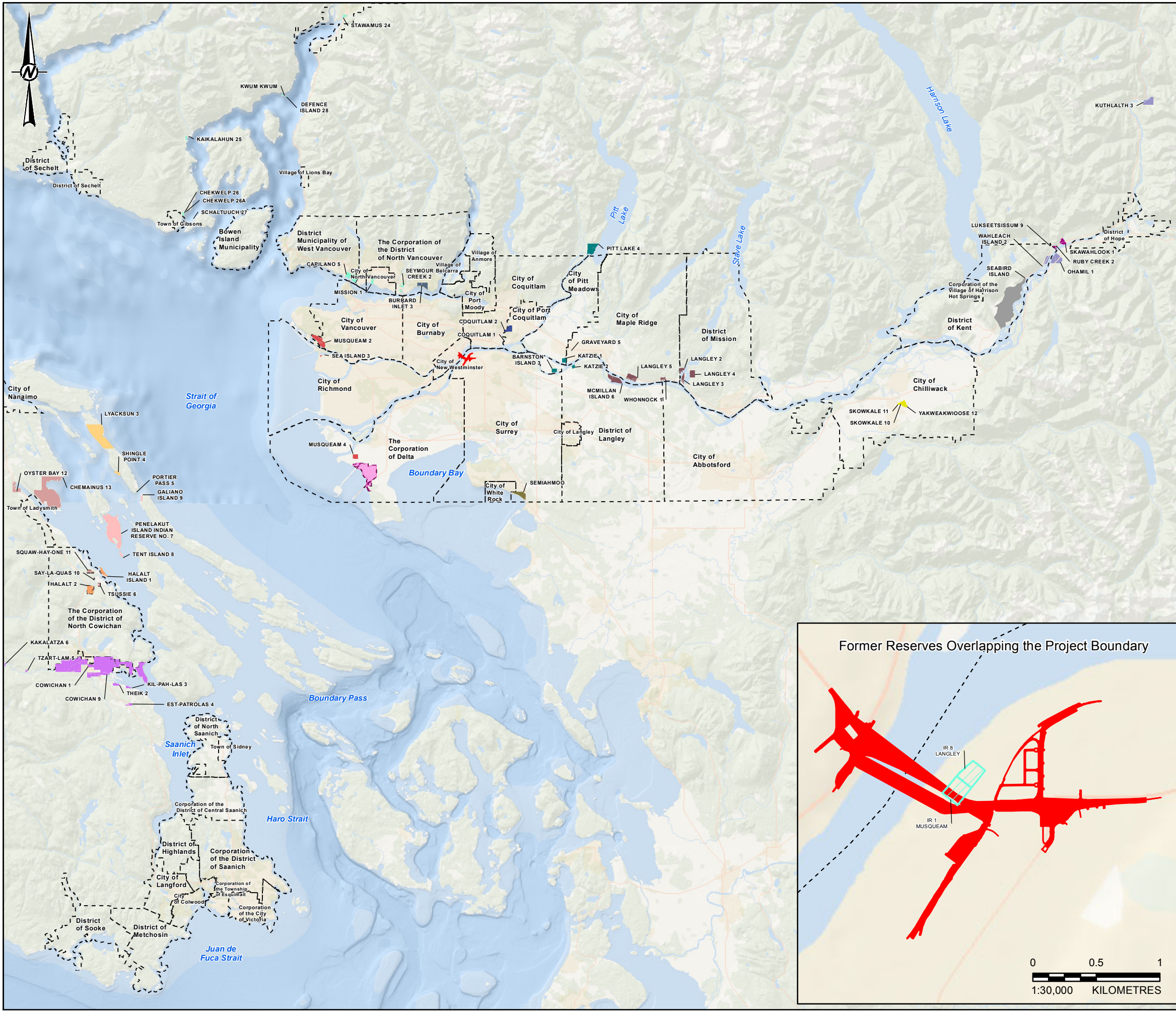
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ATTACHMENTS

Attachment 12.1-A

Figures



LEGEND

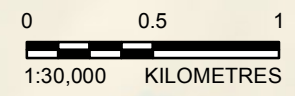
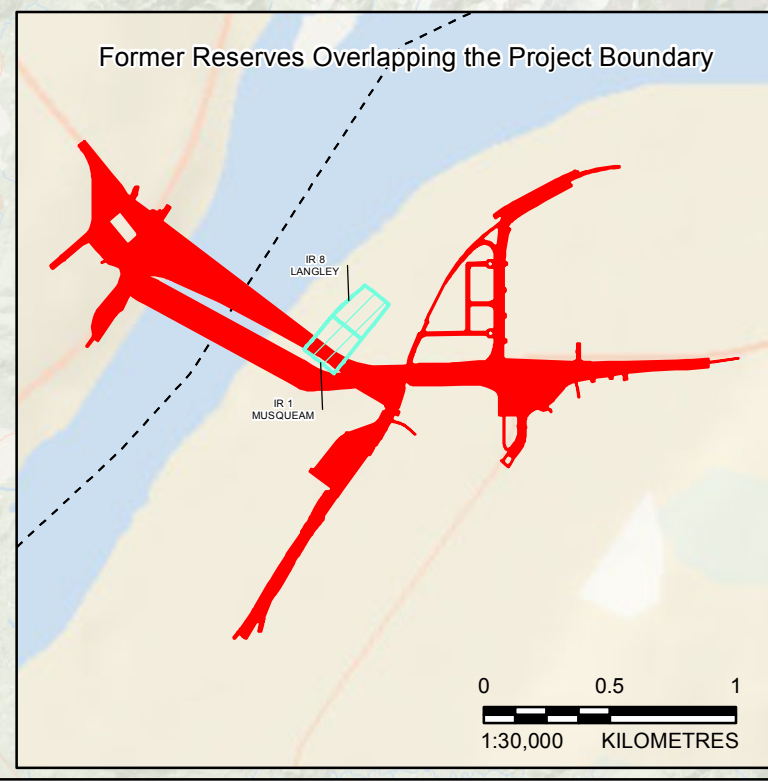
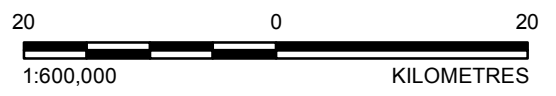
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 MUNICIPAL BOUNDARY

INDIGENOUS GROUPS SECTION 11 ORDER, SCHEDULE B

- █ Cowichan
- █ Halalt
- █ Katzie
- █ Kwantlen
- █ Kwikwetlem
- █ Lyackson
- █ Musqueam
- █ Penelakut
- █ Semiahmoo
- █ Squamish
- █ Stz'uminus
- █ Tsawwassen First Nation (Tsawwassen Lands)
- █ Tseil Waututh

SECTION 11 ORDER, SCHEDULE C

- █ Seabird Island
- █ Shxw'ow'hamel
- █ Skawahlook
- █ Skowkale



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2. MUNICIPALITIES AND WATER FEATURES DATA CONTAIN INFORMATION LICENCED UNDER THE OPEN GOVERNMENT LICENCE - BRITISH COLUMBIA.
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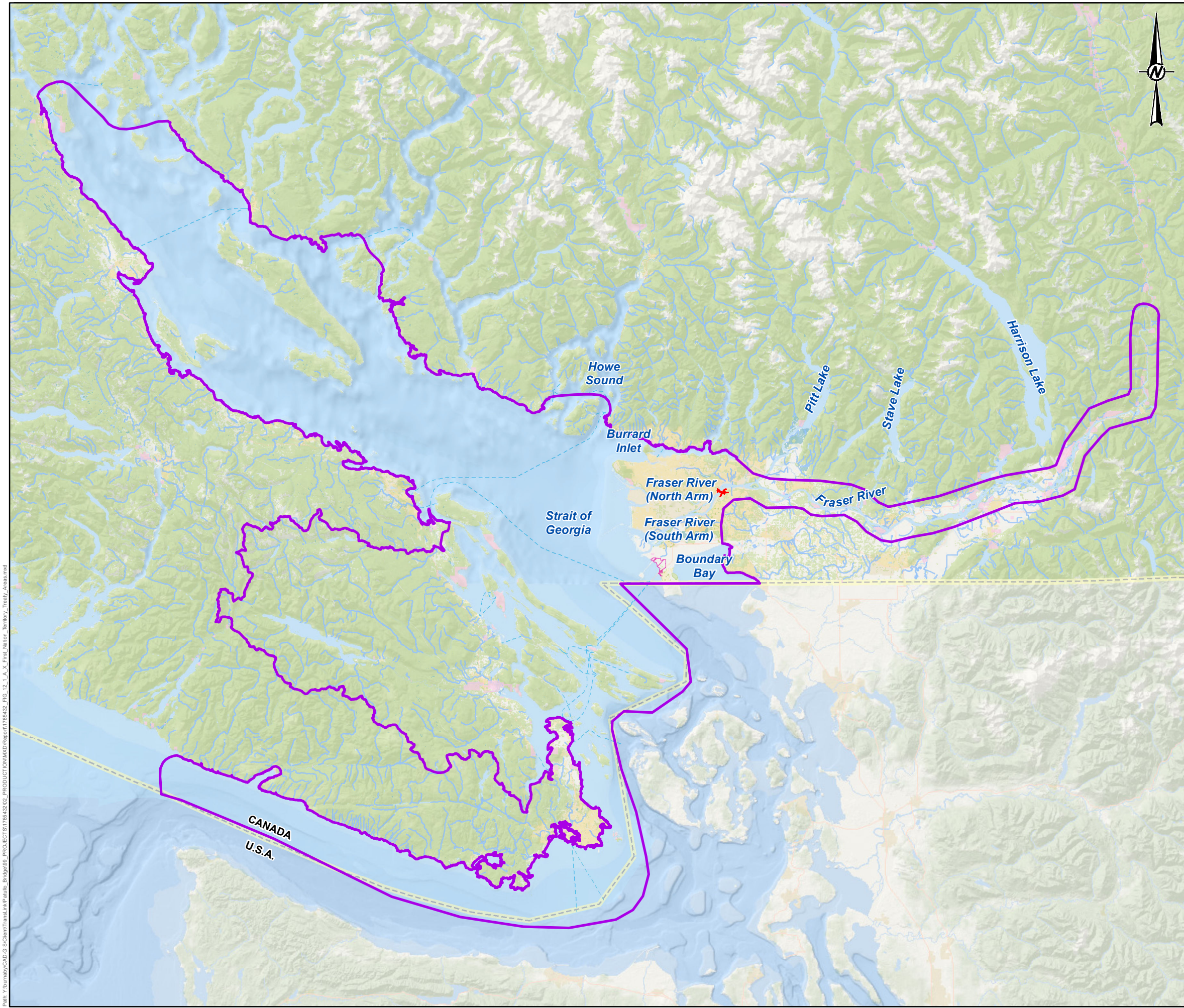
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PROJECT NO. 1785432 PHASE 3000 REV. A FIGURE 12.1-A-1

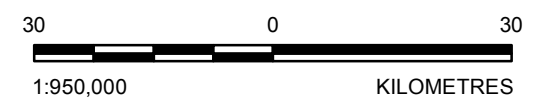
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- INDIAN RESERVE
- TSAWWASSEN FIRST NATION LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
- CANADA - U.S.A BORDER



- REFERENCES**
1. HUL'QUMI'NUM TREATY GROUP TRADITIONAL TERRITORIES AND INDIAN RESERVES OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
 2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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TITLE
 HUL'QUMI'NUM TREATY GROUP TRADITIONAL TERRITORY

CONSULTANT	YYYY-MM-DD	2018-06-05
GOLDER	PREPARED	SM
	DESIGN	JP
	REVIEW	
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PROJECT NO. 1785432	PHASE 3000	REV. A	FIGURE 12.1-A-2
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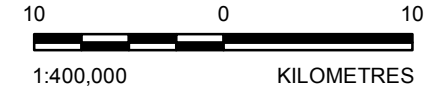
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LEGEND

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- INDIAN RESERVE
- TSAWWASSEN FIRST NATION LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
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REFERENCES

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2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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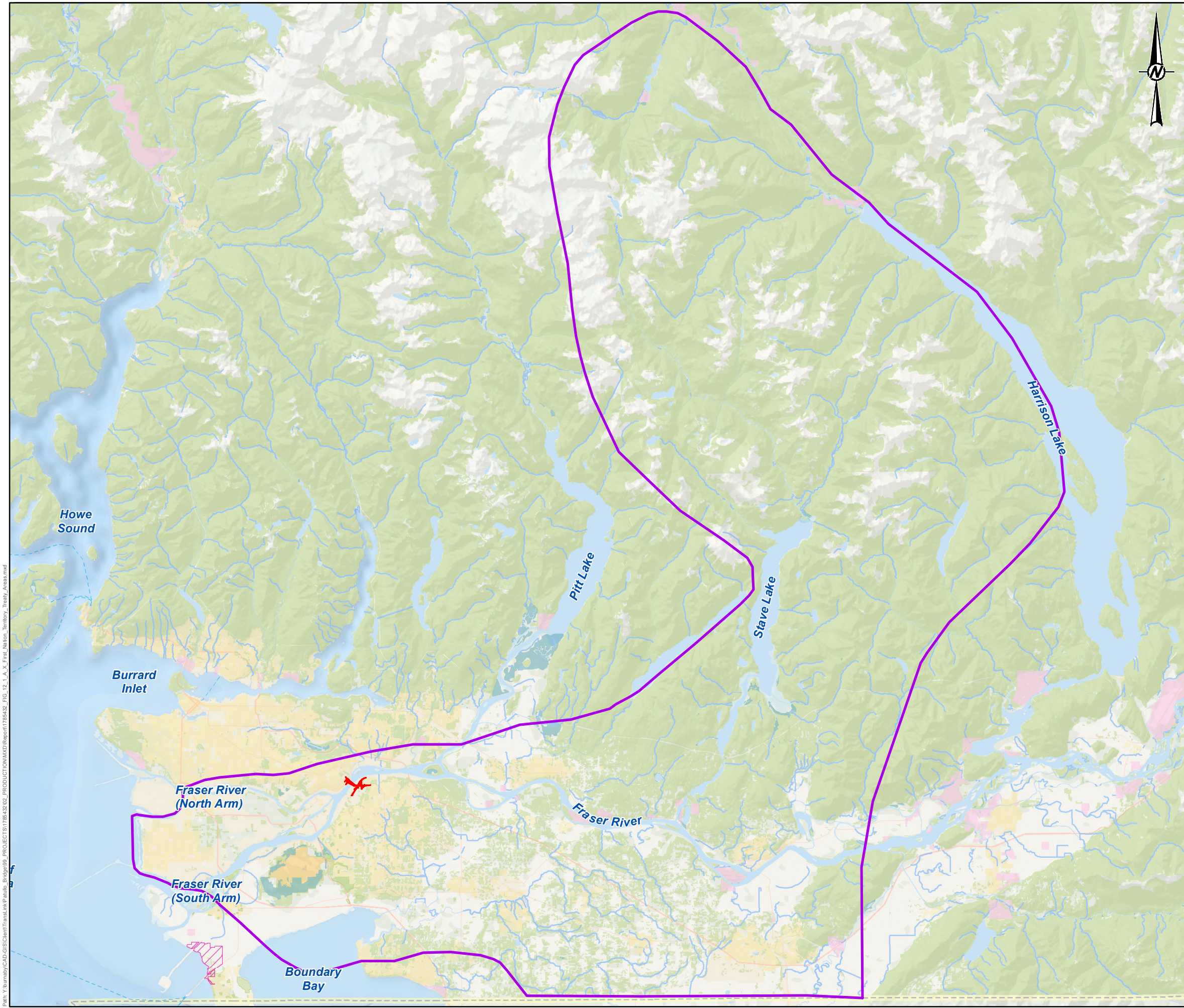
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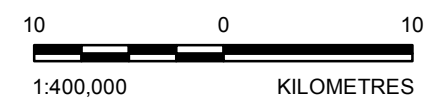
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 - INDIAN RESERVE
 - TSAWWASSEN FIRST NATION LANDS
 - RESIDENTIAL AREA
 - PARK / FOREST AREA
 - BURNS BOG ECOLOGICAL CONSERVATION AREA
 - WETLAND
 - WATER
 - FERRY ROUTE
 - WATERCOURSE
 - CANADA - U.S.A BORDER



- REFERENCES**
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 2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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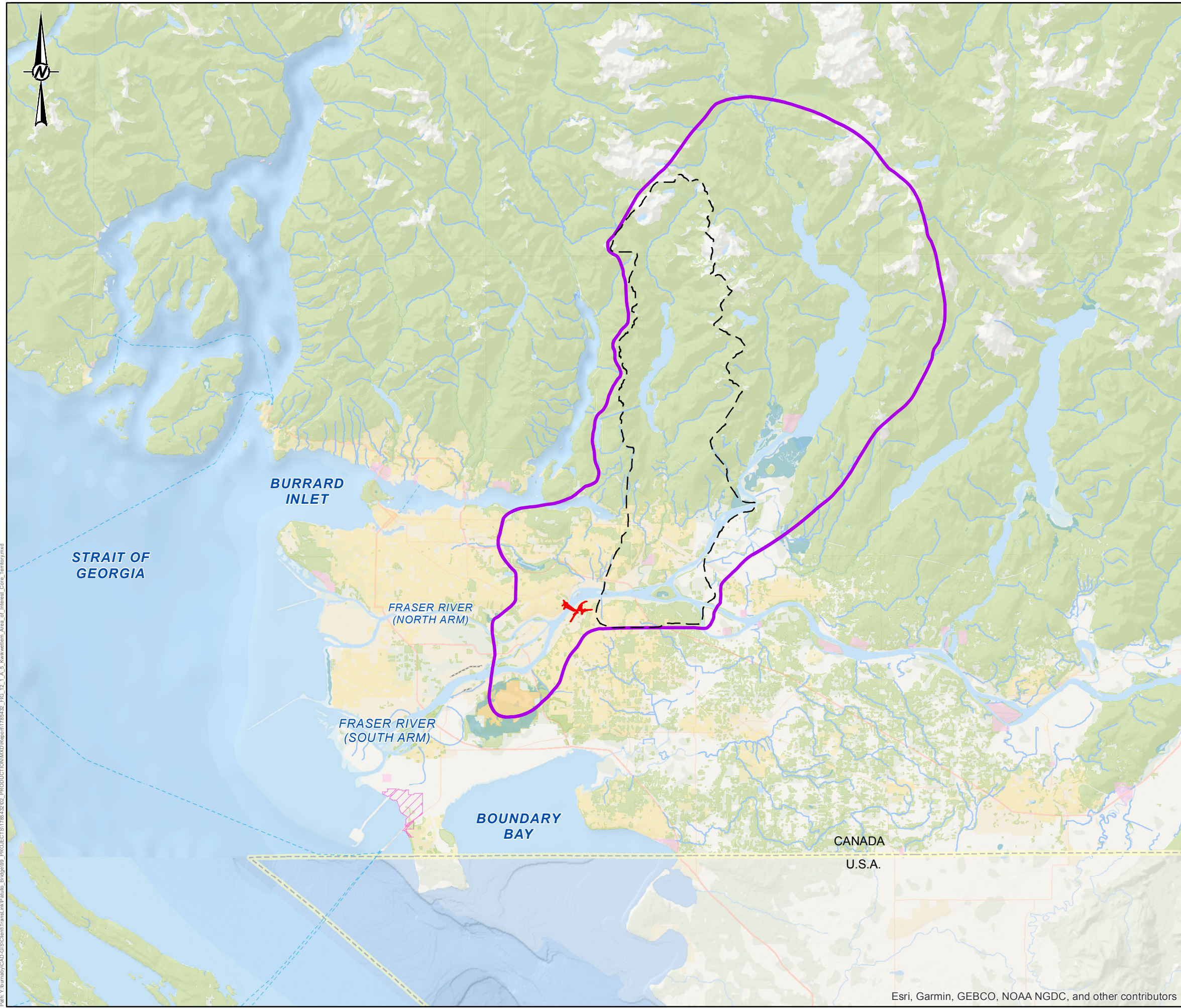
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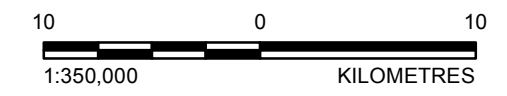
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LEGEND

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- KWIKWETLEM CORE TERRITORY
- INDIAN RESERVE
- TSAWWASSEN LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- WATERCOURSE
- FERRY ROUTE
- ROAD
- CANADA - U.S.A BORDER



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1. KWIKWETLEM AREA OF INTEREST AND CORE TERRITORY DIGITIZED FROM SUPREME COURT OF B.C. NOTICE OF CIVIL CLAIM.
2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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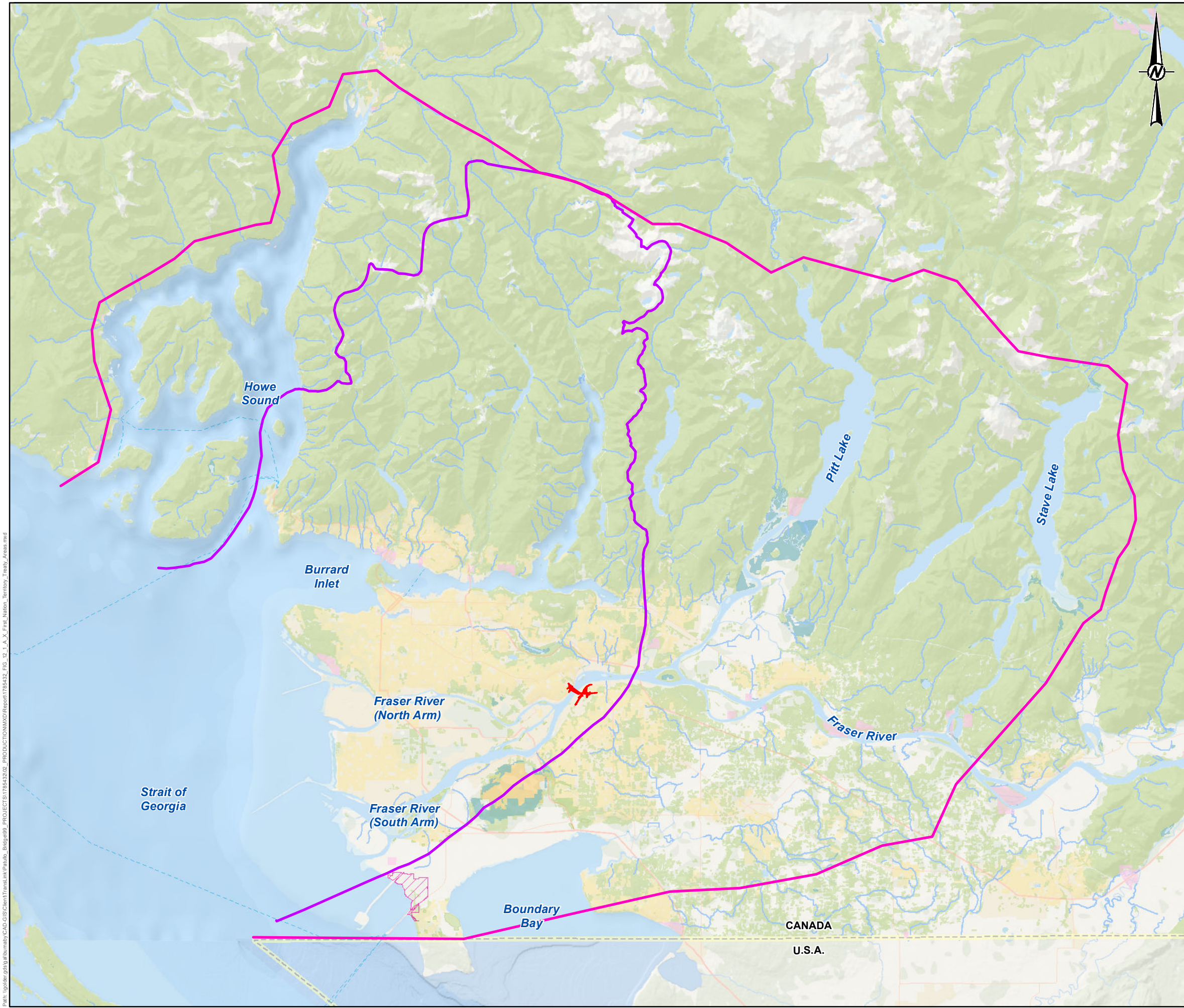
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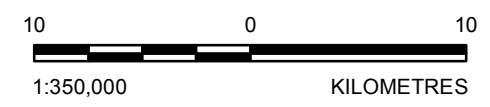
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- RESIDENTIAL AREA
- PARK / FOREST AREA
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- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
- CANADA - U.S.A BORDER



REFERENCES

1. MUSQUEAM NATION CORE TRADITIONAL TERRITORY OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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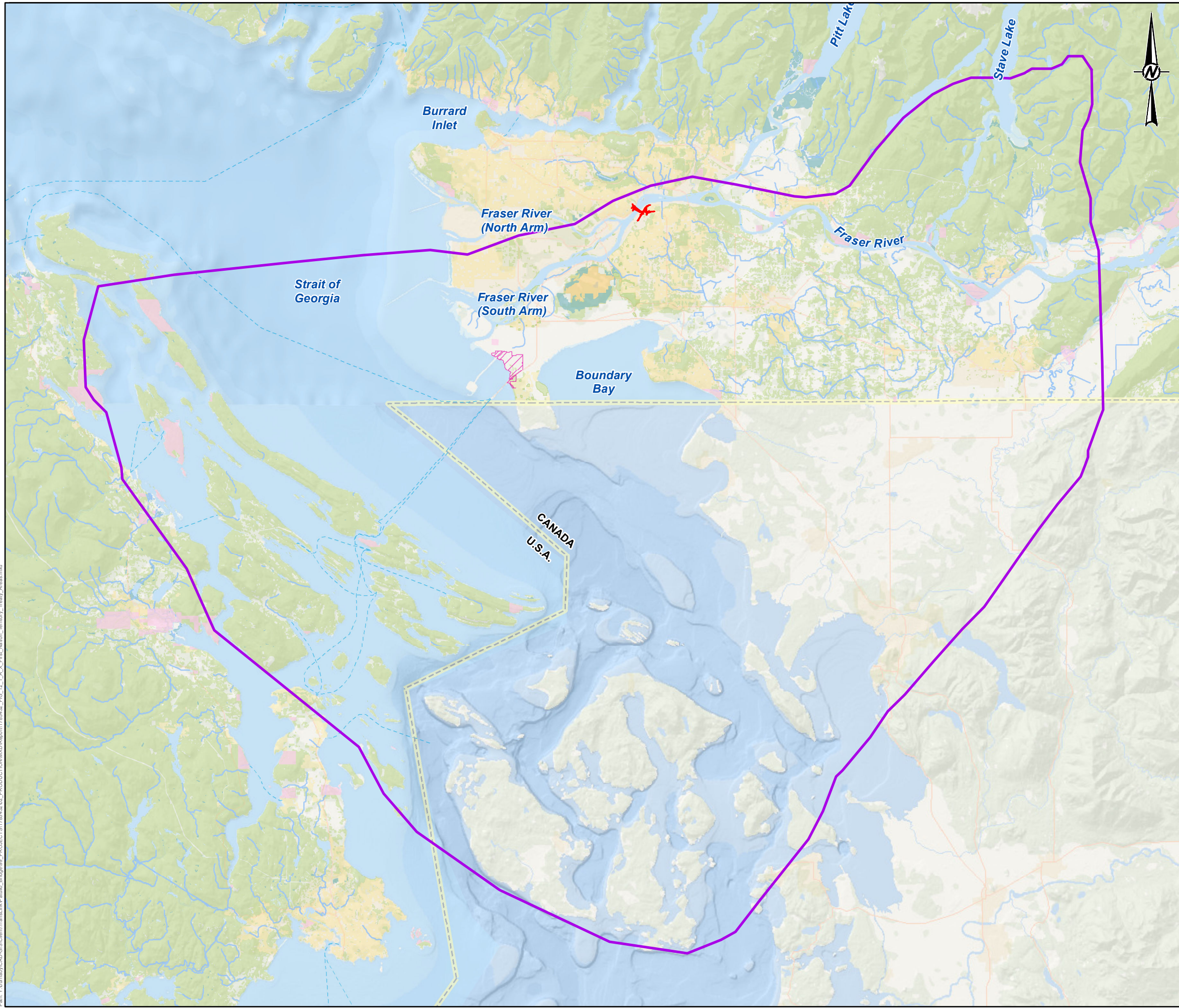
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	APPROVED	

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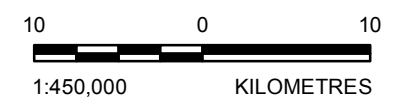
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LEGEND

- PROJECT BOUNDARY
- SEMIAHMOO FIRST NATION TRADITIONAL TERRITORY
- INDIAN RESERVE
- TSAWASSEN FIRST NATION LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
- CANADA - U.S.A BORDER



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1. SEMIAHMOO FIRST NATION TRADITIONAL TERRITORY DIGITIZED FROM PORT METRO VANCOUVER.
2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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PROJECT
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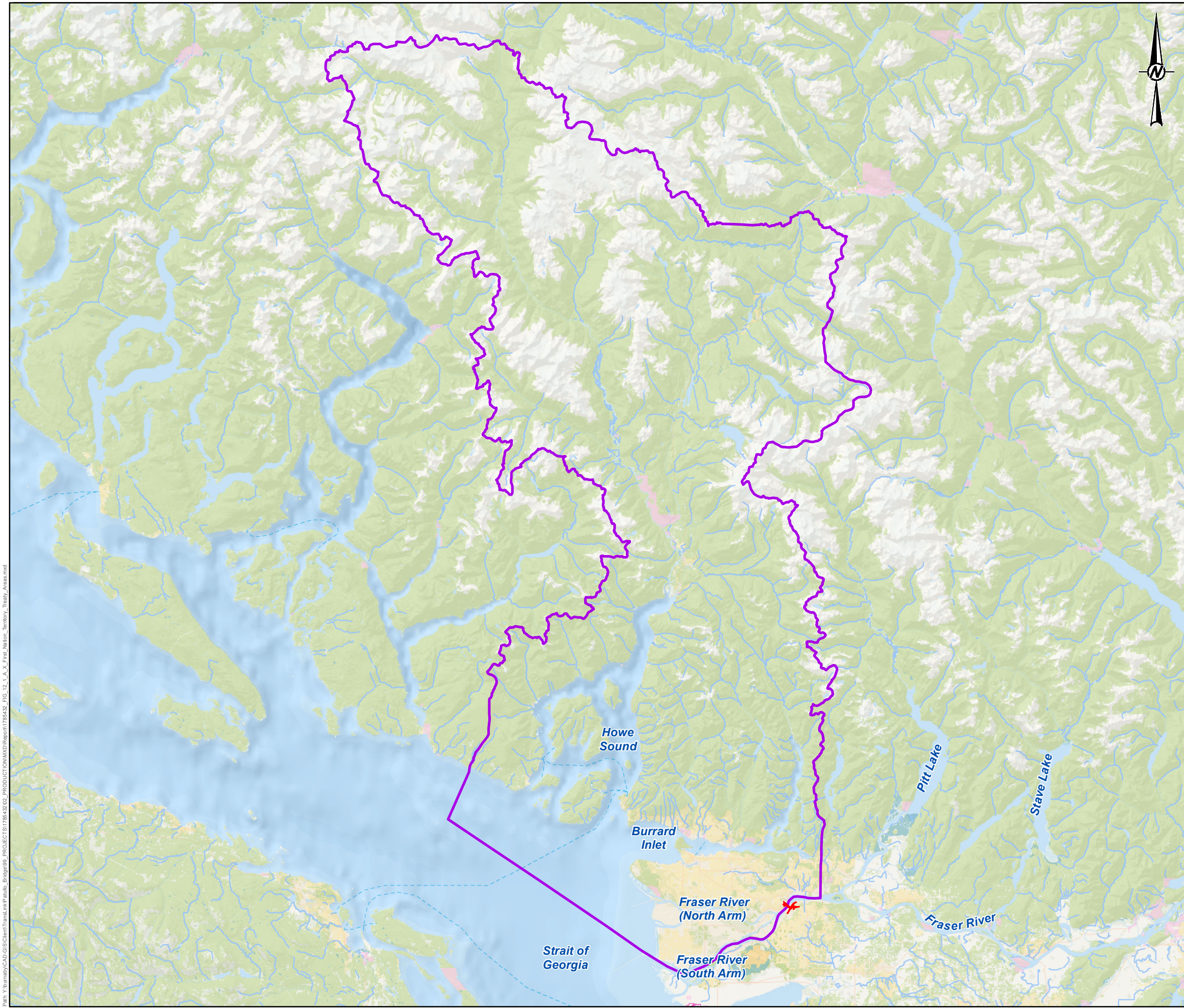
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PROJECT NO. 1785432	PHASE 3000	REV. A	FIGURE 12.1-A-7
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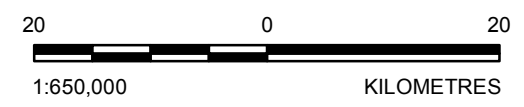
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LEGEND

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- INDIAN RESERVE
- TSAWWASSEN FIRST NATION LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
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2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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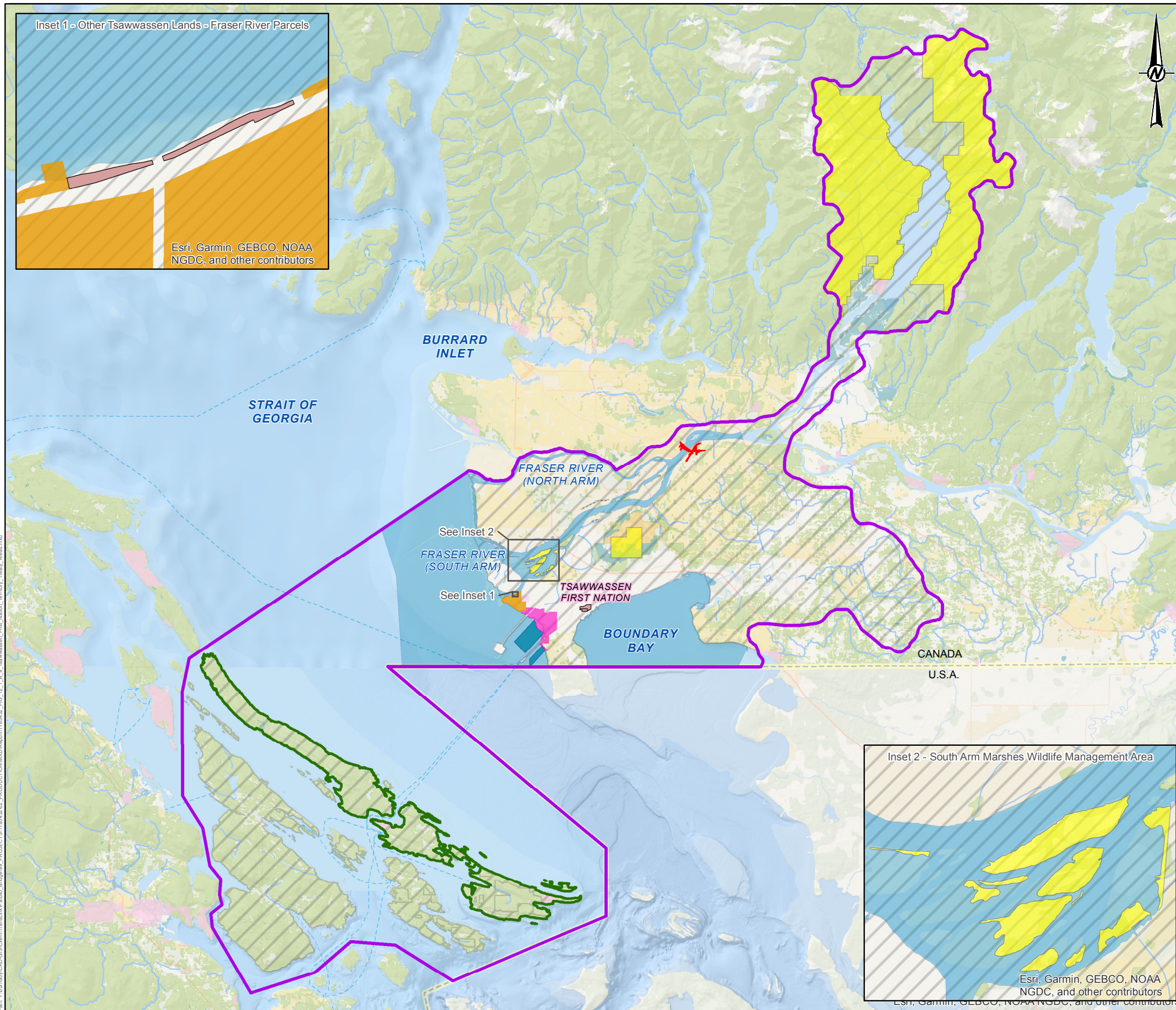
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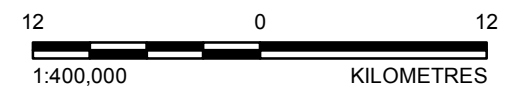
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- LEGEND**
- PROJECT BOUNDARY
 - TSAWWASSEN TERRITORY
 - RIGHTS OF REFUSAL LANDS
 - OTHER TSAWWASSEN LANDS
 - TSAWWASSEN FISHING AREA
 - TSAWWASSEN PLANT GATHERING AREAS
 - TSAWWASSEN LANDS
 - TSAWWASSEN WATER LOTS
 - TSAWWASSEN INTERTIDAL BIVALVE FISHING AREA
 - TSAWWASSEN WILDLIFE HARVEST AREA AND TSAWWASSEN MIGRATORY BIRD HARVEST AREA
 - INDIAN RESERVE
 - RESIDENTIAL AREA
 - PARK / FOREST AREA
 - BURNS BOG ECOLOGICAL CONSERVATION AREA
 - WETLAND
 - WATER
 - WATERCOURSE
 - FERRY ROUTE
 - ROAD
 - CANADA - U.S.A BORDER



- REFERENCES**
1. TSAWWASSEN TERRITORY DIGITIZED FROM TSAWWASSEN FIRST NATION FINAL AGREEMENT.
 2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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PROJECT
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TITLE
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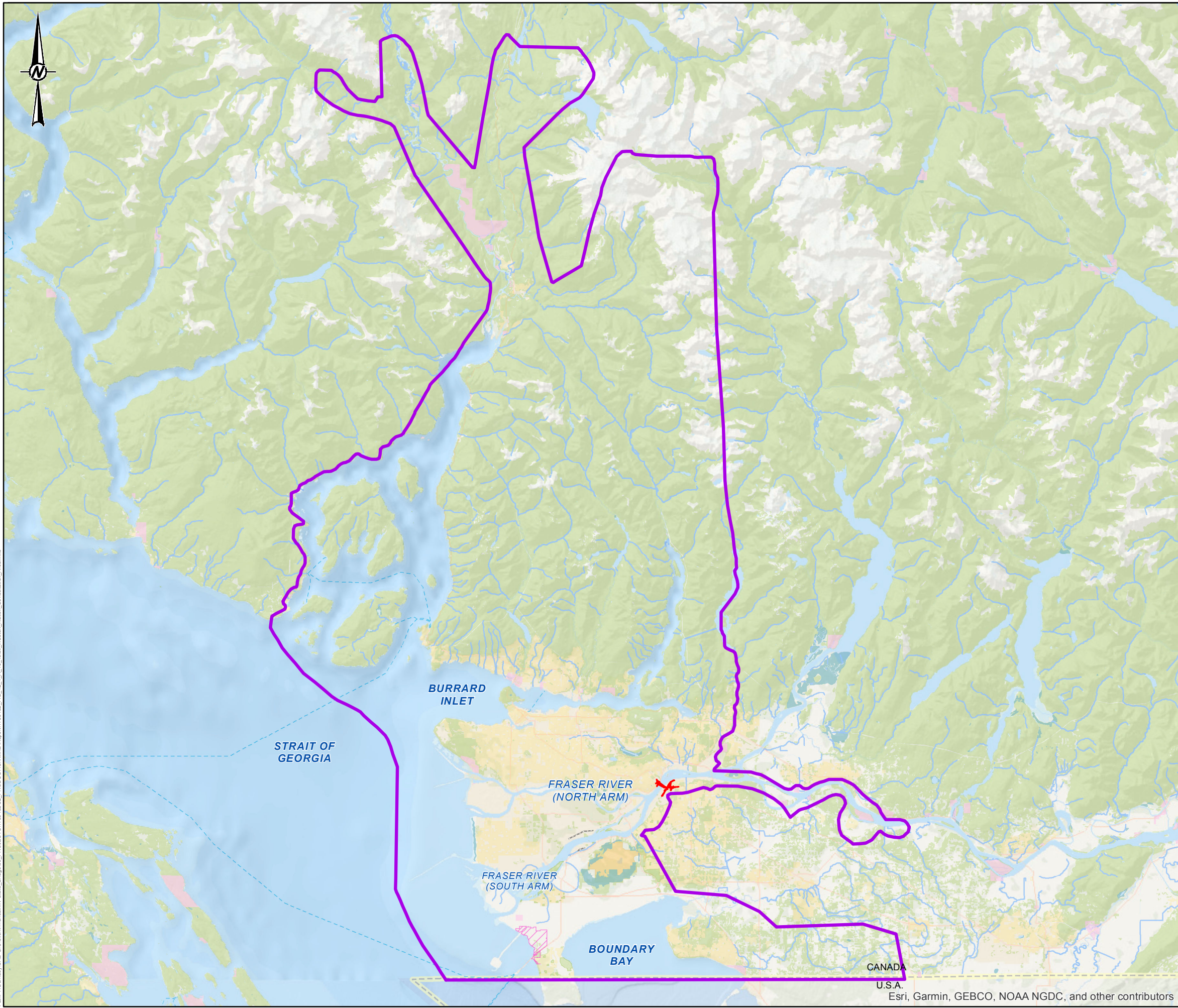
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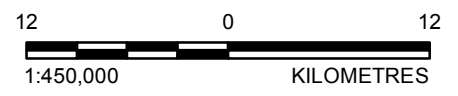
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LEGEND

- PROJECT BOUNDARY
- TSLEIL-WAUTUTH CONSULTATION AREA
- INDIAN RESERVE
- TSAWWASSEN LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- WATERCOURSE
- FERRY ROUTE
- ROAD
- CANADA - U.S.A BORDER



- REFERENCES**
1. TSLEIL-WAUTUTH NATION CONSULTATION AREA DIGITIZED FROM TSLEIL-WAUTUTH NATION.
 2. INDIAN RESERVES OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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TITLE
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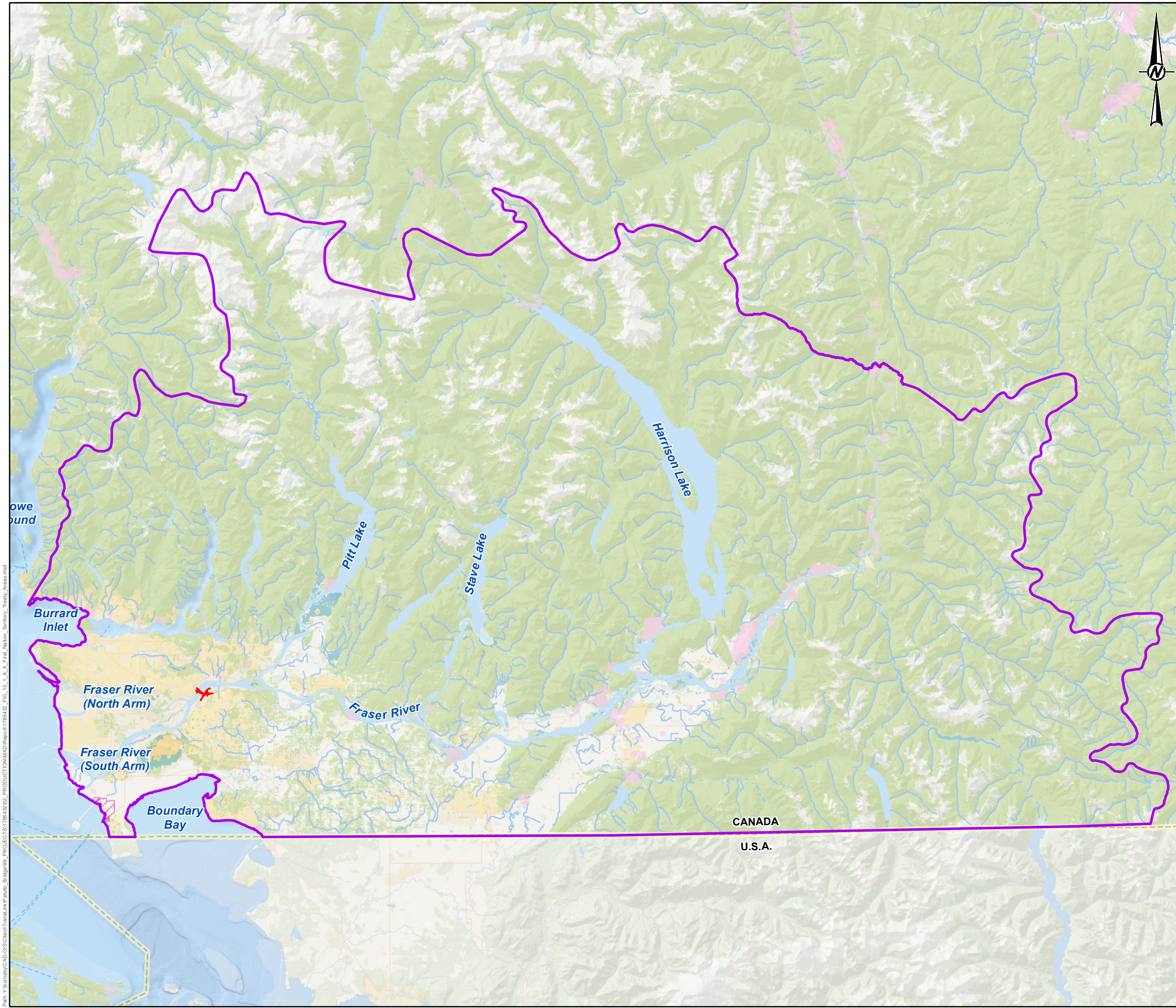
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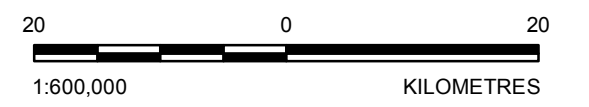
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- INDIAN RESERVE
- TSAWWASSEN FIRST NATION LANDS
- RESIDENTIAL AREA
- PARK / FOREST AREA
- BURNS BOG ECOLOGICAL CONSERVATION AREA
- WETLAND
- WATER
- FERRY ROUTE
- WATERCOURSE
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1. STÓ:LŌ TRADITIONAL TERRITORY (PROTECTIVE WRIT) AND INDIAN RESERVES OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
2. INDIAN RESERVES AND TREATY LANDS OBTAINED FROM B.C. MINISTRY OF FORESTS, LANDS AND NATURAL RESOURCE OPERATIONS.
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PROJECT
 PATTULLO BRIDGE REPLACEMENT PROJECT

TITLE
 STÓ:LŌ TRADITIONAL TERRITORY (PROTECTIVE WRIT)

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	DESIGN	JP
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Attachment 12.1-B
Aboriginal Consultation Report #2

Aboriginal Consultation Report #2

Pattullo Bridge Replacement Project

June 2018

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EXECUTIVE SUMMARY

The Ministry of Transportation and Infrastructure (MoTI or Proponent) proposes to replace the existing Pattullo Bridge with a new four-lane bridge. The proposed Pattullo Bridge Replacement Project (the “Project”) will also involve the decommissioning and removal of the existing bridge.

MoTI must obtain an Environmental Assessment Certificate and a Vancouver Fraser Port Authority (VFPA) project permit in order to proceed with the Project. The Environmental Assessment Office (EAO) and the VFPA have agreed to a harmonized provincial-federal environmental assessment (EA) process for the proposed project, with the Environmental Assessment Office as the lead agency. The harmonized environmental assessment process will incorporate the VFPA’s federal requirements to meet both the Province and the VFPA’s respective assessment processes.

This Aboriginal Consultation Report #2 (ACR2) provides a high-level summary of Aboriginal consultation activities undertaken through spring 2018. As specified in the EAO’s Section 11 Order, ACR2 summarizes the efforts undertaken by the Proponent to consult with Aboriginal Groups in accordance with the approved Aboriginal Consultation Plan (ACP). It identifies feedback and information received during consultation, including the identification of potential adverse impacts of the proposed Project on Aboriginal Interests, and includes the corresponding responses from the Proponent.

Aboriginal consultation on the Project began in spring 2016. Consultation in accordance with the Section 11 Order commenced in August 2017 and the Pre-Application Phase concludes with the acceptance of the Application for review by BC EAO. Consultation will continue through the Application review, and post-certification phases, as outlined in the approved ACP and as specified in the EAO’s Section 11 Order.

LIST OF ACRONYMS & DEFINED TERMS

Aboriginal Groups	All Aboriginal Groups or aboriginal entities as defined in Section 35(2) of the <i>Constitution Act, 1982</i> of Canada as set out in Schedule B of the Section 11 Order issued by EAO for the Project
Application	Application for an Environmental Assessment Certificate
BC	British Columbia
DFO	Fisheries and Oceans Canada
EA	Environmental Assessment
EAO	Environmental Assessment Office
EAC	Environmental Assessment Certificate
MoTI	BC Ministry of Transportation and Infrastructure
Project	Pattullo Bridge Replacement Project
Proponent	TransLink (from Project commencement to end of January 2018), and MoTI (February 2018 – present)
TransLink	South Coast British Columbia Transportation Authority
TUS	Traditional Use Studies
VFPA	Vancouver Fraser Port Authority

1.0 INTRODUCTION

1.1 Project Background

The BC Ministry of Transportation and Infrastructure is proposing the Pattullo Bridge Replacement Project, which includes a new four-lane bridge that meets current seismic and road design standards, and provides a safe and reliable crossing for vehicles, pedestrians and cyclists, network connections in Surrey and New Westminister, and the removal of the existing bridge.

MoTI must obtain an Environmental Assessment Certificate (EAC) and a VFPA project permit in order to proceed with the Project. The EAO and the VFPA have agreed to a harmonized provincial-federal environmental assessment process for the proposed project, with the EAO as the lead agency. The harmonized environmental assessment process will incorporate VFPA's federal requirements to meet both the Province and the VFPA's respective assessment processes.

Figure 1: PROJECT AREA MAP



1.2 Proponent Overview

The Project Proponent for the Project is the B.C. Ministry of Transportation and Infrastructure, and if the Project is approved, an Environmental Assessment Certificate will be awarded to and held by MoTI. MoTI plans transportation networks, provides transportation services and infrastructure, develops and implements transportation policies, and administers related acts and regulations. MoTI opens up B.C. through innovative, forward-thinking strategies that move people and goods safely, and fuel the provincial economy. Improvement of vital infrastructure is a key goal of MoTI, along with enhancing the competitiveness of B.C.'s transportation industries, reducing transportation-related greenhouse gas emissions and providing B.C. with a safe and reliable highway system.

MoTI has replaced South Coast British Columbia Transportation Authority (TransLink) as the Proponent for the Pattullo Bridge Replacement Project as confirmed in a letter that can be found here: <https://projects.eao.gov.bc.ca/api/document/5aa70c84bd0aee00242c3424/fetch>. MoTI will continue to work within the harmonized approach to the environmental assessment review process as agreed between the EAO and VFPA. This includes fulfilling the requirements, including Aboriginal consultation requirements, set out in the order issued by EAO on August 8, 2017 under Section 11 of the BC Environmental Assessment Act. As such, MOTI has adopted the previously approved Aboriginal Consultation Plan for the Pattullo Bridge Replacement Project.

2.0 PURPOSE OF ABORIGINAL CONSULTATION REPORT #2

The purpose of this Aboriginal Consultation Report #2 is to provide a high-level summary of Aboriginal consultation activities undertaken from spring 2016 through spring 2018, on the Project.

As specified in the EAO's Section 11 Order, this Aboriginal Consultation Report #2 summarizes the efforts undertaken by the Proponent to consult with Schedule B Aboriginal Groups (Aboriginal Groups) in accordance with the ACP, approved by EAO in November 2017. The report identifies feedback and information received during consultation, including the identification of potential adverse impacts of the proposed Project on Aboriginal Interests, and the corresponding responses from the Proponent (see Appendix A).

MoTI provided a draft version of ACR2 to Aboriginal Groups for review and comment and has updated the report to reflect comments received during consultation.

3.0 ABORIGINAL GROUPS INPUT INTO CONSULTATION REPORT #2

In accordance with the EAO's Section 11 Order, a draft version of ACR2 was shared with all Aboriginal Groups for review and comment. MoTI received confirmation from all Schedule B Aboriginal Groups that they had reviewed draft ACR2.

The following Aboriginal Groups informed the Proponent that they had reviewed the draft and made no comment or requests for revisions to the document:

- Katzie First Nation
- Kwantlen First Nation
- Kwikwetlem First Nation
- Lake Cowichan First Nation
- Squamish Nation

The following Aboriginal Groups provided comments on draft ACR2:

- Cowichan Tribes
- Halalt First Nation
- Lyackson First Nation
- Musqueam Nation
- Penelakut Tribe
- Semiahmoo First Nation
- Stz'uminus First Nation
- Tseil-Waututh Nation
- Tsawwassen First Nation

Where appropriate, this report has been revised to reflect feedback received during the review of its draft version. The revised ACR2 was shared with all Schedule B Aboriginal Groups and with EAO prior to submission of the EA Application.

Where comments and/or requests for changes had been received from Aboriginal Groups, MoTI provided a written response and explained how feedback had been considered. MoTI also identified where input had or had not resulted in revisions to ACR2. Information regarding the type of feedback submitted to MoTI on draft ACR2 can be found in the Aboriginal Group-specific summaries in Section 6.

4.0 IDENTIFICATION OF SCHEDULE B & C ABORIGINAL GROUPS

The term Aboriginal Groups, is used in this report to refer to the groups below who are listed on Schedule B of the Section 11 Order and identified by EAO to be consulted on the Project and participate in the Project Working Group:

- Cowichan Tribes
- Halalt First Nation
- Katzie First Nation
- Kwantlen First Nation
- Kwikwetlem First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Musqueam Nation
- Penelakut Tribe
- Semiahmoo First Nation
- Squamish Nation
- Stz'uminus First Nation
- Tsawwassen First Nation
- Tseil-Waututh Nation

Schedule C of the Section 11 Order identified the following groups to be notified by the EAO with respect to the Project:

- People of the River Referrals Office
 - Soowahlie
 - Shxw'ow'hamel First Nation
 - Skawahlook First Nation
- Seabird Island

5.0 ABORIGINAL CONSULTATION

5.1 Introduction

This section provides information regarding consultation activities that the Proponent undertook with Aboriginal Groups during the initial and pre-Application consultation phases. It also provides an overview of the Aboriginal Consultation Plan, as well as information regarding consultation that took place with Aboriginal Groups on the draft ACP. It also includes a summary of key issues raised by Aboriginal Groups. Further detail regarding issues, concerns and interests raised during consultation can be found in Appendix A.

Initial and pre-Application phase consultation is complete and more than 75 meetings with Aboriginal Groups have taken place. The table below describes the phases of Aboriginal consultation for the Project and provides a timeline for each consultation phase.

Table 1: Aboriginal Consultation Phases for the Project

Consultation Phase	Description	Timeline / Duration
Initial Consultation	Early engagement including sharing Project-related information, determining specific preferences and details with respect to consultation, identifying Project-related concerns, interests and issues, and obtaining early input regarding the potential for the Project to affect Aboriginal Interests and identifying potential measures to avoid or mitigate any potential effects on these Interests.	Starting in spring 2016 to the issuance of the Section 11 Order in August 2017.
Pre-Application Consultation	Project development and planning, including development of Project Description, AIR development and collection of baseline information.	Issuance of the Section 11 Order on August 8, 2017 to the acceptance of the Application in 2018.
Application Review Consultation	Supporting Aboriginal Groups review of the EA Application and providing draft documents for review and comment. Continuing to address Project-related issues and concerns, seeking input from Aboriginal Groups with respect to mitigation, including habitat offsetting	EAO Acceptance of the Application (spring 2018) to the issuance of an EAC.

Consultation Phase	Description	Timeline / Duration
	and enhancement, identifying and planning for involvement of Aboriginal Groups in any additional fieldwork and monitoring. Project-benefits related discussions and planning for involvement of Aboriginal Groups in Project construction and post-construction.	
Post EA Certification (EAC) Consultation	Continuing consultation to ensure EA Certificate-related commitments are met, and Project- related benefits for Aboriginal Groups are realized.	Post-EAC issuance to a date when all permits are issued.

Initial Consultation Phase

The Proponent sought input from Aboriginal Groups to plan for and implement effective consultation and is committed to developing and maintaining positive and productive working relationships with Aboriginal Groups as Project consultation continues.

Aboriginal consultation commenced in spring 2016 and was focused on sharing of Project-related information, determining specific preferences and details with respect to consultation activities, identifying Project-related concerns, interests and issues, obtaining input from Aboriginal Groups regarding the potential for the Project to affect their Aboriginal Interests and identifying potential measures to avoid or mitigate any potential effects on these Interests. Key consultation activities undertaken during this phase include Aboriginal participation in fieldwork, meetings and presentations, site visits, phone calls and email communication. In particular, the Proponent:

- Provided general Proponent-related information on the Proponent's structure, organization, and services;
- Discussed and confirmed Aboriginal Groups' contacts and communication protocols;
- Shared Project information and requested comment from Aboriginal Groups on proposed field programs, and provided Project updates;
- Determined acceptable and/or preferred consultation methods;
- Sought Traditional Land Use information and Traditional Ecological Knowledge through engagement activities and the provision of funding for Project-related studies;
- Entered into capacity funding arrangements with Aboriginal Groups;
- Sought input and recommendations on the archaeological field program methodology as well as arranging active participation in the fieldwork;
- Sought input and recommendations on the archaeological field program methodology as well as arranged active participation in the fieldwork;
- Offered opportunities for information sharing between the Project team and Aboriginal Groups, including on-river boat tours of the Project site, tours of the hydraulic modelling facility, workshops and technical presentations;
- Sought input with respect to issues, concerns and interests related to the Project, as well as selection of Valued Components for the EA selection, proposed pier locations, environmental studies and Project design; and
- Offered opportunities to convene community open houses or other activities to facilitate the sharing of Project-related information and for gathering input.

During the initial consultation phase, the EAO held a Working Group meeting on June 22, 2017. The meeting focused on the following topics:

- Environmental Assessment Process
- Project Overview and Design and
- Review of Draft Valued Components Selection and Rationale Document

Aboriginal Groups in attendance at the Working Group meeting were:

- Halalt First Nation
- Kwantlen First Nations
- Kwikwetlem First Nation
- Lyackson First Nation
- Musqueam First Nation
- Tsawwassen First Nation
- Tseil-Waututh Nation

Pre-Application Phase Consultation

Pre-application consultation with Aboriginal Groups began in August 2017, with the issuance of the Section 11 Order by the EAO and continued through to submission of the EA Application in early 2018.

The Proponent provided pre-Application phase capacity funding for Aboriginal Groups to support active and meaningful participation in consultation activities leading to the submission of the Application and for the preparation and submission of Traditional Use or Project-related studies.

To achieve the consultation objectives outlined in the Project's Aboriginal Consultation Plan, the Proponent:

- Continued to seek input and consider knowledge and information shared by Aboriginal Groups in meetings, studies and through other means;
- Continued to respond to concerns, issues and requests from Aboriginal Groups, to identify potential effects on Aboriginal Interests and to elicit input with respect to measures to avoid and mitigate any potential effects;
- Provided draft baseline documents for review and input (i.e. draft heritage report, draft terrestrial wildlife survey, fish and fish habitat Terms of Reference);
- Shared information and requested comment from Aboriginal Groups on proposed field programs, and provided Project updates;
- Supported Aboriginal Groups' participation in Working Group meetings;

- Attended community meetings to provide Project information and respond to questions;
- Provided opportunity for Aboriginal Groups' participation in fieldwork and monitoring;
- Engaged Aboriginal Groups on the draft Valued Components Document and draft EAC Application Information Requirements (dAIR);
- Shared Project information with respect to field programs, construction, procurement schedule, as well as regular Project updates;
- Sought Traditional Land Use information, Traditional Ecological Knowledge and other input from Aboriginal Groups through engagement activities for consideration in the Environmental Assessment;
- Identified initial concerns on the potential environmental, economic, social heritage, and health effects of the Project;
- Requested input into Valued Component selection;
- Offered and undertook meetings, phone calls and workshops; and
- Sought comments and input on draft EA baseline studies

During the pre-Application consultation phase, the EAO held a Working Group meeting on October 23, 2017. The meeting focused on:

- Project Update
- Environmental Assessment Process
- Key Valued Components and Intermediate Components
- Fraser River Hydraulics and River Morphology
- Fish and Fish Habitat and
- Updated Valued Component Selection Document and draft Application Information Requirements

Aboriginal Groups in attendance at the Working Group meeting were:

- Cowichan Tribes
- Kwantlen First Nation
- Kwikwetlem First Nation
- Lyackson First Nation
- Musqueam Nation
- Tsawwassen First Nation
- Tseil-Waututh Nation

On December 6, 2017, the EAO led a meeting via conference call specific to the topic of fish and fish habitat. The following Aboriginal Groups participated in the call:

- Kwikwetlem First Nation
- Tsawwassen First Nation
- Tseil-Waututh Nation

Aboriginal Consultation Plan

The Aboriginal Consultation Plan outlines and guides Aboriginal consultation activities to be undertaken by the Proponent, as delegated by the EAO and outlined in the Section 11 Order. It was prepared by TransLink to meet the requirements identified in the EAO's Section 11 Order, dated August 8, 2017, and the VFPA's Project and Environmental Review Process Aboriginal consultation requirements and was adopted by MoTI in February 2018 as a result of the change in Project Proponent.

The ACP guides consultation activities with Aboriginal Groups during the Pre-Application and Application Review stages of the environmental assessment. The Plan reflects input received from Aboriginal Groups during initial Project engagement and during their review of the draft document.

The Proponent invited Aboriginal Groups identified on Schedule B of the Section 11 Order, to review and comment on the draft ACP. The draft was shared with Aboriginal groups on September 8, 2017. The Proponent reviewed the comments received on the draft and made revisions to the document to reflect input received. Where revisions to the plan were made based on Aboriginal Groups' feedback and where input had not been incorporated into the revised document, the Proponent provided a written response to Aboriginal Groups along with an offer to meet to discuss any concerns in relation to the Plan. The revised ACP was approved by EAO on November 30, 2017.

MoTI will continue to work with Aboriginal Groups throughout the environmental review process to ensure engagement outlined in the ACP continues to reflect the needs and preferences of each group with the aim to implement it in a manner that is considered effective from the perspective of both parties.

5.2 Summary of Consultation Activities with Cowichan Tribes

This section summarizes initial and pre-Application phase consultation undertaken with Cowichan Tribes as a member of the Cowichan Nation Alliance.

For the Pattullo Bridge Replacement Project, Cowichan Tribes participated in consultation independently and also with the other Cowichan Nation Alliance member communities which include Halalt First Nation, Penelakut Tribe and Stz'uminus First Nation. While the Proponent provided Project information and funding directly to Cowichan Tribes, feedback and participation in meetings occurred through the Cowichan Nation Alliance.

During initial and pre-Application phase consultation, the following activities were undertaken with Cowichan Tribes:

- Correspondence and communications by letter, email, phone, in-person meetings and participation by Cowichan Nation Alliance in the two EAO-led Working Group meetings in June (Halalt First Nation) and October, 2017 (Cowichan Tribes).
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases.

Meetings with Cowichan Tribes

During initial and pre-Application phase consultation, the following meetings took place with Cowichan Tribes and/or with other Cowichan Nation Alliance member communities:

- Introductory meeting (Cowichan Tribes, Halalt First Nation, Penelakut Tribe - April 2016)
- Project update meeting (All Cowichan Nation Alliance members - July 2016)
- Project update meeting (Cowichan Tribes – October 2016)
- Project update meeting (Cowichan Tribes - May 2017)
- Working Group meeting (Halalt First Nation - June 2017)

- Project update meeting (Cowichan Tribes – June 2017)
- Working Group meeting (Cowichan Nation Alliance – October 2017)
- Project update meeting (Cowichan Nation Alliance – January 2018)

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Cowichan Tribes with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Cowichan Tribes indicated to the Proponent that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Cowichan Tribes with a request for review and comment. A hard copy was provided at the January 2018 meeting and Cowichan Tribes indicated to the Proponent that they had reviewed ACR1 and had no comments.

Aboriginal Consultation Report #2

The Proponent shared a draft of Aboriginal Consultation Report #2 with Cowichan Tribes for review and comment. This revised ACR2 reflects feedback received from Cowichan Tribes and other Aboriginal Groups during the review of the draft.

Cowichan Tribes comments on draft ACR2 were predominantly related to how the Cowichan Nation Alliance and its distinct member communities were listed in the report. Comments also included a clarification with respect to the nature of one of the issues identified in the Cowichan Tribes issues table.

This document was shared with Cowichan Tribes via email in advance of its submission to the EAO. The Proponent provided written responses to Cowichan Tribes' comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Cowichan Tribes' input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Cowichan Tribes Aboriginal Interests Summary & Mapping
- Updated Project Boundary

Cowichan Tribes provided the Proponent with comments on the Phase B geotechnical investigation scope and draft Environmental Management Plan and the draft species list (by way of the Strength of Claim Report, submitted to the Proponent in October 2017). Where appropriate, the Proponent revised these draft documents based on input received from Cowichan Tribes.

Cowichan Tribes also provided comments on the noise, visual and vegetation consultation package, which have been used to inform the Project's EA. The Proponent responded to Cowichan Tribes' comments by letter (November 2017) with an offer to discuss the responses further.

During initial and pre-Application phase consultation, letters sent to Cowichan Tribes included:

- Letter of introduction notifying Cowichan Tribes of the Project and offering a meeting (February 2016)
- Letter in response to Cowichan Tribes' comments regarding Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies (November 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Cowichan Tribes provided the Proponent with a Pattullo Bridge Replacement Project Strength of Claim Report in October 2017 and a copy of the Declaration for Reconciliation signed by the four Chiefs in January 2016. Cowichan Nation Alliance also provided the Proponent with electronic versions of the documents listed below, for consideration and integration in the EA, as appropriate:

- Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010)
- Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011)
- Traditional Marine Use and Occupancy Study – Halalt (2013)
- Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013)
- Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014)
- Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014)
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014)

- Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014)
- National Energy Board - Hearings Stz'uminus and Olsen (2014)
- George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015)
- British Columbia Supreme Court - Affidavit of Randy Bouchard (2016)
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016)
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998)
- Past Harvesting Practices and Current Harvesting Needs (date unknown)
- Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)

Key Concerns, Issues and Interests Raised by Cowichan Tribes

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified by Cowichan Tribes to date include:

- Archaeology and importance of indigenous cultural/archaeological monitors being on site during construction.
- Potential effects to fish and fish habitat.
- Potential effects to Aboriginal Interests
- Impacts to vegetation associated with run-off water from the bridge.
- Importance of habitat restoration.
- Project-related benefits, including employment, contracting and training opportunities.
- Enhancement of public spaces, parks and surrounding environment.
- Importance of seeking input on EA studies.
- Replanting of native riparian and forage plants.
- Management of invasive species.

- Potential for contamination from storm water run-off.

Further detail regarding issues and concerns raised by Cowichan Tribes are outlined in Appendix A.

5.3 Summary of Consultation Activities with Halalt First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Halalt First Nation as a member of the Cowichan Nation Alliance.

For the Pattullo Bridge Replacement Project, Halalt First Nation participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Penelakut Tribe and Stz'uminus First Nation. While the Proponent provided Project information and funding directly to Halalt First Nation, feedback and participation in meetings occurred through the Cowichan Nation Alliance.

During initial and pre-Application phase consultation, the following activities were undertaken with Halalt First Nation:

- Correspondence and communications by letter, email, phone, in-person meetings and participation, by member communities of the Cowichan Nation Alliance, in the two EAO-led Working Group meetings in June (Halalt First Nation) and October, 2017 (Cowichan Tribes)
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases.

Meetings with Halalt First Nation

During the initial and pre-Application phase consultation, the following meetings took place with Halalt First Nation and/or other member communities of the Cowichan Nation Alliance:

- Introductory meeting (Cowichan Tribes, Halalt First Nation, Penelakut Tribe - April 2016)
- Project update meeting (All Cowichan Nation Alliance members - July 2016)
- Project update meeting (Cowichan Tribes – October 2016)
- Project update meeting (Cowichan Tribes - May 2017)
- Working Group meeting (Halalt First Nation - June 2017)

- Project update meeting (Cowichan Tribes – June 2017)
- Working Group meeting (Cowichan Nation Alliance – October 2017)
- Project update meeting (Cowichan Nation Alliance – January 2018)

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Halalt First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Halalt First Nation indicated to that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Halalt First Nation with a request for review and comment. A hard copy was provided at the January 2018 meeting and Halalt First Nation indicated to the Proponent that they had reviewed the Report and had no comments.

Aboriginal Consultation Report #2

The Proponent shared a draft of Aboriginal Consultation Report #2 with Halalt First Nation for review and comment. This revised ACR2 reflects feedback received from Halalt First Nation and other Aboriginal Groups during the review of the draft.

Halalt's comments on draft ACR2 were predominantly related to how the Cowichan Nation Alliance and its distinct member communities were listed in the report. Comments also included a clarification with respect to the nature of one of the issues identified in the Halalt First Nation issues table.

This document was shared with Halalt First Nation via email in advance of its submission to the EAO. The Proponent provided written responses to Halalt First Nation's comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Halalt First Nation's input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1

- Draft Aboriginal Consultation Report 2
- Draft Halalt Aboriginal Interests Summary & mapping
- Updated Project Boundary

Halalt First Nation provided the Proponent with comments on the Phase B geotechnical investigation scope and draft Environmental Management Plan and the draft species list (by way of the Strength of Claim Report, submitted to the Proponent in October 2017). Where appropriate, the Proponent has made revisions to these draft documents based on input received from Halalt First Nation.

Halalt First Nation also provided comments on the noise, visual and vegetation consultation package, which have been used to inform the Project's EA. The Proponent responded to Halalt First Nation comments by letter (November 2017) with an offer to discuss the responses further.

During initial and pre-Application phase consultation, letters sent to Halalt First Nation included:

- Letter of introduction notifying Halalt First Nation/Cowichan Nation Alliance of the Project and offering a meeting (February 2016)
- Letter in response to Halalt First Nation/Cowichan Nation Alliance comments regarding Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies (November 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Halalt First Nation provided the Proponent with a Pattullo Bridge Replacement Project Strength of Claim Report in October 2017 and a copy of the Declaration for Reconciliation signed by the four Chiefs in January 2016. Halalt First Nation/Cowichan Nation Alliance also provided the Proponent with electronic versions of the documents listed below, for consideration and integration in the EA, as appropriate:

- Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchan Village on Lulu Island (2010)
- Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011)
- Traditional Marine Use and Occupancy Study – Halalt (2013)
- Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013)
- Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014)
- Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014)

- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014)
- Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014)
- National Energy Board - Hearings Stz'uminus and Olsen (2014)
- George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015)
- British Columbia Supreme Court - Affidavit of Randy Bouchard (2016)
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016)
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998)
- Past Harvesting Practices and Current Harvesting Needs (date unknown)
- Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)

Key Concerns, Issues and Interests Raised by Halalt First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified by Halalt First Nation to date include:

- Archaeology and importance of indigenous cultural/archaeological monitors being on site during construction.
- Potential effects to fish and fish habitat.
- Potential effects to Aboriginal Interests
- Impacts to vegetation associated with run-off water from the bridge.
- Importance of habitat restoration.
- Project-related benefits, including employment, contracting and training opportunities.
- Enhancement of public spaces, parks and surrounding environment.
- Importance of seeking input on EA studies.

- Replanting of native riparian and forage plants.
- Management of invasive species.
- Potential for contamination from storm water run-off.

Further detail regarding issues and concerns raised by Halalt First Nation are outlined in Appendix A.

5.4 Summary of Consultation Activities with Katzie First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Katzie First Nation.

In April 2017 the Proponent met with Katzie First Nation and was advised that the Nation would be taking a collaborative consultation approach that included Kwantlen First Nation and Semiahmoo First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Katzie First Nation:

- Correspondence and communications by letter, email, phone and in-person meetings.
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phase have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases. Katzie First Nation representatives also participated in the archaeological assessment program that took place in early 2017.

Meetings with Katzie First Nation

During initial and pre-Application phase consultation the following meetings took place with Katzie First Nation as well as their collaborative partners at that time, Kwantlen First Nation and Semiahmoo First Nation:

- Introductory meeting (April 2017)
- Project update meeting (May 2017)
- Project update meeting (June 2017)
- Working Group meeting (June 2017)
- Project update meeting (September 2017)
- Project update meeting (October 2017)

Katzie First Nation representatives participated in a tour of the hydraulic model as well as a site visit to discuss potential Project issues and opportunities, including cultural representation. Other discussion topics have included the reference concept and pier locations, consultation approach, EA process, economic opportunities, archaeology, Valued Components, habitat enhancement and a Traditional Use Study.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Katzie First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Katzie First Nation with a request for review and comment. Katzie First Nation did not provide feedback on the Report.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Katzie First Nation for review and comment. Katzie First Nation informed the Proponent that the draft had been reviewed and Katzie had no comments. The updated ACR2 was shared with Katzie First Nation, via email, in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Katzie First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list

- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Katzie Aboriginal Interests Summary & mapping
- Updated Project Boundary

During initial and pre-Application phase consultation, letters sent to Katzie First Nation included:

- Letter of introduction notifying Katzie First Nation of the Project and offering a meeting (February 2016)
- Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process (August 2016)
- Response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns with respect to procurement opportunities on the Project (September 2017)

- Updated response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement opportunities on the Project (September 2017)
- Letter to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation as a follow-up to a recent meeting regarding the Aboriginal procurement strategy for the Project, providing an electronic version of the procurement schedule, and offering an additional meeting (October 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Involvement in Fieldwork

Katzie First Nation representatives participated in the archaeological assessment program that took place in early 2017. Katzie First Nation also provided archaeological support for Project-related geotechnical investigations.

Key Concerns, Issues and Interests Raised by Katzie First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date by the Katzie First Nation include:

- Approach to Aboriginal Procurement and concerns with past and current approaches to ensuring Project-related contracting, employment and other opportunities are provided to Aboriginal Groups.
- Fish and fishery related issues.
- Protection of archaeology and cultural heritage.
- Concerns with potential impacts from Project-related noise.
- Cumulative impacts.
- Interest in habitat restoration.
- Impacts associated with run-off water from the bridge.
- River hydraulics and morphology.
- Economic opportunities for Aboriginal Groups.
- Opportunities for cultural recognition.

- Low water levels in the river and rising water temperatures.

Further detail regarding issues and concerns raised by Katzie First Nation is outlined in Appendix A.

5.5 Summary of Consultation Activities with Kwantlen First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Kwantlen First Nation.

In April 2017 the Proponent met with Kwantlen First Nation and was advised that the Nation would be taking a collaborative consultation approach that included Katzie First Nation and Semiahmoo First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Kwantlen First Nation:

- Correspondence and communications by letter, email, phone, in-person meetings and participation in the two EAO-led Working Group meetings in June and October, 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases.

Meetings with Kwantlen First Nation

During initial and pre-Application phase consultation the following meetings took place with Kwantlen First Nation as well as their collaborative partners at that time, Katzie First Nation and Semiahmoo First Nation:

- Introductory meeting (March 2016)
- Introductory meeting (April 2017)
- Project update meeting (May 2017)
- Project update meeting (June 2017)
- Project update meeting (September 2017)
- Project update meeting (October 2017)
- Marine use / fish and fish habitat meeting (January 2018 – Kwantlen only)

The Proponent organized a number of site visits for Aboriginal Groups, including tours of the hydraulic model, and boat tours of the bridge site. The site visits allowed for the sharing of Project-related information, and questions and input from community members and representatives. Kwantlen First Nation representatives participated in a tour of the hydraulic model as well as a site visit to discuss potential Project issues and opportunities, including cultural representation.

Other discussion topics have included the reference concept and pier locations, consultation approach, EA process, economic opportunities, archaeology, Valued Components, habitat enhancement, a Traditional Use Study.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Kwantlen First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Aboriginal Groups may have regarding the ACP. Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further.

Kwantlen First Nation reviewed and provided comments to the Proponent on the draft ACP. The ACP was revised to reflect received from Kwantlen First Nation, where appropriate and was provided to Kwantlen First Nation with a summary of responses to comments and an invitation to discuss responses, should there be further questions or concerns.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Kwantlen First Nation with a request for review and comment. Kwantlen First Nation indicated that they had reviewed the draft ACR1 and had no comments on the document.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Kwantlen First Nation for review and comment. Kwantlen First Nation informed the Proponent that the draft had been reviewed and that they had no comments. The revised ACR2 was shared with Kwantlen First Nation, via email, in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Kwantlen First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1

- Draft Aboriginal Consultation Report 2
- Draft Kwantlen Aboriginal Interests Summary & Mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary

Kwantlen First Nation reviewed the Proponent's draft Aboriginal Procurement update schedule. Discussions regarding Project-related economic opportunities are ongoing.

Kwantlen First Nation indicated to the Proponent that they had reviewed the draft Historical Heritage Study and had no concerns or comments.

Kwantlen First Nation provided comments in response to the noise, visual and vegetation consultation package. Comments focused on the potential impacts of sound and vibrations on fish migration, the importance of post construction monitoring, Traditional Knowledge and the importance of engaging in cultural practices, the importance of a culturally informed perspective when looking at declining visibility, potential impacts to cultural features, importance of connection to the land, and interest in participating in a vegetation survey. Comments provided by Kwantlen have been used to inform the Project's EA.

Kwantlen First Nation advised to the Proponent that they had reviewed the draft Kwantlen First Nation Consultation Area Map which was sent out with their respective draft Aboriginal Interests Summary, and had no concerns with how the information was presented.

During initial and pre-Application phase consultation, letters sent to Kwantlen First Nation included:

- Letter of introduction notifying Kwantlen First Nation of the Project and offering a meeting (February 2016)
- Response to Kwantlen First Nation's March 2017 letter regarding Valued Components (May 2017)
- Response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement opportunities on the Project (September 2017)
- Updated response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement opportunities on the Project (September 2017)
- Letter to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation as a follow-up to a recent meeting regarding the Aboriginal procurement strategy for the Project, providing an electronic version of the procurement schedule, and offering an additional meeting (October 2017)

- Letter in response to Kwantlen First Nation comments regarding the draft Aboriginal Consultation Plan (November 2017)
- Letter in response to Kwantlen First Nation comments on noise, vegetation and visual assessment consultation package (January 2018)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Involvement in Fieldwork

Kwantlen First Nation representatives participated in the archaeological assessment program that took place in early 2017. Kwantlen also provided archaeological support Project-related geotechnical testing and test pile investigations.

The Proponent is currently working with Kwantlen First Nation representatives to plan a vegetation survey to take place in spring/summer 2018.

Key Concerns, Issues and Interests Raised by Kwantlen First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date by Kwantlen First Nation:

- Approach to Aboriginal Procurement and concerns with past and current approaches to ensuring Project-related contracting, employment and other opportunities are provided to Aboriginal Groups.
- Fish and fishery related issues.
- Protection of archaeology and cultural heritage.
- Sediment transport and effects to fish, fish habitat and Kwantlen use areas within their territory.
- Aquatic acoustic effects (underwater noise and vibration).
- Concern with potential Project-related impacts from noise.
- Cumulative impacts.
- Interest in habitat restoration.
- Concern with impacts associated with run-off water from the bridge.

- River hydraulics and morphology.
- Interest in economic opportunities for Aboriginal Groups.
- Interest in cultural recognition.
- Declining visibility due to bridge construction.
- Low water levels in the river and rising water temperatures.

Further detail regarding issues and concerns raised by Kwantlen First Nation is outlined in Appendix A.

5.6 Summary of Consultation Activities with Kwikwetlem First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Kwikwetlem First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Kwikwetlem First Nation:

- Correspondence and communications by letter, email, phone, in-person meetings and participation in the two EAO-led Working Group meetings in June and October, 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, discussing capacity funding, involvement in studies and archaeology, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Traditional Use Study and participation in activities related to the pre-Application phase.

Meetings with Kwikwetlem First Nation

During initial and pre-Application phase consultation, the following meetings took place with Kwikwetlem First Nation:

- Introductory meeting (March 2016)
- Project update meeting (April 2016)
- Project update meeting (June 2016)
- Project update meetings (2) (July 2016)
- Project update meeting (September 2016)
- Project update meeting (November 2016)
- Project update meeting and boat tour to share Kwikwetlem First Nation knowledge of the river (January 2017)
- Project update meeting (March 2017)

- Project update meeting (April 2017)
- Project update meeting (September 2017)
- Boat tour to discuss visual assessment, fish and fishing, cultural heritage recognition and noise monitoring (October 2017)
- Project update meeting (December 2017)
- Project update meeting (January 2018)
- Project update meeting (February 2018)

Kwikwetlem representatives participated in a tour of the hydraulic model as well as a site visit to discuss potential Project impacts and opportunities, including cultural representation. Topics of discussion with Kwikwetlem First Nation during consultation to date have included the reference concept, pier locations, Valued Components, economic opportunities, EA process, archaeology, fisheries, geotechnical investigations, and visual assessment for the Project. Kwikwetlem First Nation representatives also participated in the archaeological assessment program that took place in early 2017.

MoTI is currently working with Kwikwetlem First Nation to plan a fish habitat mitigation workshop to take place in summer 2018.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Kwikwetlem First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Kwikwetlem First Nation indicated to the Proponent that they did not have comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Kwikwetlem First Nation with a request for review and comment.

Kwikwetlem First Nation reviewed the Report and requested that reporting be inclusive of “issues or concerns raised by Aboriginal Groups regarding potential impacts of the proposed Project on Aboriginal Interests determined to be beyond the project scope”. Issues and concerns raised by Kwikwetlem First Nation are documented in the attached table [see Appendix A].

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Kwikwetlem First Nation for review and comment. Kwikwetlem First Nation informed the Proponent that the draft ACR2 had been reviewed and they had no comments. The updated ACR2 was shared with Kwikwetlem First Nation, via email, in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Kwikwetlem First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Survey
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study

- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Kwikwetlem Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary

Kwikwetlem First Nation reviewed and provided comments to the Proponent on the following documents and materials:

- In-water geotechnical investigation program Environmental Management Plan
- Program overview and Environmental Management Plan for Phase B geotechnical investigations
 - Responses to Kwikwetlem First Nation comments on the Phase B geotechnical investigation materials were sent by letter (October 2017).
- Test Pile Program Scope and Environmental Management Plan
 - Responses to Kwikwetlem First Nation comments on the Test Pile Program Scope and Environmental Management Plan were sent by letter (December 2017)
- Draft Fish and Fish Habitat Terms of Reference Report
 - Responses to Kwikwetlem First Nation comments on the draft Fish and Fish Habitat Terms of Reference Report were sent by letter (October 2017)
- Draft Terrestrial Wildlife Survey
 - Responses to Kwikwetlem First Nation comments on the draft Terrestrial Wildlife Survey were sent by email (January 2018)
- Draft Vegetation Survey
 - Responses to Kwikwetlem First Nation comments on the draft Vegetation Survey were sent by email (January 2018)
- Draft Kwikwetlem First Nation Aboriginal Interests Summary

Kwikwetlem First Nation also provided comments on the noise, visual and vegetation consultation package, used to inform the Project's EA, by way of comments provided to the Proponent in a follow-up letter after the October 2017 boat tour.

Responses to Kwikwetlem First Nation comments on the noise visual and vegetation consultation package were sent by email (January 2018)

Kwikwetlem First Nation reviewed and commented on the draft Kwikwetlem First Nation Aboriginal Interests Summary. Where appropriate, Kwikwetlem First Nation's feedback was integrated into the relevant section of Part C.

During initial and pre-Application phase consultation, letters sent to Kwikwetlem First Nation included:

- Letter of introduction notifying Kwikwetlem First Nation of the Project and offering a meeting (February 2016)
- Letter in response to June 2016 letter regarding consultation on the Project (June 2017)
- Letter in response to August 2017 letter regarding decision-making in Kwikwetlem Traditional Territory (August 2017)
- Letter in response to Kwikwetlem First Nation comments on Phase B Geotechnical investigation scope and Environmental Management Plan (October 2017)
- Letter in response to Kwikwetlem First Nation comments on the draft Fish and Fish Habitat Terms of Reference Report (October 2017)
- Letter in response to Kwikwetlem First Nation comments on the Test Pile Program scope and Environmental Management Plan (December 2017)
- Letter in response to Kwikwetlem First Nation comments on the draft vegetation and wildlife surveys (January 2018)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Kwikwetlem First Nation provided the Proponent with a Traditional Knowledge and Cultural Heritage Interests report for the Project, as well as the studies listed below, for consideration and integration in the EA, as appropriate:

- Cohen BI. 2012. Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, Vol. 1-3. Prepared for the Minister of Public Works and Government Services Canada.
- LFFA. 2015. What do we know about Fraser River eulachon? A snapshot of First Nations' knowledge and the state of the science on this stock Prepared for the Habitat Stewardship Program.
- Kwikwetlem First Nation. 2016. Riverview Design Guidelines.

- Robichaud, D, English, K, Nelson, T. 2017. Annual movements of acoustic-tagged white sturgeon in the lower reaches of the Fraser River and its tributaries.

Involvement in Fieldwork

Kwikwetlem First Nation representatives participated in the archaeological assessment program that took place in early 2017 and also provided archaeological support for Project-related geotechnical testing. Kwikwetlem First Nation's archaeologists are actively involved in this component of the Project.

Key Concerns, Issues and Interests Raised by Kwikwetlem First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Fish and fishery related issues in general.
- Specific concerns regarding potential disruption to the fishery during construction period.
- Specific concerns regarding how vibration affects fish.
- Specific concerns regarding underwater noise and potential impacts to fish.
- Concerns regarding atmospheric noise
- Protection and enhancement of key fish species, including eulachon, sturgeon and salmon.
- Restoration and enhancement of wildlife habitat.
- Restoration and revitalization of ecosystems that support economically valued plants
- Adoption of offsets to include habitat protection according to anticipated changes to the federal *Fisheries Act*.
- Cumulative impacts.
- Contamination from nearby industrial areas.
- Shoreline access for First Nations fishers.
- Changing patterns of shoreline erosion or reconfiguration stemming from new bridge construction
- Habitat protection and restoration.

- Interest in economic opportunities for Aboriginal Groups.
- Cultural heritage recognition.
- Protection of cultural heritage and archaeological values.
- Promotion of cultural continuity.
- Importance, and concern regarding pier location.
- Concern regarding changing snag patterns as a result of new bridge and piers.
- Concern with Project-related impacts to visual quality.
- Importance of ensuring Project's EA technical team considers Kwikwetlem First Nation's input and knowledge in Project's assessment.
- Importance of ensuring consistency of approach to consultation and key Project team members with change in Project Proponent.

Further detail regarding issues and concerns raised by Kwikwetlem First Nation is outlined in Appendix A.

5.7 Summary of Consultation Activities with Lake Cowichan First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Lake Cowichan First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Lake Cowichan First Nation:

- Correspondence and communications by letter, email, phone and an in-person meeting
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

During initial and pre-Application phase consultation, letters sent to Lake Cowichan First Nation included:

- Letter of introduction notifying Lake Cowichan First Nation of the Project and offering a meeting (February 2016)
- Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process (August 2016)

Consultation activities during the initial and pre-Application phase have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Traditional Use Study and participation in activities related to the pre-Application phase.

Meetings with Lake Cowichan First Nation

The Proponent met with Lake Cowichan First Nation in February 2017 to review the Project, and discuss consultation, capacity funding, a Traditional Use study, and other aspects of the Project. The Proponent also sent a reminder to Lake Cowichan First Nation regarding the Working Group meeting in June 2017. The Proponent met with Lake Cowichan First Nation again in August 2017.

Lake Cowichan First Nation provided the Proponent with a Traditional Use Study for the Project in November 2017.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Lake Cowichan First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Lake Cowichan First Nation indicated to the Proponent that they did not have comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Lake Cowichan First Nation with a request for review and comment.

Lake Cowichan First Nation did not provide comments or identify concerns with the draft ACR1.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Lake Cowichan First Nation for review and comment. Lake Cowichan First Nation informed the Proponent that the draft ACR2 had been reviewed and that they had no comments. The updated ACR2 was shared with Lake Cowichan First Nation, via email, in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Lake Cowichan First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule

- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Lake Cowichan First Nation Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary

During initial and pre-Application phase consultation, letters sent to Lake Cowichan First Nation included:

- Letter of introduction notifying Lake Cowichan First Nation of the Project and offering a meeting (February 2016)
- Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process (August 2016)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Lake Cowichan First Nation provided the Proponent with a Project-related study entitled Ts'uubaasatx Interests: Pattullo Bridge Replacement Project.

Key Concerns, Issues and Interests Raised by Lake Cowichan First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Traditional Use and revitalization of Lake Cowichan First Nation traditional practices.
- Habitat enhancement and opportunities to revegetate areas with traditional plants.
- Protection of fish and fish habitat.
- Integration of noise reduction measures in design/noise abatement.
- Concern with the effects of sky glow and visibility of the night sky and stars.
- Protection of archaeological sites & Aboriginal involvement in monitoring programs.
- Side channel creation and ensuring areas that are gently shaded for fish.
- Use of less impervious surfaces in design.
- Creation of areas for cultural recognition.
- Construction or deconstruction related accidents or spills.
- Potential for historical impacts to the river from the original bridge.

Further detail regarding issues and concerns raised by Lake Cowichan First Nation is outlined in Appendix A.

5.8 Summary of Consultation Activities with Lyackson First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Lyackson First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Lyackson First Nation:

- Correspondence and communications by letter, email, in-person meetings and participation in the two EAO-led Working Group meetings in June and October 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Traditional Use Study and participation in activities related to the pre-Application phase. Lyackson provided the Proponent with a Traditional Use Study in October 2017.

Meetings with Lyackson First Nation

During initial and pre-Application phase consultation, the following meetings took place with Lyackson First Nation:

- Introductory meeting (October 2016)
- Project update meeting (May 2017)

The Proponent supported a self-guided site tour organized by Lyackson on August 24, 2017.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Lyackson First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further.

Lyackson First Nation provided the Proponent with comments on the draft ACP. The draft ACP was revised to reflect input received from Lyackson First Nation, where appropriate. The revised ACP was provided to Lyackson First Nation with a summary of responses to comments and an invitation to discuss responses, should there be further questions or concerns.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Lyackson First Nation with a request for review and comment.

Lyackson First Nation did not provide comments or identify concerns with the draft Aboriginal Consultation Report #1.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Lyackson First Nation for review and comment. This revised ACR2 reflects feedback received from Lyackson First Nation and other Aboriginal Groups during the review of the draft.

Lyackson's comments on draft ACR2 provided clarification and additional perspective with respect to the issues and concerns that had been documented in the Issues Table. MoTI updated the Issues Table and the Lyackson section of this document to reflect the input received.

This document was shared with Lyackson via email in advance of its submission to the EAO. The Proponent provided written responses to Lyackson's comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Lyackson First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix

- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Lyackson First Nation Aboriginal Interests Summary & mapping
- Updated Project Boundary

Lyackson First Nation reviewed and provided comments to the Proponent on the draft Lyackson First Nation Aboriginal Interests Summary. Where appropriate, Lyackson First Nation's feedback was integrated into the relevant section of Part C.

During initial and pre-Application phase consultation, letters sent to Lyackson First Nation included:

- Letter of introduction notifying Lyackson First Nation, of the Project and offering a meeting (February 2016)

- Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process (August 2016)
- Letter in response to Lyackson First Nation comments regarding the draft Aboriginal Consultation Plan (November 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Lyackson First Nation provided the Proponent with a Traditional Land Use and Mapping Study for the Pattullo Bridge Replacement Project.

Key Concerns, Issues and Interests Raised by Lyackson First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Fish and fish habitat.
- Impacts on wildlife and vegetation.
- Impacts on greenspace and riparian areas.
- Increased vehicle traffic.
- Potential for debris to fall into the river during construction and operations.
- Potential Project-related effects on Traditional use.
- Cultural heritage recognition.
- Adequacy of capacity funding for technical review of Project-related documents – Lyackson considers the Pre-Application Review funding to have been insufficient.
- Interest in habitat restoration and concern that available habitat is already insufficient to support sustainable and healthy fish populations.
- Interest in Project-related benefits and participation in monitoring and environmental studies.
- Pier locations and numbers of piers (preference for greatest number of piers which may impede larger marine vessels).
- Importance of protection of archaeology and cultural heritage.

- Reduction of existing freighter traffic.
- Protection of existing fragile ecosystems.
- Concern regarding the timing of wildlife studies, specifically fish studies.
- Concern that the Project would further impact already scarcely available resources for traditional purposes.
- Concern that DFO regulations may not sufficiently address Aboriginal Groups' concerns with respect to fisheries and fishing.

Further detail regarding issues and concerns raised by Lyackson First Nation are outlined in Appendix A.

5.9 Summary of Consultation Activities with Musqueam Nation

This section summarizes initial and pre-Application phase consultation undertaken with Musqueam Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Musqueam Nation:

- Correspondence and communications by letter, email, phone, in-person meetings, site visits, workshops and participation in the two EAO-led Working Group meetings in June and October 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

During initial and pre-Application phase consultation, the following meetings took place with Musqueam Nation:

- Introductory meeting (April 2016)
- Project update meeting (May 2016)
- Project update meeting (June 2016)
- Project update meeting (July 2016)
- Project update meeting (August 2016)
- State of Knowledge Workshop Part 1 (September 2016)
- State of Knowledge Workshop Part 2 (November 2016)
- Project update meeting (January 2017)
- Boat tour and tour of hydraulic model (February 2017)
- Project update meeting (March 2017)
- Project update meeting (April 2017)
- Community meeting (April 2017)
- Project update meeting (April 2017)
- Project update meeting (June 2017)

- Traditional Use Study workshop (July 2017)
- Traditional Use Study workshop (August 2017)
- Project update meeting (October 2017)
- Project update meeting (November 2017)
- Marine use meeting (December 2017)
- Marine use follow-up and Fish and Fish Habitat meeting (January 2018)
- Heritage meeting (January 2018)
- Community meeting (January 2018)

Musqueam Nation representatives participated in a tour of the hydraulic model and a boat tour in February 2017. Musqueam Nation held two community meetings on April 19, 2017 and January 29, 2018 which included questions from community members. Topics discussed at the meetings included pier locations, climate change, regulatory process, habitat compensation, river hydraulics and river morphology, construction phasing and timing and potential impacts to fish and fish habitat. Musqueam noted that the initial community meeting was not considered useful. The Proponent worked with Musqueam staff to plan for a second community meeting to better align with Musqueam's expectations, objectives and desired outcomes.

The Proponent facilitated two State of Knowledge Workshops to share information and to discuss river hydraulics, Aboriginal fishery, archaeology, fish and fish habitat, air quality, health, cumulative impacts, Traditional Use Study, fisheries management on the Fraser River, fish allocation in the river and construction.

At the meetings listed above, discussion topics included relationship expectations, Project planning, consultation process and timing, technical aspects of the Project, current and traditional marine use, the Project Description, the EA process, Valued Components, draft Application Information Requirements, capacity funding, archaeology and community open houses.

Two meetings were held to discuss the Musqueam Traditional Use Study and how to work with Musqueam on the integration of Musqueam knowledge into the Application.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Musqueam Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further.

Musqueam Nation provided comments on the draft ACP and the document was revised to reflect input received from Musqueam Nation, where appropriate. The revised ACP was provided to Musqueam Nation with a summary of responses to comments and an invitation to discuss responses, should there be further questions or concerns.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Musqueam Nation with a request for review and comment.

Musqueam provided comment on the draft ACR1. Where appropriate, the Proponent revised the ACR1 to reflect input from Musqueam. The revised ACR1 was provided with Musqueam Nation with a summary of responses to comments.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Musqueam Nation for review and comment. Musqueam reviewed the draft ACR2 and commented that any real assessment and response from Musqueam requires additional information that will be made available through the submission of the Application and from the Proponent/others.

The revised ACR2 was shared with Musqueam Nation via email in advance of its submission to the EAO. The Proponent provided written responses to Musqueam's feedback on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Musqueam Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)

- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Musqueam Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary

Musqueam Nation provided the Proponent with comments on the following documents and materials:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation program overview and Environmental Management Plan
 - The Proponent responded to Musqueam Nation comments in a letter (October 2017) and revised materials were sent to Musqueam and all Schedule B Aboriginal Groups.

- Scope and Environmental Management Plan for the Test Pile Program
 - Musqueam indicated that their concerns regarding the Test Pile Program materials had been addressed in the revised documents that were provided to all Schedule B Aboriginal Groups.
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Terrestrial Wildlife Survey
- Draft Vegetation Survey
- Draft Historical Heritage Report
- Draft Visual Quality Assessment Report

Musqueam Nation also provided comments on the noise, visual and vegetation consultation package, and a species list which have been used to inform the Project's EA.

During initial and pre-Application phase consultation, letters sent to Musqueam Nation included:

- Letter of introduction notifying Musqueam Nation of the Project and offering a meeting (February 2016)
- Letter in response to Musqueam Nation comments regarding Phase B geotechnical investigations (October 2017)
- Letter in response to Musqueam Nation comments regarding the draft Aboriginal Consultation Plan (November 2017).
- Letter in response to Musqueam Nation comments on Project Description (November 2017)
- Letter in response to Musqueam Nation comments on the noise, visual and vegetation consultation package, the draft vegetation and wildlife surveys, the draft soil and groundwater report and the draft sediment and water quality study (January 2018).

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Involvement in Fieldwork

Musqueam Nation representatives also participated in the archaeological assessment program that took place in early 2017. Musqueam Nation also participated in the environmental monitoring for the in-water geotechnical investigations that took place in summer 2017, and provided archaeological support for Project-related geotechnical testing and test pile investigations. Musqueam Nation representatives participated in on-water noise assessment fieldwork in December 2017.

Key Concerns, Issues and Interests Raised by Musqueam Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

A list of preliminary interests and issues identified to date by Musqueam include:

- Potential Project interactions affecting Musqueam's sense of place and identity
- Potential Project interactions affecting cultural continuity
- Potential Project interactions affecting fishing abundance
- Potential Project interactions affecting fishing access
- Fish and fish habitat and impact of the Project on Aboriginal fishery, including but not limited to, changes to in river topography/morphology, hydrological shifts, holding areas, and foreshore impacts, stress on fish, pollution, access and use of area during Project construction, impediments to Musqueam, habitat an[d] stocks restoration and conservation, decreased value of fishing area, impacts of potential dredging, increased marine traffic during construction and operation.
- Concerns regarding piers in the river, including installation and removal and hydrological changes due to pier removal. Further information has been requested by Musqueam.
- Vegetation, including culturally important species and invasive species.
- Increased soil erosion, scouring effects, and slope instability as a result of changes to the Fraser River hydraulics and river morphology (with resulting adverse effects to fish).
- Impacts of potential dredging, and increased marine traffic during construction and operation.
- Adverse effects and impacts on human and wildlife receptors from elevated noise levels during the construction phase and bridge operation.
- Comments on Valued Components (sample provide below):

- A number of Valued Components that should be treated as “end-point receptors” worthy of a significance determination have been incorrectly assigned to be “Intermediate Components” that would not be assessed for significance, e.g., surface water and sediment quality, soil and groundwater quality, etc. There also needs to be a discussion on severity of impacts.
 - A Valued Component is required for the assessment of socio-economic and health conditions, and cultural impacts, specific to Musqueam.
 - Musqueam seeks clarification from the Proponent on the process that will be used to “further develop” the list of Valued Components prior to their final determination for the purpose of the EA.
 - Given the importance and value of a meaningful Valued Component selection process to Musqueam, we request that the Proponent provide Musqueam an opportunity to review the Valued Component document during the pre-Application phase of the EA.
 - There is a need for short-, mid-, and long-term monitoring of the Project’s effects on VCs to determine actual impacts and cumulative effects on Musqueam.
- Identification of proponent plans for restoration and enhancement opportunities, of both terrestrial and aquatic habitats, in order to bring a net increase of fish, wildlife and non-invasive vegetation in areas affected by the Project, including the planned location and nature of all habitat offset locations.
 - Human health and safety as it relates to changes in hydrology and morphology as well as the ability to transmit knowledge in addition to the socio-economic effects of any loss of resources, decreased efficacy of fishing gear due to changes in the river.
 - Socio-economic impacts.
 - Cultural continuity, sense of place, and spirituality (as listed in TUS).
 - Heritage effects, including cultural and heritage resources, and the ability to transmit heritage and cultural knowledge.
 - Archaeology and heritage resources. Musqueam indicated that archaeology is an aspect of heritage. Heritage Resources must be understood as the tangible and intangible aspects of Musqueam’s culture passed down from their ancestors and to which there is an onus to protect and maintain for successive generations. Heritage resources include, but are not limited to, transformer sites, s̓ʷeləqəm sites, named sites, “archaeological” sites, spiritual use sites (e.g. bath sites), aspects of the landscape and all associated hə́ŋqəmiñəm language and knowledge. Heritage resources are central to Musqueam’s continuity and sense of place.

- Traditional and contemporary use.
- Aboriginal rights and title in light of Musqueam's established (not asserted) *Sparrow* rights.
- Cumulative effects, including effects on historic and current conditions.
- Noise, both terrestrial and aquatic.
- Project design, size, timing and budget, including an opportunity to conduct additional studies, and provide further input once the Project design and timing has been finalized.
- Musqueam's role in/level of decision making in design e.g. piers vs no piers and as it relates to Project conditions and mitigations.
- Adequacy of time and capacity necessary to review documents and provide meaningful input and funding. i.e. Musqueam has indicated they may need to have experts review and provide feedback.
- Appropriate use of Traditional Knowledge in the Application with respect to contextualization and properly understanding what is being conveyed.

This list is not exhaustive, nor does it capture the details of all interests and concerns raised.

Further detail regarding issues and concerns raised by Musqueam Nation are outlined in Appendix A.

The Proponent will review and consider all issues, interests and input received from Musqueam obtained through ongoing consultation, and will be incorporated into the completion of the Project Application, and during the Application review period.

5.10 Summary of Consultation Activities with Penelakut Tribe

This section summarizes initial and pre-Application phase consultation undertaken with Penelakut Tribe, as a member of the Cowichan Nation Alliance.

For the Pattullo Bridge Replacement Project, Penelakut Tribe participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Halalt First Nation and Stz'uminus First Nation. While the Proponent provided Project information and funding directly to Penelakut Tribe, feedback and participation in meetings occurred through the Cowichan Nation Alliance.

During initial and pre-Application phase consultation, the following activities were undertaken with Penelakut Tribe and other Cowichan Nation Alliance member communities:

- Correspondence and communications by letter, email, phone, in-person meetings and participation by the Cowichan Nation Alliance in the two EAO-led Working Group meetings in June (Halalt First Nation) and October, 2017 (Cowichan Tribes)
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases.

Meetings with Penelakut Tribe

During initial and pre-Application phase consultation, the following meetings took place with Penelakut Tribe and other Cowichan Nation Alliance member communities:

- Introductory meeting (Cowichan Tribes, Halalt First Nation, Penelakut Tribe - April 2016)
- Project update meeting (All Cowichan Nation Alliance members - July 2016)
- Project update meeting (Cowichan Tribes – October 2016)
- Project update meeting (Cowichan Tribes - May 2017)
- Working Group meeting (Halalt First Nation - June 2017)

- Project update meeting (Cowichan Tribes – June 2017)
- Working Group meeting (Cowichan Nation Alliance – October 2017)
- Project update meeting (Cowichan Nation Alliance – January 2018)

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Penelakut Tribe with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Penelakut Tribe indicated to that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Penelakut Tribe with a request for review and comment. A hard copy was provided at the January 2018 meeting and Penelakut Tribe indicated to the Proponent that they had reviewed the Report and had no comments.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Penelakut Tribe for review and comment. This revised Consultation Report reflects feedback received from Penelakut Tribe and other Aboriginal Groups during the review of the draft.

Penelakut Tribe comments on draft ACR2 were predominantly related to how the Cowichan Nation Alliance and its distinct member communities were listed in the report. Comments also included a clarification with respect to the nature of one of the issues identified in the Penelakut Tribe issues table. All comments resulted in changes to ACR2.

This document was shared with Penelakut via email in advance of its submission to the EAO. The Proponent provided written responses to Penelakut's comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Penelakut Tribe's input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Penelakut Tribe Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment

- Updated Project Boundary

Penelakut Tribe provided the Proponent with comments on the Phase B geotechnical investigation scope and draft Environmental Management Plan and the draft species list (by way of the Strength of Claim Report, submitted to the Proponent in October 2017). Where appropriate, the Proponent made revisions to these draft documents based on input received from Aboriginal Groups during consultation.

Penelakut Tribe also provided comments on the noise, visual and vegetation consultation package, which have been used to inform the Project's EA. The Proponent responded to comments by letter (November 2017) with an offer to discuss the responses further.

During initial and pre-Application phase consultation, letters sent to Penelakut Tribe included:

- Letter of introduction notifying Penelakut Tribe of the Project and offering a meeting (February 2016)
- Letter in response to Penelakut Tribe comments regarding Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies (November 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Penelakut Tribe provided the Proponent with a Pattullo Bridge Replacement Project Strength of Claim Report in October 2017 and a copy of the Declaration for Reconciliation signed by the four Chiefs in January 2016. The Proponent also received electronic versions of the documents listed below, for consideration and integration in the EA, as appropriate:

- Analysis of Cartographic & Archaeological Evidence to Locate TI'Eqtines, 19th Century Cowitchan Village on Lulu Island (2010)
- Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011)
- Traditional Marine Use and Occupancy Study – Halalt (2013)
- Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013)
- Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014)
- Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014)
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014)

- Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014)
- National Energy Board - Hearings Stz'uminus and Olsen (2014)
- George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015)
- British Columbia Supreme Court - Affidavit of Randy Bouchard (2016)
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016)
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998)
- Past Harvesting Practices and Current Harvesting Needs (date unknown)
- Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)

Key Concerns, Issues and Interests Raised by Penelakut Tribe

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns. Some of the preliminary interests and issues identified by Penelakut Tribe to date include:

- Archaeology and importance of indigenous cultural/archaeological monitors being on site during construction.
- Potential effects to fish and fish habitat.
- Potential effects to Aboriginal Interests
- Impacts to vegetation associated with run-off water from the bridge.
- Importance of habitat restoration.
- Project-related benefits, including employment, contracting and training opportunities.
- Enhancement of public spaces, parks and surrounding environment.
- Importance of seeking input on EA studies.
- Replanting of native riparian and forage plants.
- Management of invasive species.

- Potential for contamination from storm water run-off.

Further detail regarding issues and concerns raised by Penelakut Tribe are outlined in Appendix A.

5.11 Summary of Consultation Activities with Semiahmoo First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Semiahmoo First Nation.

In April 2017 the Proponent met with Semiahmoo First Nation and was advised that the Nation would be taking a collaborative consultation approach that included Katzie First Nation and Kwantlen First Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Semiahmoo First Nation:

- Correspondence and communications by letter, email, in-person meetings.
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to the initial and pre-Application phases.

Meetings with Semiahmoo First Nation

During initial and pre-Application phase consultation, the following meeting took place with Semiahmoo First Nation

- Introductory meeting (April 2016)

During initial and pre-Application phase consultation the following meetings took place with Semiahmoo First Nation as well as their collaborative partners at that time, Katzie First Nation and Kwantlen:

- Introductory meeting with Semiahmoo First Nation, Kwantlen and Katzie First Nation (April 2017)
- Project update meeting (May 2017)
- Project update meeting (June 2017)
- Project update meeting (September 2017)

- Project update meeting (October 2017)

Discussion topics at meetings have included the reference concept, pier locations, economic opportunities, capacity funding, Traditional Use study, community open house, Valued Component selection and other aspects of the Project.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Semiahmoo First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Semiahmoo First Nation with a request for review and comment.

Semiahmoo First Nation did not provide comments or identify concerns with the draft ACR1.

Aboriginal Consultation Report #2

The Proponent shared a draft of Aboriginal Consultation Report #2 with Semiahmoo First Nation for review and comment. This revised ACR2 reflects feedback received from Semiahmoo and other Aboriginal Groups during the review of the draft.

Semiahmoo First Nation's comments on draft ACR2 mostly related to their continued concern with the past approach to Aboriginal procurement on similar transportation infrastructure projects. Semiahmoo requested that the ACR2 specifically include their concern that the Project's EA process continued despite Semiahmoo's Aboriginal procurement-related issue remaining unresolved.

This document was shared with Semiahmoo First Nation via email in advance of its submission to the EAO. The Proponent provided written responses to Semiahmoo's comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Semiahmoo First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1

- Draft Aboriginal Consultation Report 2
- Draft Semiahmoo First Nation Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary
- With respect to the species list, Semiahmoo First Nation indicated that they would review the list, and follow-up should there be any concerns. Semiahmoo First Nation also advised the Proponent that they would share any feedback resulting from their review of the draft Semiahmoo First Nation Aboriginal Interests Summary and mapping as well as other documents provided in draft for review such as the Visual Quality Assessment and Photographic Inventory.

During initial and pre-Application phase consultation letters sent to Semiahmoo First Nation included:

- Letter of introduction notifying Semiahmoo First Nation of the Project and offering a meeting (February 2016)
- Response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement opportunities on the Project (September 2017)
- Updated response to September 2017 letter from Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation regarding comments and concerns regarding procurement opportunities on the Project (September 2017)
- Letter to Katzie First Nation, Kwantlen First Nation and Semiahmoo First Nation as a follow-up to a recent meeting regarding the Aboriginal procurement strategy for the Project, providing an electronic version of the procurement schedule, and offering an additional meeting (October 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Involvement in Fieldwork

Semiahmoo First Nation representatives also participated in the archaeological assessment program that took place in early 2017.

Key Concerns, Issues and Interests Raised by Semiahmoo First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date by Semiahmoo First Nation include:

- Approach to Aboriginal Procurement and concerns with past and current approaches to ensuring Project-related contracting, employment and other opportunities are provided to Aboriginal Groups.
- Concern that the Project's environmental assessment process continued while Semiahmoo's Aboriginal procurement-related concerns remained unresolved.
- Aboriginal interests in lands and water
- Fish and fishery related issues.
- Protection of archaeology and cultural heritage.
- Aquatic acoustic effects (underwater noise and vibration).
- Project-related noise impacts.
- Cumulative impacts.
- Interest in habitat restoration.
- Impacts associated with run-off water from the bridge.
- River hydraulics and morphology.
- Economic opportunities for Aboriginal Groups.
- Interest in cultural recognition.
- Declining visibility due to bridge construction.
- Low water levels in the river and rising water temperatures.

Further detail regarding issues and concerns raised by Semiahmoo First Nation are outlined in Appendix A.

5.12 Summary of Consultation Activities with Squamish Nation

This section summarizes initial and pre-Application phase consultation undertaken with Squamish Nation.

During initial and pre-Application phase consultation, the following activities were undertaken with Squamish Nation:

- Correspondence and communications by letter, email, phone, and in-person meetings
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Traditional Use Study and participation in activities related to the pre-Application phase.

Meetings with Squamish Nation

During initial and pre-Application phase consultation, the following meetings took place with Squamish Nation:

- Project meeting (October 2017)
- Project update meeting (December 2017)

Numerous emails and phone calls were shared between the Proponent and Squamish Nation representatives to seek to arrange an introductory meeting and seek input on the Project, and to work to arrange for capacity funding in support of consultation activities. Phone calls and meetings were held in fall/winter 2017 to discuss the Project.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Squamish Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Squamish Nation indicated to that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Squamish Nation with a request for review and comment. Squamish Nation did not comment on the Draft ACR1.

Aboriginal Consultation Report #2

The Proponent shared a draft of Aboriginal Consultation Report #2 with Squamish Nation for review and comment. MOTI was informed that Squamish Nation had no comments on the draft ACR2.

This revised ACR2 was shared with Squamish Nation, via email, in advance of being submitted to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Squamish Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list

- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report #1
- Draft Aboriginal Consultation Report #2
- Draft Squamish Nation Aboriginal Interests Summary & mapping
- Updated Project Boundary

During initial and pre-Application phase consultation, letters sent to Squamish Nation included:

- Letter of introduction notifying Squamish Nation, of the Project and offering a meeting (March 2016)
- Project update letter offering a meeting and advising that the Project would soon be entering into the BC Environmental Assessment process (August 2016)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

In April 2018, Squamish Nation informed the Proponent that they would provide a Project-related memo for consideration during the Application Review Phase.

Key Concerns, Issues and Interests Raised by Squamish Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Potential impacts to the food fishery, including secondary impacts to Squamish Nation from effects on Aboriginal fishers who fish on behalf of Squamish Nation
- Interest in business and employment opportunities during construction of the Project
- Involvement of Aboriginal Groups in monitoring programs
- Protection of fish and fish habitat
- Protection of salmon, eulachon and sturgeon from effects of construction
- Effects of decommissioning existing bridge on flow, erosion and habitat
- Lack of accessible and natural shoreline
- Importance of the area for Aboriginal use

Further detail regarding issues and concerns raised by Squamish Nation are outlined in Appendix A.

5.13 Summary of Consultation Activities with Stz'uminus First Nation

This section summarizes initial and pre-Application phase consultation undertaken with Stz'uminus First Nation, as a member of the Cowichan Nation Alliance.

For the Pattullo Bridge Replacement Project, Stz'uminus First Nation participated in consultation independently and also with other Cowichan Nation Alliance member communities which include Cowichan Tribes, Halalt First Nation and Penelakut Tribe. While the Proponent provided Project information and funding directly to Stz'uminus First Nation, feedback and participation in meetings occurred through the Cowichan Nation Alliance.

During initial and pre-Application phase consultation, the following activities were undertaken with Stz'uminus First Nation:

- Correspondence and communications by letter, email, phone, in-person meetings and participation in the two EAO-led Working Group meetings in June (Halalt First Nation) and October, 2017 (Cowichan Nation Alliance)
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project-related study and participation in consultation activities related to initial and the pre-Application phases.

Meetings with Stz'uminus First Nation

During initial and pre-Application phase consultation, the following meetings took place with Stz'uminus First Nation, as well as other Cowichan Nation Alliance member communities:

- Introductory meeting (Cowichan Tribes, Halalt First Nation, Penelakut Tribe - April 2016)
- Project update meeting (All Cowichan Nation Alliance members - July 2016)
- Project update meeting (Cowichan Tribes – October 2016)
- Project update meeting (Cowichan Tribes - May 2017)
- Working Group meeting (Halalt First Nation - June 2017)

- Project update meeting (Cowichan Tribes – June 2017)
- Working Group meeting (Cowichan Nation Alliance – October 2017)
- Project update meeting (Cowichan Nation Alliance – January 2018)

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Stz'uminus First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Stz'uminus First Nation indicated to that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Stz'uminus First Nation with a request for review and comment. A hard copy was provided at the January 2018 meeting and Stz'uminus First Nation indicated to the Proponent that they had reviewed the Report and had no comments.

Aboriginal Consultation Report #2

The Porponent shared a draft of Aboriginal Consultation Report #2 with Stz'uminus First Nation for review and comment. This revised ACR2 reflects feedback received from Stz'uminus and other Aboriginal Groups during the review of the draft.

Stz'uminus First Nation's comments on draft ACR2 were predominantly related to how the Cowichan Nation Alliance and its distinct member communities were listed in the report. Comments also included a clarification with respect to the nature of one of the issues identified in the Stz'uminus First Nation issues table. All comments resulted in changes to ACR2.

This revised ACR2 was shared with Stz'uminus First Nation via email in advance of being submitted to the EAO. MoTI provided written responses to Stz'uminus' comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Stz'uminus First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1

- Draft Aboriginal Consultation Report 2
- Draft Stz'uminus First Nation Aboriginal Interests Summary & mapping
- Updated Project Boundary

Stz'uminus First Nation provided the Proponent with comments on the Phase B geotechnical investigation scope and draft Environmental Management Plan and the draft species list (by way of the Strength of Claim Report, submitted to the Proponent in October 2017). Where appropriate, the Proponent has made revisions to these draft documents based on input received.

Comments were also provided on the noise, visual and vegetation consultation package, which have been used to inform the Project's EA. The Proponent responded to these comments by letter (November 2017) with an offer to discuss the responses further.

During initial and pre-Application phase consultation, letters sent to Stz'uminus First Nation included:

- Letter of introduction notifying Stz'uminus First Nation of the Project and offering a meeting (February 2016)
- Letter in response to Stz'uminus First Nation comments regarding Phase B geotechnical investigation scope and Environmental Management Plan, and noise, vegetation and visual EA studies (November 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Stz'uminus First Nation provided the Proponent with a Pattullo Bridge Replacement Project Strength of Claim Report in October 2017 and a copy of the Declaration for Reconciliation signed by the four Chiefs in January 2016. The Proponent was also provided with electronic versions of the documents listed below, for consideration and integration in the EA, as appropriate:

- Analysis of Cartographic & Archaeological Evidence to Locate Tl'Eqtines, 19th Century Cowitchen Village on Lulu Island (2010)
- Pre-Consultation Analysis of Potential Aboriginal Interests - Fraser Richmond Lands, Lulu Island (2011)
- Traditional Marine Use and Occupancy Study – Halalt (2013)
- Traditional Marine Use and Occupancy Study - Cowichan Final Report (Draft) (2013)
- Fraser River Head Lease Transition Area - Cowichan Nation Alliance - FNLRO Map of CNA Use & Occupancy (2014)

- Fraser River Head Lease Areas - Review of Ethnographic and Historical Sources (2014)
- Port Metro Vancouver Roberts Bank Terminal 2 Cowichan Occupation and Use - Final Report (2014)
- Qualitative Fisheries Impact Study - Lehigh Hanson Richmond Aggregate Handling Site (Final Draft Report) (2014)
- National Energy Board - Hearings Stz'uminus and Olsen (2014)
- George Massey Tunnel Replacement Project - Cowichan Occupation and Use of the Project Lands Report (2015)
- British Columbia Supreme Court - Affidavit of Randy Bouchard (2016)
- Proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia - Review of Ethnographic & Historical Sources (2016)
- Wild, Threatened, Endangered and Lost Streams of the Lower Fraser Valley - Summary Report (1998)
- Past Harvesting Practices and Current Harvesting Needs (date unknown)
- Historical Geography of Cowichan Land Use & Occupancy Lower Fraser River - Map Series & Report (Dr. Brealey) (2010)

Key Concerns, Issues and Interests Raised by Stz'uminus First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified by Stz'uminus First Nation to date include:

- Archaeology and importance of indigenous cultural/archaeological monitors being on site during construction.
- Potential effects to fish and fish habitat.
- Potential effects to Aboriginal Interests
- Impacts to vegetation associated with run-off water from the bridge.
- Importance of habitat restoration.
- Project-related benefits, including employment, contracting and training opportunities.
- Enhancement of public spaces, parks and surrounding environment.

- Importance of seeking input on EA studies.
- Replanting of native riparian and forage plants.
- Management of invasive species.
- Potential for contamination from storm water run-off.

Further detail regarding issues and concerns raised by Stz'uminus First Nation are outlined in Appendix A.

5.14 Summary of Consultation Activities with Tsawwassen First Nation

This section summarizes consultation undertaken with Tsawwassen First Nation during the initial and pre-Application phases.

During initial and pre-Application phase consultation, the following activities were undertaken with Tsawwassen First Nation:

- Correspondence and communications by letter, email, phone, in-person meetings and participation in the two EAO-led Working Group meetings in June and October 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, discussing capacity funding and involvement in studies and archaeology, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project Impact Study and participation in activities related to the pre-Application phase.

Meetings with Tsawwassen First Nation

During initial and pre-Application phase consultation, the following meetings took place with Tsawwassen First Nation:

- Introductory meeting (December 2016)
- Meeting with the Natural Resources Committee (February 2017)
- Meeting to discuss economic development opportunities (March 2017)
- Project update meeting (June 2017)
- Project update meeting (September 2017)
- Project update meeting (December 2017)
- Project update meeting (January 2018)
- Project update meeting (February 2018)

Tsawwassen First Nation representatives participated in a tour of the hydraulic model as well as a site visit in July 2017 to discuss potential Project impacts and opportunities, including cultural representation. Tsawwassen First Nation representatives also participated in the archaeological assessment program that took place in early 2017.

Emails and phone calls in October 2016 and January 2017 were undertaken to discuss specific issues related to the Project, including Valued Component selection, consultation agreement, capacity funding, the EA review process and meeting planning.

Discussion topics at the meetings noted above included geotechnical data, archaeology, consultation approaches, planned activities, pier locations, potential impacts on the Treaty, the Treaty Impact Report, economic development, geotechnical investigations, cultural recognition, fisheries and vegetation documents, construction and fisheries matters.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Tsawwassen First Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns or questions Tsawwassen First Nation may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Tsawwassen First Nation indicated to the Proponent that they had no comments on the draft ACP.

Aboriginal Consultation Report #1

An electronic version of the draft Aboriginal Consultation Report #1 was emailed to Tsawwassen First Nation with a request for review and comment. Tsawwassen First Nation reviewed the draft ACR1 and informed the Proponent that they had no comments or concerns with the document.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Tsawwassen First Nation for review and comment. This revised ACR2 reflects feedback received from Tsawwassen First Nation and other Aboriginal Groups during the review of the draft.

As a result of their review of the draft ACR2, Tsawwassen noted that the summary of information reviewed/provided to the Proponent by Tsawwassen First Nation did not include responses to a marine use questionnaire. The revised ACR2 was updated to include this item.

The Proponent provided written response to Tsawwassen First Nation's comment on Draft ACR2 along with an explanation of how this feedback resulted in revisions to the document. This document was shared with Tsawwassen First Nation via email in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Tsawwassen First Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups' issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials

- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference
- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Tsawwassen First Nation Aboriginal Interests Summary & mapping
- Updated Project Boundary
- Marine Use Questionnaire

Tsawwassen First Nation provided the Proponent with comments on the following draft documents:

- Phase B geotechnical investigation scope & Environmental Management Plan
 - The Proponent responded to Tsawwassen First Nation comments in a letter (October 2017) and revised materials were sent to Tsawwassen First Nation and all Schedule B Aboriginal Groups.
- Test Pile Program Scope and Environmental Management Plan
 - Responses to Tsawwassen First Nation comments on the Test Pile Program Scope and Environmental Management Plan were sent by letter (December 2017)

- Species list
 - Tsawwassen First Nation's species list has been incorporated into the EA Application
- Aboriginal Group issues list (Tsawwassen First Nation approved the list)
- Marine Use Questionnaire
- Draft Tsawwassen First Nation Aboriginal Interests Summary and Mapping
 - In response to comments on the mapping, a revised map incorporating Tsawwassen First Nation's comments was sent by email (February 2018). Comments on the draft Aboriginal Issues Summary were integrated into the relevant section of Part C.

Tsawwassen First Nation also reviewed and provided comments to the Proponent on the noise, visual and vegetation consultation package, which have been used to inform the Project's EA. The Proponent responded to comments by email (January 2018).

During initial and pre-Application phase consultation, letters sent to Tsawwassen First Nation included:

- Letter of introduction notifying Tsawwassen First Nation, of the Project and offering a meeting (February 2016)
- Letter in response to Tsawwassen First Nation comments regarding Phase B geotechnical investigations (October 2017)
- Letter in response to Tsawwassen First Nation comments on the Scope and Environmental Management Plan for the Test Pile Program (December 2017)

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Tsawwassen First Nation provided the Proponent with a Project Impact Study in August 2017.

Involvement in Fieldwork

Tsawwassen First Nation representatives participated in the archaeological assessment program that took place in early 2017. Tsawwassen First Nation also provided archaeological support for Project-related geotechnical testing and test pile investigations.

Tsawwassen First Nation undertook a terrestrial vegetation survey, First Nations concerns, near and around the Pattullo Bridge in both New Westminister and Surrey in December 2017 and January 2018. Part 2 of the vegetation survey will be undertaken by Tsawwassen First Nation in May 2018.

Key Concerns, Issues and Interests Raised by Tsawwassen First Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Potential effects of the Project on TFN Treaty rights
- Protection of archaeology and heritage values.
- Protection of fish and fish habitat and concerns with potential Project-related effects on these values
- Interference with access and use during construction, including barges.
- Potential contamination of watercourses, sediment and fish as result of Project activities
- Cumulative effects
- Opportunities for Indigenous cultural recognition
- Project-related benefits, including training, employment and contracting opportunities
- Environmental remediation opportunities
- Bridge decommissioning and importance of limiting impacts
- Management of invasive species.
- Pier placement, hydraulics and morphology.
- Visual impact, particularly with respect to potential visual impacts of cable from the river and adjacent areas.
- Potential impact of noise on people using the river and adjacent areas.
- Protection of vegetation and opportunities for revegetation with indigenous plants.
- Potential Project-related effects to water quality
- Potential Project-related impacts to wildlife.

Further detail regarding issues and concerns raised by Tsawwassen First Nation are outlined in Appendix A.

5.15 Summary of Consultation Activities with Tsleil-Waututh Nation

This section summarizes consultation undertaken with Tsleil-Waututh Nation during the initial and pre-Application phases.

During initial and pre-Application phase consultation, the following activities were undertaken with Tsleil-Waututh Nation:

- Correspondence and communications by letter, email, in-person meetings and participation in the two EAO-led Working Group meetings in June and October 2017
- Sharing of Project-related information
- Sharing of draft EA documents for review and comment
- Pre-Application phase funding for the preparation and submission of a Project-related study, and to support participation in consultation activities including draft document review and submission of comments to the Proponent

Consultation activities during the initial and pre-Application phases have focused on sharing information about the Proponent, introducing the Project, sharing information about the Project scope, timing and EA process, discussing capacity funding and involvement in studies and archaeology, providing notification of the issuance of the Project Description and Section 10 Order, and executing a capacity funding Memorandum of Understanding (MOU) to cover completion of a Project Impact Study and participation in activities related to the pre-Application phase.

Meetings with Tsleil-Waututh Nation

During initial and pre-Application phase consultation, the following meetings took place with Tsleil-Waututh Nation:

- Introductory meeting (March 2016)
- Project update meeting (May 2016)
- Tour of hydraulic model (February 2017)
- Site visit (April 2017)
- Site visit and Project update meeting (April 2017)
- Meeting to discuss economic development opportunities (March 2017)¹

¹ MoTI was informed by Tsleil-Waututh Nation that they do not consider items such as procurement, Project-related benefits, Project Benefit Agreements or meetings to solely discuss these topics, as consultation and that these should be removed from this report.

- Project update meeting (June 2017)
- Project update meeting (October 2017)
- Project update conference call meeting (March 2018)

Discussion topics at the meetings noted above included consultation approaches, Traditional Use, Traditional Use Study scope, Valued Component selection, Project impacts and opportunities, cultural representation, the reference concept, the Aboriginal Consultation Plan, geotechnical investigations, procurement schedule, the EA process, as well as general Project updates and specific issue discussions.

Tsleil-Waututh Nation representatives also participated in the archaeological assessment program that took place in early 2017.

Aboriginal Consultation Plan

An electronic version of the draft Aboriginal Consultation Plan was emailed to Tsleil-Waututh Nation with a request for review and comment. The email noted that where appropriate, input received from Aboriginal Groups would be integrated into the final ACP to be submitted to the EAO. The email also included an offer to meet to review input and address any concerns of questions Aboriginal Groups may have regarding the ACP.

Follow-up communications by email, phone and in-person meetings were undertaken, to reiterate the request for comments and offer to discuss the ACP further. Tsleil-Waututh Nation reviewed and provided comments on the draft ACP and it was revised to reflect input received by Tsleil-Waututh Nation, where appropriate. The revised ACP was provided to Tsleil-Waututh Nation with a summary of responses to comments and an invitation to discuss responses, should there be further questions or concerns.

Aboriginal Consultation Report #1

An electronic version of the draft ACR1 was emailed to Tsleil-Waututh Nation with a request for review and comment. Tsleil-Waututh Nation reviewed and provided comments on the draft ACR1 and the report was revised to reflect input received by Tsleil-Waututh Nation, where appropriate. The revised ACR1 was provided with Tsleil-Waututh Nation with a summary of responses to comments.

Aboriginal Consultation Report #2

The Proponent shared a draft of Consultation Report #2 with Tsleil-Waututh Nation for review and comment. This revised ACR2 reflects feedback received from Tsleil-Waututh Nation and other Aboriginal Groups during the review of the draft.

Tsleil-Waututh Nation's comments included a request to review comments previously provided during their review of ACR1. Tsleil-Waututh also noted an error in the attribution of a Nooksack

Dace-related concern solely to Tsleil-Waututh. Additionally, Tsleil-Waututh requested that the term “Proponent” be clarified given the transition from TransLink to MoTI in early 2018 and that reference to procurement, Project-related benefits and Project benefits agreements or meetings solely to discuss these topics be removed from ACR2.

The Proponent provided written responses to Tsleil-Waututh Nation’s comments on Draft ACR2 along with an explanation of how comments did or did not result in revisions to the document. This revised ACR2 was shared with Tsleil-Waututh Nation via email in advance of its submission to the EAO.

Materials and Documents Shared

Various Project-related materials and documents were used for consultation with Aboriginal Groups during the initial and pre-Application phases. Materials were shared with Aboriginal Groups at meetings, sent electronically by email and/or sent in hard copy by mail.

During initial and pre-Application phase consultation, the Proponent sought Tsleil-Waututh Nation input on the following Project-related materials and documents:

- In-water geotechnical investigation Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
- Draft Project Description
- Draft Aboriginal Consultation Plan & Appendix
- Draft Aboriginal Groups’ issues list
- Draft Archaeological Impact Assessment Interim Reports (2)
- Draft Aboriginal Procurement update schedule
- Draft Valued Components selection document
- Reference concept materials
- Draft EA baseline information review schedule
- Species list
- Noise, visual and vegetation consultation package
- Test Pile Program Scope and Environmental Management Plan
- Draft Vegetation Study
- Draft Terrestrial Wildlife Survey
- Draft Fish and Fish Habitat Terms of Reference

- Hydraulic Modelling Locations
- Draft Historical Heritage Study
- Draft Soil and Groundwater Report
- Draft Sediment and Surface Water Quality Report
- Draft Visual Quality Assessment and Photographic Inventory
- Draft Aboriginal Consultation Report 1
- Draft Aboriginal Consultation Report 2
- Draft Tsleil-Waututh Nation Aboriginal Interests Summary & mapping
- Draft Archaeological Overview Assessment
- Updated Project Boundary

Tsleil-Waututh Nation provided the Proponent with comments on the following draft documents:

- Draft Aboriginal Consultation Plan
- Draft Aboriginal Consultation Report 1 & 2
- In-water geotechnical investigation program Environmental Management Plan
- Phase B geotechnical investigation scope & Environmental Management Plan
 - Responses to Tsleil-Waututh Nation comments on the Phase B geotechnical investigation materials were sent by letter to Tsleil-Waututh Nation (October 2017).
- Test Pile Program Scope and Environmental Management Plan
 - The Test Pile Program Scope and Environmental Management Plan were revised based on input from Tsleil-Waututh Nation. The revised documents and a letter indicating how comments had been considered, were emailed to Tsleil-Waututh Nation (December 2017).
- Draft Aboriginal Groups' issues list
 - The issues list was revised to reflect input from Tsleil-Waututh Nation. The revised document was provided to Tsleil-Waututh Nation with the Proponent responses to comments (October 2017).
- Species list
 - The Proponent responded to Tsleil-Waututh comments on the species list by email (December 2017).

- Fish and Fish Habitat Terms of Reference
 - The Proponent responded to Tsleil-Waututh questions on the Fish and Fish Habitat Terms of Reference by email (February 2018).
- Terrestrial Wildlife Study
 - The Proponent responded to Tsleil-Waututh Nation comments on the Wildlife Study by email (January 2018).
- Vegetation Study
 - The Proponent responded to Tsleil-Waututh Nation comments on the Vegetation Study by email (January 2018).
- Historical Heritage Study
 - The Proponent responded to Tsleil-Waututh Nation comments on the Historical Heritage Study (January 2018).
- Sediment and Surface Water Quality Report
 - The Proponent responded to Tsleil-Waututh Nation comments on the Sediment and Surface Water Quality Report by email (February 2018).
- Soil and Groundwater Report
 - The Proponent responded to Tsleil-Waututh Nation comments on the Soil and Groundwater Report by email (February 2018)
- Visual Quality Assessment and Photographic Inventory
 - The Proponent responded to Tsleil-Waututh Nation comments on the Visual Quality Assessment and Photographic Inventory by email (February 2018)
- Tsleil-Waututh Nation Aboriginal Interests Summary and Mapping
 - The Proponent followed up with Tsleil-Waututh Nation regarding comments on the Aboriginal Interests Summary. The applicable section (summary of Aboriginal Interests) within Part C of the Application will be revised based on this feedback.

During initial and pre-Application phase consultation, letters sent to Tsleil-Waututh Nation included:

- Letter of introduction notifying Tsleil-Waututh Nation, of the Project and offering a meeting (February 2016)
- Letter in response to Tsleil-Waututh Nation comments regarding Phase B geotechnical investigations (October 2017)
- Letter in response to Tsleil-Waututh Nation comments regarding the draft Aboriginal Consultation Plan (November 2017)
- Letter in response to Tsleil-Waututh Nation comments on the Scope and Environmental Management Plan for the Test Pile Program (December 2017).

The EAO has distributed materials to Aboriginal Groups directly. These materials are listed and available on the EAO's Project Information and Collaboration webpage (<https://projects.eao.gov.bc.ca/p/pattullo-bridge-replacement/docs>).

Tsleil-Waututh Nation provided the Proponent with a Traditional Use Study in October 2016.

Involvement in Fieldwork

Tsleil-Waututh Nation representatives also participated in the archaeological assessment program that took place in early 2017. Tsleil-Waututh Nation also provided archaeological support for Project-related Geotechnical testing and test pile investigations.

Key Concerns, Issues and Interests Raised by Tsleil-Waututh Nation

In accordance with the Project's Aboriginal Consultation Plan, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and interests raised by Aboriginal Groups during consultation and where possible, worked with Aboriginal Groups to address and resolve issues and concerns.

Some of the preliminary interests and issues identified to date:

- Potential effects of the Project on fish and fish habitat.
- Protection of archaeology and cultural heritage.
- Potential Project-related effects to terrestrial wildlife.
- Regional traffic or transportation considerations in Project planning.
- Potential underwater noise effects.
- Climate change.
- Human health (including Aboriginal health, suicide prevention).

- Potential effects of the Project on water quality.
- Project-related benefits, including training, employment and contracting opportunities.
- Environmental integrity (using an ecosystem approach to understanding Project impacts to its environment).
- Importance of being given the time to provide adequate feedback on EA studies.
- Vegetation and potential impacts to traditional plant gathering areas.
- Number of piers (preference for fewer piers).

Further detail regarding issues and concerns raised by Tsleil-Waututh Nation are outlined in Appendix A which provides a non-exhaustive summary of issues and concerns raised by Schedule B Aboriginal Groups along with the Proponent's responses.

6.0 SUMMARY OF ISSUES, CONCERNS, AND INTERESTS

The above sections describe the Proponent's activities and efforts to consult with Aboriginal Groups from spring 2016 to spring 2018.

In accordance with the Project's ACP, and as specified in the Section 11 Order, the Proponent has tracked issues, concerns and Interests raised by Aboriginal Groups and where possible, worked with Aboriginal Groups to address and resolve issues and concerns. The Proponent provided Aboriginal Groups with an opportunity to review the draft list of issues, concerns, and interests. Input received during Aboriginal Groups' review has been incorporated into this document.

Appendix A presents the key issues, concerns, and interests raised by Aboriginal Groups during consultation, and the corresponding responses from the Proponent.

7.0 ONGOING CONSULTATION & ENGAGEMENT

7.1 Application Review Consultation

The Application Review Phase commences with EAO's acceptance of the environmental assessment Application. Aboriginal consultation will be guided by the Project's Aboriginal Consultation Plan and in accordance with the directives outlined in the Section 11 Order.

The Proponent will make Application Review funding available to all Aboriginal Groups in order to support their review of the Application and continued participation in consultation activities. During the Application Review Phase, the Proponent will continue to work with Aboriginal Groups with the aim of ensuring that planned activities, as outlined in the Project's ACP, support meaningful consultation.

The Proponent's key priorities for this phase include, but are not limited to:

- Obtaining input and responding to feedback on the Application
- Continuing to seek information on concerns, issues, and interests
- Working with Aboriginal Groups in the development of strategies to avoid, mitigate, or otherwise address any potential adverse effects of the Project
- Receiving and integrating feedback and Traditional Knowledge into mitigation measures, draft plans, permits and other components of the Project
- Responding to questions, concerns, and comments shared by Aboriginal Groups
- Sharing Project-related information and updates
- Conducting consultation meetings, workshops and other activities that may be requested by Aboriginal Groups
- Planning for Aboriginal involvement in Project construction and post-construction activities, including but not limited monitoring
- Further identifying and planning for employment, training and contracting opportunities for Aboriginal Groups
- Advancing plans for cultural recognition & legacy opportunities
- Entering into Project Agreements, where appropriate.

The Proponent continues to welcome input from Aboriginal Groups with respect to their consultation priorities for the Application Review Phase.

Key activities planned for this phase and outlined in the Aboriginal Consultation Plan include:

- Notifying Aboriginal Groups of the submission of the Application
- Issuing copies of the Application in preferred format (electronic, hard copy or both) and other draft documents for review and comment (i.e. permit applications, management/other plans)

- Responding to comments and maintaining an ongoing record of issues/responses for submission to EAO
- Communications and correspondence aimed at sharing information and providing updates, addressing concerns and seeking input on measures to avoid, mitigate, or otherwise address any potential adverse effects of the Project
- Meetings with Aboriginal Groups' representatives such as Chief and Council, staff, technical support/consultants, focused on the priorities listed above as well as additional priorities that are identified by Aboriginal Groups
- Presentations, workshops, community meetings and/or other activities that may be requested by Aboriginal Groups
- Preparation and sharing of Draft ACR3

In addition to working in accordance with the ACP, the Proponent will seek further input from Aboriginal Groups with respect to consultation activities for the Application Review Phase and the continued implementation of the ACP. The Proponent will work with Aboriginal Groups to identify opportunities to enhance the effectiveness of consultation activities. Any updates or revisions to the ACP will be put forward to EAO for approval.

7.2 Post Environmental Assessment Certificate Consultation

Should an Environmental Assessment Certificate be issued for the Project, the Proponent will:

- Provide Schedule B Aboriginal Groups with a notification of the outcome of the Application Review, including requirements of the EAC;
- Continue consultation with Schedule B Aboriginal Groups so that environmental certificate-related obligations can be met and to continue to seek input on Project components such as mitigation, permits, plans, environmental enhancement and other components of known interest;
- Fulfill obligations associated with any Project-related benefits agreements between the Proponent and specific Schedule B Aboriginal Groups;
- Continue discussions and planning with Schedule B Aboriginal Groups regarding Project-related opportunities, such as training, employment and contracting; and
- Provide regular Project updates through continued communication and engagement with Schedule B Aboriginal Groups.

8.0 NEXT STEPS

As specified in the EAO's Section 11 Order, this document summarizes the efforts undertaken by the Proponent to consult with Aboriginal Groups in accordance with the Aboriginal Consultation Plan, approved by EAO in November 2017. The Report identifies feedback and information received during consultation, including the identification of potential adverse impacts of the proposed Project on Aboriginal Interests, and includes the corresponding responses from the Proponent (see Appendix A).

Aboriginal consultation will continue through the Application review and post-certification phases, as outlined in the approved ACP and as specified in the EAO's Section 11 Order. The draft ACR3 will be shared with Aboriginal Groups for review and comment and submitted at a time determined by EAO.

APPENDIX A: SUMMARY OF ABORIGINAL GROUPS' KEY ISSUES AND CONCERNS AND PROPONENT RESPONSES

Summary of Schedule B Aboriginal Groups’ key issues and concerns and the Proponent’s responses

This table summarizes key issues raised by Schedule B Aboriginal Groups (“Aboriginal Groups”) during consultation (spring 2016 – spring 2018) for the Pattullo Bridge Replacement Project.

Comments made by Aboriginal Groups in response to specific documents, for example Environmental Management Plans and the draft Aboriginal Consultation Plan are not included in this table.

Issues raised through the Environmental Assessment Office (EAO)-led Working Group, and the Proponent’s responses will be posted EAO’s Information and Collaboration Website (<https://projects.eao.gov.bc.ca/>).

Aboriginal Fishery

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern that decommissioning of the existing bridge may encounter pre-existing soil and/or groundwater contamination, which may impact ability to harvest in the vicinity of qiqéyt (e.g. commercial and recreational fishing).	All pre-existing soil and/or groundwater contamination encountered during decommissioning of the existing bridge will be managed in accordance with applicable legislation (British Columbia <i>Environmental Management Act</i> and Contaminated Sites Regulation and/or <i>Canadian Environmental Protection Act</i> , as applicable), which will ensure that any potential impacts of site contamination of land and resource use are adequately addressed.
Musqueam Nation	Concern that proposed Project footprint intersects with a Musqueam critical fishing area, and therefore, there are potential adverse effects and impacts to Musqueam cultural, social, and economic viability.	The Proponent acknowledges that the Project footprint intersects with a critical fishing area for Musqueam Nation and will work with Musqueam and other Aboriginal Groups with respect to the protection of harvesting rights. Potential effects of the Project to Musqueam’s Aboriginal Interests will be considered in Part C of the Application.

Source	Issue	Proponent Response/Action
Musqueam Nation, Tsleil-Waututh Nation, Tsawwassen First Nation, Kwikwetlem First Nation	Concern regarding navigability and access restrictions during construction of the new bridge and decommissioning of the old bridge.	The Proponent is committed to continuing to work with Aboriginal Groups to develop a plan to address concerns related to interference with Aboriginal fisheries during Project construction. To inform the planning process, the Proponent has shared information with Aboriginal Groups that includes preliminary details on general methodology and sequencing of construction of the new bridge and decommissioning and removal of the existing bridge. General information on navigation safety and related considerations during in-river activities has also been provided. The Proponent will continue to work with Aboriginal Groups during the Application review phase with respect to concerns related to navigability and access during construction and decommissioning.
Kwikwetlem First Nation	Concern regarding how new bridge and piers will affect snag patterns. Snag patterns near the bridge should be cleared or it will be difficult to fish.	The Proponent will continue to work with Kwikwetlem First Nation to better understand the potential for Project-related changes in snag patterns and to identify an effective approach to snag removal should it be required.
Musqueam Nation	Concern regarding potential impacts of the Project on Aboriginal fisheries. For example, changes to river topography/morphology, hydrological shifts, holding areas, and foreshore impacts, stress on fish pollution, access and use of area during Project construction, habitat and stocks restoration and conservation, decreased value of fishing area, impacts of potential dredging, increased marine traffic during construction and operation.	<p>The assessment of Project effects on Current Marine Use by Aboriginal Peoples for Traditional Purposes, including Aboriginal, domestic and food, social, and ceremonial (FSC) fish harvesting will be assessed in Part C (Section 12.2 Other Matters of Concern to Indigenous Groups) of the Application.</p> <p>This assessment will be informed by the assessment of Project-related effects on the following VCs:</p> <ul style="list-style-type: none"> • Fish and Fish Habitat Section of the Application • Marine Use section of the Application, which will include an assessment of potential effects of the Project on locations used for fishing and other marine activities.
Squamish Nation	Potential impacts to the food fishery, including secondary impacts to Squamish Nation from effects on Aboriginal fishers who fish on behalf of Squamish Nation.	<p>These will be supported by the assessment of Project-related effects on the following ICs:</p> <ul style="list-style-type: none"> • Surface Water and Sediment Quality section of the Application • River Hydraulics and Morphology section of the Application

Aboriginal Rights and Title

Source	Issue	Proponent Response/Action
All	Protection of Aboriginal Groups' rights to harvest within the Project area.	The Proponent acknowledges the importance of protecting harvesting rights within the Project area and will work with Aboriginal Groups in this regard.
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation	Aboriginal Interests in the land and water need to be taken into account.	An analysis of the potential Project-related impact on Aboriginal Interests will be considered in Part C of the Application.
Musqueam Nation	Concern regarding impaired access to traditional harvesting areas within the Project footprint as a result of construction and decommissioning processes.	<p>The Proponent is committed to continuing to work with Aboriginal Groups to develop a plan to address concerns related to access to traditional harvesting areas during construction. To inform the planning process, the Proponent has sought information from Aboriginal Groups regarding traditional harvesting areas. The Proponent has shared information with Aboriginal Groups that includes preliminary details on general methodology and sequencing of construction of the new bridge and decommissioning and removal of the existing bridge. General information on navigation safety and related considerations during in-river activities has also been provided. The Proponent will continue to work with Aboriginal Groups during the Application review phase with respect to concerns related to navigability and access during construction and decommissioning.</p> <p>Information on access during construction to any traditional harvesting areas which have been identified by Aboriginal Groups through Project-specific studies or during consultation will be provided in the Vegetation, Wildlife and/or Fish and Fish Habitat sections of the Application. Any associated impacts to Aboriginal Interests will be assessed in Part C of the Application.</p>

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern that Project has strong potential to adversely impact Musqueam rights and title. For example, proven right to fish and ability to exercise hunting rights in remaining habitat fragments that Musqueam members are able to access and use.	An analysis of potential Project-related effects on Aboriginal Interests will be considered in Part C of the Application.
Kwikwetlem First Nation	Request to recognize, address and reference, in the Application, Aboriginal Interests that can't be practiced today because of development.	<p>The Proponent acknowledges that, given the urban setting of the Project, the potential incremental effects of the Project must be considered in a context where the abundance of resources for traditional purposes and the exercise of rights by Aboriginal Groups are already greatly diminished over historical levels. These cumulative effects of past and ongoing projects and activities will be acknowledged in the relevant sections of the Application (i.e. Part B through Part C).</p> <p>In response to this request, references to the effects of development on the current practice of Aboriginal Interests will be included in the relevant section of the Application where this information has been provided by Aboriginal Groups through Project-specific studies or consultation.</p>
Musqueam Nation	Impacts on Aboriginal title, and related cultural and heritage resources, located at Musqueam's historical settlement of qiqéyt (located at Musqueam's former Indian Reserve #1).	Project-related impacts on Aboriginal interests related to cultural and heritage resources located at Musqueam's historical settlement of qiqéyt will be considered in Part C of the Application. This assessment will be supported by information included in the Heritage Resources section of the Application.
Musqueam Nation	Cumulative and legacy effects of industrial, transportation, and residential impacts in the area on Musqueam rights and interests.	The Proponent acknowledges that, given the urban setting of the Project, the potential incremental effects of the Project must be considered in a context where the abundance of resources for traditional purposes and the exercise of rights by Aboriginal Groups are already greatly diminished over historical levels. These cumulative effects of past and ongoing projects and activities will be reflected in discussion of trends in the relevant sections of the Application, including Vegetation, Wildlife, Fish & Fish Habitat, Heritage and Marine Use.

Source	Issue	Proponent Response/Action
Lake Cowichan First Nation	Ts'uubaasatx First Nation expresses and asserts Aboriginal rights to camp, fish, hunt, and otherwise move about in the area in question. Ts'uubaasatx First Nation ability to access the area for the exercise of rights needs to be maintained.	Noted. Impacts to Aboriginal Groups' Interests resulting from Project-related reductions in access to the area for harvesting and other rights-based activities will be assessed in Part C. The Proponent will continue to work with Aboriginal Groups during the Application review phase with respect to concerns related to access.
Lyackson First Nation	<p>Development and industrialization on the river has directly impacted the Aboriginal rights of Lyackson by destroying wildlife habitat, particularly for salmon.</p> <p>According to the traditional harvesters and rights holders, there is no such thing as an abundance in resources anymore, in fact there is a scarcity in numerous resources. The Project would be contributing to effects that further would reduce the already scarcely available resources for traditional purposes</p> <p>The fact that the Project is located in an area that has experienced incremental and cumulative effects does not justify continuing these incremental changes.</p>	<p>Lyackson's perspective will be noted in Section 4.3 of the Fish and Fish Habitat Chapter of the Application.</p> <p>The Proponent acknowledges that, given the urban setting of the Project, the potential incremental effects of the Project must be considered in a context where the abundance of resources for traditional purposes and the exercise of rights by Aboriginal Groups are already diminished over historical levels. Part C of the Application considers this context.</p>

Aboriginal Consultation

Source	Issue	Proponent Response/Action
All	Need for capacity funding to facilitate participation in the environmental assessment process and to support the production of Project studies.	<p>The Proponent has provided funding to Aboriginal Groups to support participation in the pre-Application phase of the environmental assessment process and for the preparation and submission of Traditional Use or Project-related studies.</p> <p>The Proponent has committed to making Application review phase funding available to Aboriginal Groups.</p>
Lyackson First Nation	The funding provided was insufficient in that it did not support the ability for Lyackson to conduct adequate technical reviews or to provide meaningful responses. Lyackson requests that for the next review phase, sufficient funding should be made available to allow for Lyackson to contract subject experts to conduct third party independent reviews of the proponents findings for subjects of particular interest to Lyackson.	<p>The Proponent will be providing funding to support Lyackson’s participation in the Project’s Application Review Phase and welcomes further discussion with Lyackson First Nation regarding any related concerns.</p> <p>Lyackson will be provided with the opportunity to review the Environmental Assessment Application which includes input received from Schedule B Aboriginal Groups during consultation. The Project’s technical discipline leads did a thorough review of input received and have referenced where this has been used to inform the assessment. In response to comments received, the Proponent has identified if, how and where specific input has been considered in the Application. The Proponent welcomes an opportunity to meet with Lyackson, to discuss how Aboriginal feedback has been considered/reflected in the Application.</p>
Lyackson First Nation	Lyackson did not receive sufficient consultation funding to allow for an in depth review of the Fish and Fish Habitat report provided for comments in November 2017. In addition, the review timing did not work for Lyackson.	<p>Lyackson’s perspective on the adequacy of consultation funding and timing for review of the Fish and Fish Habitat report is noted.</p> <p>Pre-Application funding was provided to all Schedule B Aboriginal Groups to support participation in Project consultation and review of draft EA-related documents, including the Fish and Fish Habitat report.</p>
Musqueam Nation Tsleil-Waututh Nation	Request for regulator to have more effective communication of key regulatory documents (i.e. issuance of the Section 10 Order, Working Group comments).	The comment/request was communicated to the EAO.

Source	Issue	Proponent Response/Action
Semiahmoo First Nation	Concern that the regulatory process has continued while Semiahmoo First Nation's Aboriginal procurement-related concerns remain outstanding. Semiahmoo is of the view that "one-sided consultation is not flexible and does not address the Nation's serious concerns and is not meaningful consultation"	<p>The Proponent is committed to continuing to work with Semiahmoo First Nation to address concerns related to Aboriginal procurement and looks forward to further discussing Project-related contracting opportunities with Semiahmoo and other Schedule B Aboriginal Groups during Application Review.</p> <p>Project consultation is being undertaken in accordance with the EAO-approved Aboriginal Consultation Plan that was provided to Semiahmoo First Nation for review and input. The Proponent welcomes an opportunity to meet with Semiahmoo First Nation to discuss and address any concerns related to consultation and where appropriate, to revise planned consultation activities with Semiahmoo in support of meaningful consultation.</p>
Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation	Importance of seeking input on environmental assessment studies.	In accordance with the requirements outlined in the EAO's Section 11 Order and as described in the Aboriginal Consultation Plan, the Proponent is consulting with Aboriginal Groups and has sought input on a number of environmental assessment-related studies and draft documents to date.
All	Importance of ensuring that feedback and information that has been shared with the Proponent is understood and integrated into the environmental assessment documents.	Comment noted. Information shared by Aboriginal Groups, including but not limited to, Traditional Use and Project-related studies, feedback on draft Environmental Assessment-related documents, and comments provided during consultation activities, has been/will be shared with the Project team for consideration and, where appropriate, integration into the Application.
All	Adequacy of time and capacity necessary to review documents and provide meaningful input.	The Proponent is committed to continuing to work with each Aboriginal Group to provide Project-related information and documents in a manner that is considerate of the time and resources that may be required for review. Where it has been possible and when requested, the Proponent has provided extended time to review documents. The Proponent has made funding available to support Aboriginal Groups' participation in the pre-Application phase and will provide Application review phase funding to facilitate continued participation.

Source	Issue	Proponent Response/Action
Musqueam Nation	Appropriate use of traditional knowledge in the Application with respect to contextualization and properly understanding what is being conveyed.	<p>The Proponent has sought guidance and input from Musqueam with respect to ensuring the appropriate integration of Musqueam Traditional Knowledge into the Application. As part of the efforts to ensure a clear understanding of the information shared by Musqueam, the Proponent has had two Traditional Use Study (TUS) Workshops with Musqueam, has provided TUS review follow-up questions and remains committed to working with Musqueam to ensure the appropriate use and contextualization of Musqueam information.</p> <p>Additionally, in an effort to facilitate appropriate integration of Traditional Knowledge in the Application, the Proponent has shared early drafts of environmental assessment-related documentation with Aboriginal Groups for their review and comment.</p>
Musqueam Nation	To build and maintain a positive relationship with Musqueam, collaboration and reciprocity throughout the environmental assessment process are foundational. Musqueam requests that the Proponent continue to work closely with us in good faith throughout the Application phase.	The Proponent is committed to continuing to build and maintain a positive relationship with Musqueam and is of the understanding that a productive and effective working relationship has been established. The Proponent is confident that this positive relationship can continue throughout the environmental assessment process.
Musqueam Nation	Concern regarding the harmonized provincial/federal process and uncertainty regarding port authority requirements for Aboriginal consultation on the Project.	The Proponent has shared this concern with EAO and Vancouver Fraser Port Authority (VFPA) and understands that EAO will be following-up directly with Musqueam Nation.
Kwikwetlem First Nation	Concern that the transition from TransLink to the Ministry of Transportation and Infrastructure may mean that the approach to consultation may change. For example, new staff or inflexible approach.	The Proponent will continue to undertake consultation in accordance with the Project's Aboriginal Consultation Plan. For consistency, key members of the Project team, including the Aboriginal consultation lead, will remain the same. The Proponent is committed to effective and meaningful consultation and to developing and/or maintaining positive working relationships with Aboriginal Groups.

Source	Issue	Proponent Response/Action
Lyackson First Nation	Importance of being included in consultation for the Project because by being gradually “shut out” of the Fraser River fisheries has resulted in a conception that Lyackson First Nation no longer has a right to fish for food in the area in the present-day. They have also reported being excluded from conversations and consultations about the lower Fraser River in other forums.	In accordance with the requirements outlined in the EAOs Section 11 Order, and as described in the Aboriginal Consultation Plan, and the Proponent is consulting with Lyackson First Nation and other Aboriginal Groups.

Aboriginal Participation and Project-related Opportunities

Source	Issue	Proponent Response/Action
All	Interest in Project-related economic development and Aboriginal procurement opportunities as well as skills training and employment.	The Proponent is committed to working with Aboriginal Groups to identify opportunities to benefit from the Project and is confident that the Project’s procurement process can effectively allow for this commitment to be met.
All	Aboriginal involvement in monitoring programs and environmental studies.	To date, Aboriginal Groups have participated in monitoring and environmental studies (i.e. archaeological and vegetation study) The Proponent will work with Aboriginal Groups to identify and plan for opportunities for Aboriginal involvement in monitoring and any future environmental studies.

Source	Issue	Proponent Response/Action
Kwantlen First Nation, Katzie First Nation, Semiahmoo First Nation	<p>Concern with the standard approach to Aboriginal procurement on similar scale infrastructure projects and that this approach is not an effective way to ensure contracting opportunities to Schedule B Aboriginal Groups.</p> <p>Request for new approach to consider direct award, skills training for Aboriginal youth, Aboriginal inclusion clauses in tender documents, ensuring opportunities for First Nations in contracting, mandatory set-asides for First Nations, sole sourcing.</p>	<p>Noted. The Proponent will continue to work with the Kwantlen First Nation, Katzie First Nation and Semiahmoo First Nation to address any outstanding concerns related to the proposed approach to procurement and Aboriginal involvement.</p> <p>The Proponent is confident that Project-related benefits, including employment and contracting, can be successfully realized should the Project receive environmental approval from the EAO and the VFPA.</p>
Tsawwassen First Nation	Interest in economic opportunities around operations and maintenance of the Pattullo Bridge.	The Proponent will continue to work with Tsawwassen First Nation and other Aboriginal Groups to identify and plan for Project-related economic opportunities. The Proponent is confident that Project-related benefits, including employment and contracting, can be successfully realized should the Project receive environmental approval from the EAO and the VFPA.
Tsleil-Waututh Nation	Interest in entering into a Project benefits agreement.	Tsleil-Waututh Nation's interest is noted. The Proponent is committed to working with Aboriginal Groups to identify potential opportunities to benefit from the Project.
Lyackson First Nation	Request to receive further information on how Lyackson would benefit from the Project. Lyackson further wishes to be considered for participation in monitoring and environmental studies, including vegetation and archeological surveys.	<p>Consultation with Lyackson First Nation is ongoing and will continue through the Application Review Phase. The Proponent welcomes an opportunity to meet with Lyackson First Nation to discuss Project-related benefits as well as any other component of the Project that is of interest and/or concern.</p> <p>Lyackson's interest in participating in monitoring and environmental studies, including vegetation and archeological surveys, is noted.</p> <p>The Proponent is currently undertaking planning in relation to opportunities for Schedule B Aboriginal Groups' participation in monitoring and studies during the Application Review Phase. During this Phase, the Proponent will have focused discussions with Lyackson regarding these opportunities.</p>

Construction and Design Plan

Source	Issue	Proponent Response/Action
Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation	Request for enhancement of the surrounding environment.	The Proponent is working with municipalities on opportunities for the design and integration of parks and public spaces with bridge construction and decommissioning, on both sides of the bridge and will be engaging Aboriginal Groups in regards to enhancement opportunities.
All	Concern regarding the protection of fish and fish habitat during construction. Sturgeon, eulachon and the five-species of salmon have been specifically identified.	Potential Project related effects on fish and fish habitat, including species of specific interest to Aboriginal Groups, will be considered in the Application as described in the draft Application Information Requirements (dAIR).
Kwikwetlem First Nation	With respect to pier locations, would like to see baseline studies or long-term monitoring of the area archaeological sites, considering not just a narrow 'impact zone' but potential secondary impacts and regional area changes.	As a part of the archaeological overview assessment, the Proponent has created a model of archaeological potential which has been considered alongside the hydraulic model for shoreline change. This will be discussed in the Heritage Resources section of the Application.
Musqueam Nation	Concern that in five years the Proponent will want to build to six-lanes, creating additional concerns about air quality impacts.	The Proponent is proposing a 4-lane bridge as reflected in the Project Description. The fact that the proposed Project being assessed under the British Columbia <i>Environmental Assessment Act</i> is the 4-lane bridge has been confirmed in the Section 11 Order under Scope of the proposed Project. If the proposed Project is granted an Environmental Assessment Certificate and the Proponent then wants to modify the Project, to make it a 6-lane bridge, the Proponent would need to make an Application to Executive Director, EAO to amend the Environmental Assessment Certificate. The EAO would then have to do an assessment of the proposed change, before the Executive Director can make a decision on whether or not to amend the Environmental Assessment Certificate.

Source	Issue	Proponent Response/Action
All	Concern regarding piers in the river, and placement and number of piers, and the potential for effects (for example shoreline sedimentation and erosion).	To ensure that environmental studies provide a robust assessment of potential bridge design, the environmental assessment will assess a reference concept that includes two piers on each side of the navigation channel, for a total of four in-river piers and consideration of potential effects, including sedimentation and scour. Should the Project receive regulatory approval, the environmental studies assessing the reference concept will inform the development performance metrics and design parameters that the Project will be required to meet. Effects related to shoreline sedimentation and erosion will be addressed in the River Hydraulics section of the Application.
Tsleil-Waututh Nation	Concern that the proponent is proposing a bridge design option without the results of the hydraulic and numeric testing on the different options. Concern that TWN would not be able to provide meaningful feedback regarding the proposed reference concepts without receiving all the test data.	Hydraulic modelling results will be discussed in the River Hydraulics chapter in the Application. Additionally, there will further information contained in a technical data report, appended to the Application.
All	Concern regarding anticipated interactions between Project construction (i.e., deterrence to fish movement) and the timing and abundance of fish openings. Concern regarding potential interference with Aboriginal fisheries (access and use, etc.)	The assessment of Project effects on Current Marine Use by Aboriginal Peoples for Traditional Purposes, including Aboriginal, domestic and food, social, and ceremonial (FSC) fish harvesting will be assessed in Part C of the Application. This will be informed by the assessment of Project-related effects on fish in the Fish and Fish Habitat section.
Lake Cowichan First Nation	Request to include less impervious surfaces in design.	The Project will be designed to minimize the increase in impervious surfaces, while meeting current design standards.
Tsawwassen First Nation	Safety measures for cyclists using the bridge, including consideration of barriers and improved sight lines.	Objectives of bridge design include safety for all bridge users, cyclists and pedestrians. Appropriate barriers and sight lines are a design consideration.

Source	Issue	Proponent Response/Action
Lyackson First Nation	<p>Concern regarding vessel and vehicle traffic increase during new bridge construction and concern about population and quality of salmon in the Fraser River. Interest in the reduction of existing freighter traffic.</p> <p>Lyackson questions what weight that will be placed on the Proponents consideration to Aboriginal Group's concerns related to fish and fish habitat.</p>	<p>The following will be discussed in the Application:</p> <ul style="list-style-type: none"> • Potential increases in marine vessel traffic during construction (Marine Use) • Potential disruptions to auto traffic on roads during construction (Community Cohesion) • Potential impacts to the population and quality of salmon in the Fraser River (Fish and Fish Habitat) <p>The Proponent used input provided by Schedule B Aboriginal Groups to inform the Fish and Fish Habitat Assessment and mitigation considerations. Consultation in ongoing and the concerns raised by Aboriginal Groups, as well as knowledge and input shared, will inform the development of Project-related restoration and enhancement as well as any management plan(s) related to Fish and Fish Habitat.</p>
Musqueam Nation	Request for a formal response as to why having no piers in the river is not an option.	The Proponent acknowledges the potential for the Project to affect the hydraulics and morphology of the Fraser River. The assessment of potential effects of the Project on Fraser River hydraulics and morphology is ongoing. Details on the approach/methodology for this assessment were shared with the Advisory Working Group meeting on October 23, 2017. Results of this assessment, including the nature and magnitude of the effects of the Project and measures proposed for avoiding or mitigating them, will be described in the Application. Further information on alternatives to the Project, which includes varying bridge configurations, will be included in the Application.
Musqueam Nation	Concern that proposed Project construction methods and design details (conceptual design) remain insufficient. Request for the necessary information in relation to the design and construction knowledge and information gaps required by Musqueam to make an informed, effective, and meaningful assessment of the Project.	The Proponent developed an information package that includes preliminary details on anticipated general methodology and assumed sequencing of key activities for construction of the new bridge and decommissioning and removal of the existing bridge. The Proponent shared this information package with Musqueam and is committed to continued consultation regarding Project construction and design. Additional information will be provided in the Application and through ongoing consultation during the Application review phase.

Source	Issue	Proponent Response/Action
Musqueam Nation	Interest in Project design, size and budget, including an opportunity to conduct additional studies, and provide further input once Project design and timing have been finalized.	Consultation with Musqueam is ongoing. The Proponent welcomes further input from Musqueam once Project design and schedule have been determined and continues to seek Musqueam feedback on all components of the Project. Musqueam's interest in undertaking additional studies is noted. The Proponent is working with Musqueam to plan for a Musqueam invasive plant study and will continue discussions related to Musqueam involvement in studies through the ongoing consultation program.
Lake Cowichan First Nation	Concern regarding the potential for construction or deconstruction related accidents or spills.	Any contamination that is encountered during bridge construction or decommissioning will be managed in accordance with applicable legislation (for example the British Columbia <i>Environmental Management Act</i> and contaminated sites regulation).
Lake Cowichan First Nation	Concern regarding the potential for historical impacts to the river from the original bridge.	The discussion of existing conditions for relevant VCs includes existing conditions and trends. This includes discussion of how existing conditions for specific VCs have been influenced by past human activities. This will be as informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application.
Lyackson First Nation	Concern regarding the potential for debris to fall into the river during construction and operations.	The potential for debris to fall into the Fraser River during construction will be addressed in the development and implementation of the Construction Environmental Management Plan, which will be provided to Aboriginal Groups for review.
Squamish Nation	Effects of decommissioning the existing bridge on flow, erosion and habitat.	Potential effects of decommissioning of the existing Pattullo Bridge on Fraser River flow and erosion will be assessed under River Hydraulics and Morphology in the Application. Results of this assessment will support the assessment of potential Project related effects on fish habitat which will be discussed in the Fish and Fish Habitat section.
Katzie First Nation, Kwantlen First Nation, Lake Cowichan First Nation, Kwikwetlem First Nation	Importance of proper management of snow and ice on the new bridge.	The Proponent will ensure proper management of snow and ice. Installation of snow and ice management systems on the new bridge is discussed in Section 1.1.4.3 Key Project Activities .
Katzie First Nation, Tsleil-Waututh Nation, Lake Cowichan First Nation	Importance of suicide prevention as a consideration in the design of the new bridge.	Installation of a suicide prevention barrier on the outer edge of each multi-use path is discussed in Section 1.1.4.2.2 River Crossing Project Components .

Fish and Fish Habitat

Source	Issue	Proponent Response/Action
All	Concern regarding potential Project-related impacts to fish and fish habitat (for example impacts to fishing abundance/fishing access) and interest in opportunities for habitat enhancement/restoration.	<p>As described in the assessment methods of Table 4 VC Selection and Rationale Document the Project effects on distribution and abundance will be assessed through the availability of habitat to support the various species listed and how the Project will change key habitat parameters.</p> <p>Any effects to Aboriginal fishing that results from changes in fish abundance identified in the Fish and Fish Habitat chapter will be considered in the Marine Use Chapter and Part C of the Application, as described above.</p> <p>The Proponent will continue to work with Aboriginal Groups in habitat enhancement planning.</p>
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, Lyackson First Nation, Lake Cowichan First Nation, Tsleil-Waututh Nation	Concern with the effects of climate change. For example, increased temperature of the Fraser River and sea level rise, on fish and the Aboriginal fishery.	<p>Climate change, for example with respect to increasing water temperatures, is considered in the Fish and Fish Habitat section of the Application.</p> <p>Any effects to Aboriginal fishing, which result from changes in fish abundance identified in the fish and fish habitat chapter will be considered in the Marine Use chapter and Part C of the Application, as described above.</p>

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	KFN expects the Project will adopt offsets that would meet anticipated changes to the federal Fisheries Act as outlined in the Government Response to the Standing Committee on Fisheries and Oceans. The old designation misses some fish that are important as food for fish; misses waterbodies that may be important habitat but doesn't support fisheries; and also harmful alterations to habitat that once were covered off as HADDs (harmful alterations, damage and destruction of habitat).	<p>The Proponent will assess opportunities for fish habitat offsets in the Project area (as well as other areas if viable offsetting opportunities do not exist within the Project area). Evaluation of habitat offsetting opportunities will be guided by regulatory requirements and related assessment procedures, and will consider input from Aboriginal Groups and stakeholders.</p> <p>The Proponent will continue to work with Aboriginal Groups on planning for fish habitat enhancement.</p>
Kwikwetlem First Nation	Concern regarding potential Project effects on Coquitlam River, the largest tributary in the vicinity of the Pattullo Project area.	The Coquitlam River is beyond the areas where potential effects are anticipated given the nature and scope of the proposed Project works.
Lyackson First Nation	Concern regarding Project activities affecting surface water and sediment, potentially impacting population and quality of salmon in the Fraser River.	Potential effects of the Project on surface water and sediment and consequent effects on fish, including salmon in the Fraser River, will be assessed in the Application under Fish and Fish Habitat, which will be informed by the assessment of Surface Water and Sediment also included in the Application.
Kwantlen First Nation	Concern regarding sediment transport and effects on fish, fish habitat and Kwantlen use areas within their territory.	Potential effects of the Project on surface water and sediment and consequent effects on fish, including salmon in the Fraser River, will be assessed in the Application under Fish and Fish Habitat, supported by assessment of Surface Water and Sediment. The impact to Kwantlen's rights, resulting from effects identified in the Fish or Fish Habitat chapter will be assessed in Part C of the Application.
Lyackson First Nation	Concern regarding Project activities limiting the shade or cooling spaces for spawning salmon.	Potential effects of the Project on availability of shade or cooling spaces for spawning salmon will be discussed in the Application under Fish and Fish Habitat, supported by assessment of shade and vegetation.

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern that Project-related dredging, filling, and/or other physical disturbances within the Fraser River may result in removal of benthic species and communities, impacts on flora and fauna from short term increases in suspended sediment, and settlement of suspended sediments can result in the blanketing of subtidal communities and/or intertidal communities.	<p>Physical disturbances in the Project area are expected to consist mainly of localized excavation for pile installation and are not expected to include dredging.</p> <p>Given the area of the Project footprint relative to the riverbed, potential for interactions with benthic invertebrates is expected to be extremely limited. As such, they are not included as a VC subcomponent.</p> <p>Potential Project-related changes in suspended sediment will be addressed in the Surface Water & Sediment Quality section of the Application. This will inform the assessment of any Project-related effects on fish & fish habitat.</p>
Musqueam Nation	Concern regarding effects and impacts to important fish, fish habitat and habitat for other riverine and anadromous species in the Fraser River, including changes in migration, distribution, population, health, and biodiversity as a result of alteration of river hydraulics and morphology.	Potential Project effects related to river hydraulics and river morphology and consequent effects on fish and fish habitat including changes in migration, distribution, population and health will be assessed in the Fish and Fish Habitat section of the Application. This will be informed by the Fraser River Hydraulics and Morphology section of the Application.
Musqueam Nation, Squamish Nation	Increased soil erosion, scouring effects, and slope instability as a result of changes to the Fraser River hydraulics and river morphology (with resulting adverse effects to fish and fish habitat).	Potential effects of the Project on scour/slope stability will be assessed in the Fraser River Hydraulics and Morphology section of the Application. This will inform the assessment of Project-related effects on fish and fish habitat in the Fish and Fish Habitat section of the Application.

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern that more detail is needed regarding the current scope and assessment of Fish and Fish Habitat as a VC. The proposed Project area is an important corridor for salmon, white sturgeon, and eulachon. There is great potential for restoration of spawning and rearing habitat within the proposed Project footprint. While the Proponent has completed "limited field studies" and a "desktop review" on the upstream channels into the Fraser, there is a need for increased information in the methods, baseline, and assessment remain in the conclusion that the upper channels are inhabitable to fish."	<p>The proposed approach for the assessment of potential effects of the Project on fish and fish habitat is outlined in the dAIR, which has been provided to the Advisory Working Group for review by EAO. Additional detail on the proposed assessment methodology is included in the draft Terms of Reference for the Pattullo Bridge Replacement Project Fish and Fish Habitat Assessment Methodology, which the Proponent provided to Musqueam for review and comment on October 25, 2017. The Proponent has also shared a draft report on existing conditions as it pertains to fish and fish habitat in the Project area with Aboriginal Groups (Nov 23, 2017). The Proponent welcomes comments on these documents, specifically related to existing conditions, assessment approach and methodology, and is committed to continuing to work with Musqueam in an effort to address potential concerns.</p> <p>The Proponent is committed to working with Aboriginal Groups on planning for fish habitat enhancement.</p>
Musqueam Nation	Quantification and qualification of fish habitat losses due to in-stream piers and any other shoreline modification or in-stream physical works and activities related to the Project.	Quantity and quality of fish habitat that may be lost or otherwise affected by instream construction, or any shoreline modification that may be necessary, will be described in the Fish and Fish Habitat section of the Application.
Musqueam Nation	Anticipated negative interactions between Project-related dredging in the Fraser River and fish stress and salmon, sturgeon, and eulachon migration and spawning behaviours.	Noted. The Project is not expected to entail dredging although sediment is expected to be removed through localized excavation during construction. Potential changes in suspended sediment will be addressed in the Surface Water & Sediment Quality section of the Application. This will inform the assessment of any Project-related effects on Fish & Fish Habitat.

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Different groups and families have a drift net fishery in the area, particularly between Douglas Island and the Pattullo Bridge. KFN members have specific agreements and protocols for fishing, and there are concerns about the impacts of the Project on fishing, and fish habitat. Kwikwetlem First Nation expects the highest standard of assessment to be applied to consider potential impacts to aboriginal fisheries.	The Proponent acknowledges the importance of the area for Kwikwetlem fisheries, and is committed to ensuring potential impacts of the proposed Project on Aboriginal fisheries are assessed and measures to avoid/mitigate for such effects are developed in consultation with Aboriginal Groups. Information provided by Aboriginal Groups, including Kwikwetlem First Nation, will be used to inform the Assessment.
Kwikwetlem First Nation	Comment regarding the importance of not crowding the south side with pier locations, as this is prime fishing territory.	Noted. The reference concept that provided the basis for assessing potential environmental impacts includes two piers on each side of the navigation channel. This will allow for a robust assessment of the potential impacts of different numbers and locations of piers, including potential impacts on fish and fish habitat and on fishing. The information that Kwikwetlem First Nation has provided about fishing locations has been used to inform the Marine Use assessment and Part C of the Application. The Proponent will continue to work with Aboriginal Groups to address potential impacts on Aboriginal fisheries.
Lake Cowichan First Nation	Concern about utilizing any fish resources in the immediate area around the bridge site due to industrial pollutants in the area.	Noted. The potential for Project-related effects on human health due to increased pollutants in fish will be assessed in the Physical Determinants of Human Health section of the Application. This assessment will be informed by the assessment of sediment quality in the Surface Water & Sediment Quality section of the Application.
Lyackson First Nation	Concern regarding the timing of fish studies, noting that DFO has typically conducted salmon population studies at times when accurate population estimates would not be obtained.	The characterization of existing conditions of fish and fish habitat to support the assessment of Project-related effects relied upon multiple data/information sources. These sources have been described in the Pattullo Bridge Replacement Project: Fish & Fish Habitat report which was provided to Aboriginal Groups for review and comment in November 2017.

Source	Issue	Proponent Response/Action
<p>Tsleil-Waututh Nation, Kwkwetlem First Nation, Tsawwassen First Nation</p>	<p>Concern regarding the exclusion of Nooksack dace in the fish and fish habitat report. It is a SARA listed species that is only found in four creeks in Canada; one of those creeks is the Brunette River, which is just on the outside of the LSA boundary. TWN feels that though this is outside of the LSA boundary it is close enough to be relevant and thus potentially affected by the Project, and needs to be assessed accordingly.</p>	<p>The exclusion of Nooksack Dace was based on the following considerations:</p> <p>1) Species habitat, including critical habitat, requirements: Habitat in the vicinity of the Project that meets the species habitat requirements for Nooksack Dace is limited to the Brunette River, with identified critical habitat (as per the Recovery Strategy) located outside (upstream) of the lower Brunette River reaches.</p> <p>2) Potential for interaction with the Project: All Project-related activities will occur downstream of the Brunette River/Fraser River confluence and the Project is not expected to influence the Brunette River; therefore no Project interaction with Nooksack Dace is expected.</p>
<p>Kwkwetlem First Nation</p>	<p>Importance of the Proponent reading and implementing the recommendations that Kwkwetlem has provided (related to sturgeon and eulachon)</p>	<p>The three studies below, provided to the Proponent by Kwkwetlem First Nation, as well as input and recommendations from Kwkwetlem First Nation, have been considered in the assessment of potential Project-related effects on fish and fish habitat:</p> <ul style="list-style-type: none"> • LFFA. 2015. What do we know about Fraser River eulachon? A snapshot of First Nations’ knowledge and the state of the science on this stock Prepared for the Habitat Stewardship Program. • Robichaud, D, English, K, Nelson, T. 2017. Annual movements of acoustic-tagged white sturgeon in the lower reaches of the Fraser River and its tributaries. • Cohen BI. 2012. Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River, Vol. 1-3. Prepared for the Minister of Public Works and Government Services Canada. • Plate, Terra Remote Sensing Inc. 2009. Fraser River, Port Mann Bridge-Douglas Island Eulachon Study, 2009. Prepared for Kwkwetlem First Nation and Watershed Watch Salmon Society. <p>The Proponent will continue to work with Aboriginal Groups on planning for fish habitat enhancement.</p>

Source	Issue	Proponent Response/Action
Lyackson First Nation	<p>Concern that the available habitat is already insufficient to support sustainable and healthy fish populations.</p> <p>Lyackson questions how the Proponent is assessing the abundance of habitat available and required to sustain a healthy fish population.</p> <p>Lyackson also questions what thresholds and benchmarks that are used for this assessment and how Traditional Knowledge is incorporated in these assessments.</p>	<p>Literature review and desktop analyses were used to assess current and historical fish use, watercourse connectivity, and fish habitat value within the assessment area, and identify data gaps and areas of uncertainty. Subsequent field fish surveys were completed to assess current seasonal fish use in watercourses interacting directly with the Project Boundary. Significance of Project-related effects on fish and fish habitat is assessed in terms of the potential for such effects to cause a decline in the ongoing productivity and sustainability of a fish population.</p> <p>Traditional knowledge, where provided by Aboriginal Groups with permission for use in the Application, in combination with other pertinent published data and information specific to fisheries resources was compiled, reviewed, and synthesized to inform the understanding of existing conditions of fish and fish habitat in the project area, including trends over time that have influenced these conditions. This information will be presented in the discussion on existing conditions in the Application, and will provide the context for assessment of potential Project-related residual effects and cumulative effects, as well as development of environmental mitigation and habitat offsetting/enhancement options.</p>

Regulatory Process

Source	Issue	Proponent Response/Action
Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation	Interest in information regarding the regulatory process for receiving regulatory approval for a six-lane bridge from a four-lane bridge.	The Proponent's proposed Project is a 4-lane bridge. The scope of the proposed Project being assessed under the BC <i>Environmental Assessment Act</i> has been confirmed in the Section 11 Order under Scope of the proposed Project. If the proposed Project is granted an Environmental Assessment Certificate and the Proponent then wants to modify the Project, to make it a 6-lane bridge, the Proponent would need to make an Application to Executive Director, EAO to amend the Environmental Assessment Certificate. The EAO would then have to do an assessment of the proposed change, before the Executive Director can make a decision on whether or not to amend the Environmental Assessment Certificate.
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Concern that First Nation's input is only requested once the dAIR has been drafted.	Input received through consultation with Aboriginal Groups has informed the development of the dAIR. Through the EAO-led Working Group, Aboriginal Groups were consulted on the VC document prior to development of the dAIR. They were then consulted on the dAIR.
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Concern regarding the consideration of cumulative effects within the environmental assessment process.	The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects and includes consideration of the effects past, present and reasonably foreseeable projects. The discussion of existing conditions for relevant VCs includes existing conditions and trends. This includes discussion of how existing conditions for specific VCs have been influenced by past human activities. This will be as informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application.
Musqueam Nation	Concern with EAO providing adequate responses to concerns before the issuance of any permits.	This comment has been directed to EAO for response.
Tsleil-Waututh Nation, Musqueam Nation	Concern regarding harmonization of processes between EAO and the VFPA and request for clarification regarding roles.	It is the Proponent's understanding that EAO and VFPA have responded to this concern and the requested clarification has been provided.

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern regarding Musqueam's role/level of decision making in design e.g. piers vs no piers as it relates to Project conditions and mitigations.	<p>Consultation with Musqueam on the Project is ongoing and will continue through the Application review phase. The Application will provide information regarding potential impacts of in-river piers on the following VCs:</p> <ul style="list-style-type: none"> • Fish & Fish Habitat • Marine Use <p>Potential impacts on Aboriginal Interests will be assessed in Part C of the Application.</p>
Kwikwetlem First Nation	Concern that the Project team's approach to consultation and working relationship with Kwikwetlem First Nation will change as a result of a change in Project Proponent.	The Proponent will continue to undertake consultation in accordance with the Project's Aboriginal Consultation Plan, which will be adopted by the new Proponent. For consistency, key members of the Project team, including the Aboriginal Consultation lead will remain the same. The Proponent is committed to effective and meaningful consultation and to developing and/or maintaining positive working relationships and to with Aboriginal Groups.

Socio-Economic

Source	Issue	Proponent Response/Action
Musqueam Nation	Request to engage in further discussion with Musqueam on the development of a separate Aboriginal socio-economic impact assessment, given the differential exposure to risks and abilities to take advantage of opportunities compared to non-Aboriginal communities.	The Proponent has received a Knowledge and Use Study from Musqueam that includes information that is relevant to the socio-economic effects assessment, particularly in relation to impacts on Aboriginal Fisheries. Other Aboriginal Groups have also provided Project-specific studies that include information that may inform this assessment. In addition, fisheries-related information gathered through ongoing consultation will be used to inform the assessment of potential Project-related effects on socio-economic conditions as it relates to Aboriginal fisheries.
Musqueam Nation	Concern regarding socio-economic effects of any loss of resources, and decreased efficacy of fishing gear due to changes in the river.	Potential Project-related changes in river conditions will be discussed in the River Hydraulics and River Morphology section of the Application. Any Project-related changes in river conditions that may influence the availability of and access to resources will inform the assessment of consequent socioeconomic effects in the Marine Use and Part C sections of the Application.

Human Health

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern regarding adverse effects and impacts on human and wildlife receptors from elevated noise levels during the construction phase.	Effects of potential Project-related increase in ambient noise on human receptors will be addressed in the Physical Determinants of Human Health section of the Application. Potential for Project-related change in ambient noise conditions to affect wildlife will be considered in the Wildlife section of the Application.
Tsleil-Waututh Nation	Interest in the Project examining Aboriginal specific human health, and having a linkage to social determinants of health such as: language; place; sacred spaces; effects of development; and effects of the loss of heritage spaces.	Impacts on human health that could disproportionately affect Aboriginal peoples will be assessed in the Physical Determinants Human Health and Social Determinants of Human Health sections of the Application. Impacts that are related specifically to Aboriginal Interests will be assessed in Part C of the Application.
Kwantlen First Nation	Concern regarding the impact of noise on the ability to engage in cultural practices, noting the importance of culture and spirituality to human health and wellbeing.	Noise monitoring has been conducted in locations identified by Aboriginal Groups as being important for harvesting and other activities. Monitoring locations include sites on the Fraser River and on the south shore in Brownsville Bar Park. Potential changes to noise in these locations will be assessed in the Noise & Vibration section of the Application. Results of this assessment will support the assessment of the impacts of potential Project-related changes in noise conditions on Aboriginal Interests, which will be included in Part C of the Application.

Study Design

Source	Issue	Proponent Response/Action
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Concern regarding the size of the footprint for the environmental studies, and noted that disturbance on the Fraser River result in changes in Semiahmoo Bay and that the studies need to take into account the entire ecosystem.	The Local Study Area (LSA) and Regional Study Area (RSA) for Fraser River Hydraulics and Morphology and for Fish and Fish Habitat were defined based on anticipated spatial extend of influence of the Project on the Fraser River, which is consistent with results of modelling to date. The Proponent is working with the EAO and members of the Advisory Working Group to ensure that the methodology used to support the assessment of environmental values is consistent with current best practice and guidance materials that support the assessment of projects under the British Columbia <i>Environmental Assessment Act</i> .

Source	Issue	Proponent Response/Action
Tsawwassen First Nation	Comment that studies should include sturgeon, and note that sockeye is the most important species of salmon to be studied.	The Proponent acknowledges Tsawwassen's identification of sockeye's importance. Sturgeon and sockeye are included in the list of key species assessed in the Application in the Fish and Fish Habitat section.
Tsawwassen First Nation	Concern that without knowing the carrying capacity we are guessing about how effective the mitigation may be and the Fraser River may be reaching a tipping point where the environment change may not be able to be mitigated.	Environmental studies and proposed mitigation measures will be informed by scientific research, Aboriginal Traditional Knowledge provided by Aboriginal Groups through Project-specific studies and consultation and best practices. Mitigation proposals will include monitoring and adaptive management where appropriate to ensure the effectiveness of mitigation measures.

Soil and Groundwater

Source	Issue	Proponent Response/Action
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, Tsleil-Waututh Nation, Tsawwassen First Nation	General concerns regarding Project-related impacts to groundwater quality.	Potential effects of the Project on groundwater quality will be assessed in the Soil and Groundwater section of the Application.

Source	Issue	Proponent Response/Action
<p>Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation</p>	<p>Concern regarding run-off from the bridge, and potential impacts to the river/vegetation.</p>	<p>Measures for drainage and stormwater management that are part of the Project scope will be described in the Project Description section of the Application. Potential effects of the Project are assessed in the Surface Water & Sediment Quality section of the Application. This will inform the assessment of Project-related effects in the Vegetation and Fish and Fish Habitat sections of the Application.</p>
<p>Tsleil-Waututh Nation</p>	<p>Concern regarding the assumption that present conditions are "similar enough" to past conditions, and the use of historic data on soil and groundwater conditions in Surrey and New Westminster leaves a gap in the information and increases the probability of missed impacts.</p>	<p>Further characterization of soil and groundwater conditions in areas that could be disturbed during construction will be undertaken prior to site preparation, as mandated by the BC <i>Environmental Management Act</i> and associated contaminated sites regulation. The Application will reflect this requirement.</p>

Sediment and Surface Water

Source	Issue	Proponent Response/Action
Tsleil-Waututh Nation	<p>TWN finds one year of data from 10+ years ago, combined with results from 1966-1972 to be insufficient to make any determinations or conclusions of any representations of conditions in the LSA and RSA; although historical data is useful in quantifying cumulative effects, in order to assess a current project and a fulsome cumulative effect assessment, current data must be gained.</p>	<p>(Note: The 1966-1972 record pertains to suspended sediment load; it is therefore assumed that this comment pertains to suspended sediment load).</p> <p>Applicability of the available suspended sediment record to more recent conditions was explored in Figure 4 and associated text. It was found that discharge in the 1966-1972 period was representative of discharge over a longer period (27 years). Using longer term discharge variability to assess shorter term suspended sediment variability is a reasonable approach given the relationship between discharge and suspended sediment concentration. It is also noted that trend analysis of turbidity at the Fraser River at Hope showed no trend from 1985 to 1996.</p> <p>The analysis presented in the report is considered adequate to characterize historic ranges of suspended sediment concentrations and loads.</p>
Tsleil-Waututh Nation	<p>Upstream monitoring has not been conducted for approximately 15 years; therefore, TWN requests a more recent analysis of upstream sediment quality be undertaken for the Project (baseline report comment)</p>	<p>Additional water quality and sediment quality sampling has been completed. The baseline report will be revised to reflect this additional work and this will be reflected in the Application.</p>

Visual Quality

Source	Issue	Proponent Response/Action
Kwkwetlem First Nation	Concern that in the past, water visuals were ignored, so important that both land and water visuals are taken into account. The river is the primary highway for the fishers and should build that visual assessment into the design.	The assessment of visual effects of Project will focus on physical changes in the visual environment and include perspectives of Aboriginal Groups shared through Project-specific studies and consultation. In response to comments from Kwkwetlem and others about the importance of the experience from the river, upstream and downstream viewpoints were added to the visual quality assessment. These viewpoints were selected on-site by Kwkwetlem First Nation.
Lake Cowichan First Nation	Concern with the effects of sky glow and visibility of the night sky and stars.	The Lighting assessment will include a consideration of the effects of obtrusive lighting and its potential to adversely affect the ability of viewers to observe the night sky.
Musqueam Nation	<p>Because there is the potential for adverse effects on visual quality in the Project area related to the construction and operation of the bridge, the Proponent must consult with Musqueam to identify key Aboriginal viewpoints.</p> <p>Comment that a separate cultural heritage assessment is required to identify visual and cultural impacts from the perspective of Musqueam users.</p>	In response to Musqueam’s request that the visual quality assessment include a viewpoint that indicates the visual impact of the new bridge both up and down the river, two additional on-river viewpoints have been included in the Visual Quality assessment.

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern regarding the visual impact from qiqéyt to t̓síçələs.	<p>The visual assessment will evaluate potential visual effects considering the following dimensions of visual quality:</p> <ul style="list-style-type: none"> • Natural Harmony – the degree to which the natural elements of the landscape form a unified and balanced composition; can be described as harmonious or inharmonious • Cultural Order – the degree to which the composition of cultural resources is organized so that elements have a clear relationship and function with little visual confusion; can be described as orderly or disorderly • Project Coherence – the degree to which the composition of elements in the Project Boundary area are understandable, rather than chaotic; can be described as coherent or incoherent (FHWA 2015) <p>The assessment of visual effects in relation to cultural order will consider information on Aboriginal Groups’ perceptions of cultural order that are associated with visual quality, as expressed through consultation and in Project-specific studies. These perceptions are understood to include the visual relationships between sites identified as important by Aboriginal Groups, including Musqueam. Two such sites – t̓síçələs and qiqéyt – are associated with two viewpoints identified for assessment. Potential impacts to the visual relationship between these sites will be considered through the evaluation of visual effects in the visual quality assessment. Any change to the visual relationship will be further considered in Part C in terms of the potential for the change to incrementally affect cultural factors, including those identified by Musqueam (e.g., cultural continuity, sense of place).</p>

Source	Issue	Proponent Response/Action
Kwantlen First Nation	Concern that declining visibility created by bridge construction and the decrease in air quality and smog due to increased traffic associated with bridge construction has an impact on a long-standing connection to the land.	<p>The assessment of visual effects of the Project will include perspectives of affected Aboriginal Groups informed by Project-specific studies provided by Aboriginal Groups and input provided through the consultation process.</p> <p>The air quality assessment will include an evaluation of potential construction-related effects on air quality and identify mitigation and management strategies, including best practices to address effects.</p> <p>Visual effects of Project construction related to daytime and nighttime (i.e., lighting) viewing conditions will be assessed in the Visual Quality section of the Application.</p> <p>The effects of Project construction on Kwantlen’s long-standing connection to the land will be considered in Part C of the Application.</p>
Kwantlen First Nation	Concern that impaired viewsapes threaten to disrupt the flow of tradition knowledge transfer. Kwantlen’s visual landscape has been and continues to change, compromising a sense of geographical placement and a connection to the land.	<p>The assessment of visual effects of the Project will focus on physical changes in the visual environment and will be informed by Project-specific studies provided by Aboriginal Groups and by information shared during consultation.</p> <p>Project-related effects on Kwantlen’s sense of geographical placement and connection to the land will be considered in Part C of the Application.</p>
Tsawwassen First Nation	Recommend minimizing visual impact of the bridge structure from the water.	The visual impact of the bridge will be assessed and relevant mitigation measures will be proposed in the Visual Quality section of the Application.
Tsawwassen First Nation	Concern about visual impacts of cables, particularly from the river (when fishing). Request for a colour other than white, noting that the Alex Fraser and SkyTrain bridges have less prominent cables than Port Mann as they are a darker colour).	The visual impact of the bridge will be assessed and relevant mitigation measures will be proposed in the Visual Quality section of the Application. Further consultation on mitigation measures such as the one proposed will be undertaken during the Application review phase.

Source	Issue	Proponent Response/Action
Tsleil-Waututh Nation	Tsleil-Waututh Nation requires a net gain approach to visual quality to improve visual quality as an outcome of the Project – for example, a greater area of trees and/or a natural environmental setting. Overall, we would like to see these approaches incorporated into the Visual Quality Assessment for the environmental assessment.	Mitigation and follow-up strategies identified for the Visual Quality VC will include a consideration of enhancement opportunities in the form of Project design and/or greenspace elements. Through continued consultation, the Proponent will seek further input from Tsleil-Waututh Nation and other Aboriginal Groups on potential Project-related opportunities to improve visual quality.

Cultural Recognition

Source	Issue	Proponent Response/Action
All	Interest in the creation of areas for cultural recognition.	During the Application review phase, the Proponent will be undertaking focused discussions and planning with Aboriginal Groups in relation to cultural recognition, interpretation, and educational opportunities.
Lyackson First Nation	Interest in the sharing of First Nations values and stories through interpretive information at rehabilitated Project areas, specifically featuring a narrative of the Fraser River as a site of shared First Nations heritage.	
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Interest in cultural recognition, public art in the Project area in recognition of village sites and Indigenous groups' deep connections to the area.	
Kwikwetlem First Nation	Interest in Indigenous cultures and histories being reflected in Project design of the bridge.	
Kwikwetlem First Nation	Greenspace development should proceed in collaboration with participating First Nations to acknowledge Indigenous interests and maximize public recognition of	

Source	Issue	Proponent Response/Action
	Indigenous histories.	
Kwikwetlem First Nation	Recommendation that cultural heritage recognition and education elements be present at varying locals – travelling along the river offers different opportunities and serves a different purpose from elements on land/above.	
Tsawwassen First Nation	Importance of balancing recognition of historic and cultural importance of the area with protection of the archaeological sites (specifically ensuring information does not facilitate looting).	The Proponent acknowledges the importance of archaeological site protection and will work with Aboriginal Groups to ensure that this is considered in any planning for Project-related cultural recognition.
Kwikwetlem First Nation	Interest in the Proponent exploring the possibility to integrate a current cultural recognition initiative (Silver Highway Project), involving several Schedule B Aboriginal Groups, as part of the Project’s recognition plans.	During the Application review phase, the Proponent will be undertaking focused discussions and planning with Aboriginal Groups in relation to cultural recognition, interpretation and educational opportunities. During this process, the Proponent will consider the opportunity to integrate the Silver Highway Project into any Project-related recognition component.

Cumulative Effects

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Concern with cumulative impacts and secondary Project impacts such as climatic impact of the Project on critical fisheries such as sturgeon, eulachon and salmon.	An assessment of potential cumulative effects on each proposed VC, including Fish & Fish Habitat, will be included in the Application. The potential for the Project to contribute to greenhouse gas emissions will be assessed in the Air Quality section of the Application.
Kwantlen First Nation	Cumulative effects of land alienation and rapid development of Kwantlen territory without the consent of the Kwantlen First Nation should be taken into account in determining how to proceed with the replacement of the	Potential Project effects to cultural heritage sites are considered in the Heritage Resources section of the Application. Effects of past and ongoing projects and activities will be reflected in discussion of trends in this section and will be informed by information provided through Aboriginal Groups’ Project-specific studies and information provided through consultation. Related impacts to Kwantlen’s Aboriginal Interests will be assessed in Part C of the Application.

Source	Issue	Proponent Response/Action
	bridge, especially as it might impact on cultural heritage sites in the vicinity.	
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Concern regarding lack of consolidated effort to look at cumulative impacts.	An assessment of potential cumulative effects on each proposed VC will be included in the Application. The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's Guideline for the Selection of VCs and Assessment of Potential Effects and includes consideration of the effects past, present and reasonably foreseeable projects.
Musqueam Nation	Further details on pre-existing total cumulative effects loading, across multiple VCs, is required. Musqueam expects that new Projects will show net gains (recovery and renewal) in cultural and harvesting opportunities, not merely avoidance or offsetting of new adverse effects, with the goal of the environment being restored to pre-development baselines.	<p>The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's <i>Guideline for the Selection of Valued Components and Assessment of Potential Effects</i> and includes past, present and reasonably foreseeable projects. The discussion of existing conditions for relevant VCs will include a general consideration of how existing conditions for specific VCs have been influenced by past human activities, including development. The Proponent will assess the potential for the Project to interact with the environment, the nature of such interactions, and where appropriate, propose mitigation strategies, including offsetting or enhancement. Environmental enhancement opportunities will be described in the Application, and net gain following mitigation will be identified as benefits, where applicable. The Proponent is committed to obtaining input from Musqueam on habitat enhancement or restoration that may be undertaken as part of the Project.</p> <p>The Proponent will seek further Musqueam input into the identification of opportunities for the Project to promote recovery from historical adverse impacts to Musqueam cultural values and fishery on the Fraser River.</p>
Musqueam Nation	Comment that sources of cumulative effects include past, present, and reasonably foreseeable change agents such as (but not limited to): agricultural effects and pollution; urban and industrial development on Musqueam title lands; river dredging and deepening; overfishing; marine traffic and port expansions; recreational marine use; log booms and booming activities, and other riverine structures	The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects and includes consideration of the effects past, present and reasonably foreseeable projects.

Source	Issue	Proponent Response/Action
	such as jetties, piers, docks, bridges, and ports; climate change; and many more.	
Musqueam Nation	It is strongly recommended that a full comprehensive evaluation of potential cumulative effects that may emerge from this Project be undertaken to better understand potential Project effects on Musqueam rights, interests, and use.	<p>An assessment of potential cumulative effects on each proposed VC will be included in the Application. The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects and includes consideration of the effects past, present and reasonably foreseeable projects.</p> <p>Potential impacts of Project-related residual and cumulative effects on Musqueam's interests will be assessed in Part C of the Application.</p>
Lyackson First Nation	<p>Concerns regarding the cumulative effects of high levels of industry and commercial development on the lower Fraser River including the reduction of fish populations, and fish and wildlife habitat.</p> <p>Question as to what thresholds and benchmarks that will be used for the cumulative effects assessment.</p> <p>Question as to how Traditional Knowledge will be incorporated in this assessment.</p>	<p>An assessment of potential cumulative effects on each proposed VC, including Fish and Fish Habitat and Wildlife, will be included in the Application. The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's <i>Guideline for the Selection of Valued Components and Assessment of Potential Effects</i> and includes consideration of the effects past, present and reasonably foreseeable projects.</p> <p>These cumulative effects of past and ongoing projects and activities will be reflected in discussion of trends in the relevant sections of the Application. These will be informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application.</p> <p>The methodology used for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's Guideline for the Selection of Valued Components and Assessment of Potential Effects, which focuses on incremental effects of the Project. MOTI acknowledges that, given the urban setting of this Project, the potential incremental effects of the Project must be considered in a context where the abundance of resources to support the current use of those resources is already greatly diminished over historical levels. These cumulative effects of past and ongoing projects and activities will be acknowledged in the relevant sections of the Application (i.e., Part B through Part C).</p> <p>Traditional Knowledge regarding historical fish populations, fish use, and fish habitat locations provided by Aboriginal Groups through consultation or Project-specific studies, with permission for use in the Application, was used to provide context and inform the assessment of potential Project-related and cumulative effects.</p>

Source	Issue	Proponent Response/Action
Tsleil-Waututh Nation	<p>TWN expects a cumulative effects assessment to assess the visual effect of the current conditions in comparison to pre-development conditions. TWN is concerned that small incremental impacts will be overlooked as negligible if not assessed with a cumulative lens.</p>	<p>Information from Aboriginal Groups regarding landscape changes over time will be reflected in discussion of trends in the Visual Quality section of the Application. Sources of this information include Project-specific studies provided by Aboriginal Groups and consultation, subject to receiving permission for use in the Application.</p>
Musqueam Nation	<p>Comment that the assessment of preindustrial baselines and alterations to hydrology, accessible species, and impacts to heritage sites is necessary to understand cumulative impacts. Musqueam requests that the Proponent conduct a study to assess this topic.</p>	<p>The discussion on existing conditions of VCs/ICs presented in the Application will describe trends over time that have influenced these conditions, informed by ATK provided through Project-specific studies provided by Aboriginal Groups and through consultation (subject to permission for use in the Application).</p>

Contamination/Spills

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Concern regarding leaching and toxins coming from industrial areas along the south bank of Pattullo and interest in how this is being made better or worse by bridge design.	Any contamination that is encountered during bridge construction or decommissioning will be managed in accordance with applicable legislation (for example the <i>British Columbia Environmental Management Act</i> and Contaminated Sites Regulation).
Kwikwetlem First Nation, Tsleil-Waututh Nation, Musqueam Nation	Concern regarding waste, what will be done to address it and how it will be managed.	The Project will be managed to minimize the amount of construction-related waste generated, through recycling and re-use of waste material. Where disposal of waste is necessary, such activities will be conducted in accordance with the <i>Environmental Management Act</i> . Construction waste management procedures and approaches to be followed during construction will be outlined in the Construction Environmental Management Plan (CEMP), which will be included in the Application.
Tsawwassen First Nation	Re-fuelling or leaks/drips in construction equipment and vessels can result in accidental spills of hydrocarbons.	The potential for construction-related spills will be addressed in the Accidents and Malfunctions section of the Application. Standard best practices will ensure that potential effects associated with refueling are managed appropriately.
Tsawwassen First Nation	Accidental spills could contaminate a habitat, causing changes to water or soil chemistry and thus changing the intrinsic value of a habitat for local plants and animals. Accidental spills may directly poison or kill plants and animals that are important resources to other species or accumulate in lower trophic levels causing death or reproductive failure in higher trophic levels.	The potential for construction-related spills will be addressed in the Accidents and Malfunctions section of the Application. Standard best practices will ensure that potential effects associated with refueling are managed appropriately.
Tsawwassen First Nation	Interest in environmental remediation opportunities	The Proponent is committed to obtaining input from Schedule B Aboriginal Groups on habitat enhancement or restoration that may be undertaken as part of the Project.

Cultural Continuity

Source	Issue	Proponent Response/Action
Musqueam Nation	Request for information regarding how the proponent intends to integrate sense of place, cultural continuity, and inter-generational knowledge transfer in connection to Aboriginal fisheries into its Project assessment.	Based on the summary of information in Part C of the Application, an assessment of potential Project-related effects on Musqueam’s CULRTP will be presented in Section 11 of Part B. This assessment will be informed by the assessment of potential Project-related impacts on Musqueam’s Aboriginal Interests, as laid out in Part C. Both the CULRTP and Aboriginal Interests assessments will take into consideration, for example, Musqueam’s cultural continuity, sense of place and spirituality, access to and use of culturally important fishing areas, and cultural experience, including transmission of fishing-related knowledge.
Musqueam Nation	Concern that the current Heritage Resources VC focuses solely on archaeology through field studies. Musqueam’s cultural survival is contingent on cultural continuity, the factors for which go well being archaeological values.	Potential Project effects to cultural heritage sites are considered in the Heritage Resources section of the Application. Effects of past and ongoing projects and activities will be reflected in discussion of trends in this section and will be informed by information provided through Aboriginal Groups’ Project-specific studies and information provided through consultation. Related impacts to Musqueam’s cultural continuity will be assessed in Part C of the Application.
All	Importance of cultural continuity.	Noted. Potential Project effects to cultural heritage sites are considered in the Heritage Resources section of the Application. Effects of past and ongoing projects and activities will be reflected in discussion of trends in this section and will be informed by information provided through Aboriginal Groups’ Project-specific studies and information provided through consultation. Related impacts to Schedule B Aboriginal Groups’ cultural continuity will be assessed in Part C of the Application.
Musqueam Nation	Request for a detailed description of how the Project is likely to intersect and impact upon the multiple named sites in the area.	The Proponent has received information from Musqueam and other Aboriginal Groups regarding named sites within the Project boundary. This information will be used to inform the assessment of Project-related effects in the Heritage Resources chapter of the Application. The Proponent welcomes further discussion with Musqueam regarding the interaction of the Project with named sites and how any potential adverse effects on these sites and Musqueam's use of them can be avoided, minimized and/or mitigated.

Source	Issue	Proponent Response/Action
Musqueam Nation	Request for the assessment of Musqueam tangible and intangible cultural heritage. It is anticipated that the Proponent will address Musqueam semi- and intangible cultural heritage in the Project assessment (i.e. cultural continuity, sense of place, inter-generational knowledge transfer).	<p>Potential Project effects to tangible and intangible aspects of heritage resources will be evaluated in the Heritage Resources section of the Application.</p> <p>Potential cultural heritage effects on Aboriginal Groups resulting from Project-related changes to the environment will be included as part of the assessment of current use of land and resources for traditional purposes (Part B, Section 11) and the Aboriginal Interests assessment (Part C, Section 12), as outlined in the dAIR.</p> <p>The Project team is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.</p>
Musqueam Nation	Concern that negative impacts to fish stocks and fish habitat that may occur from the Project would similarly have deleterious effects on Musqueam's cultural continuity.	<p>Potential impacts of the Project to Aboriginal Interests will be discussed in Part C of the Application.</p> <p>The Proponent is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.</p>
Musqueam Nation	Concern that changes to the characteristics of the area may alter the emotional, psychological, and physical linkages Musqueam members have to the area. For instance, recognised and valued place features may be disrupted through the intensification of noise and marine traffic during Project construction and decommissioning, and physical changes to water flows, shorelines, and the local viewscape from the installation of the new bridge.	<p>Potential impacts of the Project to Aboriginal Interests will be discussed in Part C of the Application.</p> <p>The Proponent is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.</p>
Musqueam Nation	Project interactions with Musqueam's ability to fish would also cause adverse effects for knowledge transmission by disrupting opportunities for Musqueam members to teach and learn while on and off the water.	<p>Potential impacts of the Project to Aboriginal Interests will be discussed in Part C of the Application.</p> <p>The Proponent is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.</p>

Source	Issue	Proponent Response/Action
Lake Cowichan First Nation	Interest in Traditional Use and the revitalization of Lake Cowichan First Nation traditional practices.	Planning for site restoration and enhancement associated with the Project will be undertaken in consultation with Aboriginal Groups during the Application review phase.

Habitat Restoration

Source	Issue	Proponent Response/Action
All	Interest in habitat protection, restoration and enhancement. Examples provided by Aboriginal Groups include small tributaries on either side of the Fraser between the Pattullo and Coquitlam River, Como Creek, Brunette Creek, Pattullo Channel, Brownsville Creek, Bon Accord Creek and the “old stream” on the south side under the Pattullo Bridge.	<p>The Proponent is committed to obtaining input from Aboriginal Groups on habitat enhancement or restoration that may be undertaken as part of the Project.</p> <p>Opportunities for restoring historic wetlands and off-channel fish habitat within the footprint of the existing Pattullo Bridge will be explored as part of the Vegetation and Fish and Fish Habitat assessments. Further consultation with Aboriginal Groups on types and locations of restoration and offsetting will continue through Application review.</p>
Musqueam Nation	Interest in the identification of plans for restoration and enhancement opportunities, of both terrestrial and aquatic habitats, in order to bring a net increase of fish in the Project- affected area, including the planned location and nature of all habitat offset locations.	<p>The Proponent is assessing the potential for the Project to interact with terrestrial and aquatic habitats and the nature of such interactions, and identifying mitigation strategies, including offsetting or enhancement, as appropriate. Environmental enhancement opportunities will be described in the Application, and net gain following mitigation will be identified, where applicable.</p> <p>The Proponent is committed to obtaining input from Musqueam and other Aboriginal Groups on habitat enhancement or restoration that may be undertaken as part of the Project.</p>
Lake Cowichan First Nation	Interest in side-channel creation and ensuring areas that are gently shaded for fish.	Opportunities for restoring historic wetlands and off-channel fish habitat within the footprint of the existing Pattullo Bridge will be explored as part of the development of Project-related habitat restoration and enhancement plans. Further consultation with Aboriginal Groups on types and locations of restoration and offsetting will continue through Application review.

Source	Issue	Proponent Response/Action
Lyackson First Nation	Interest in the protection of fragile ecosystems.	The Proponent is assessing the potential for the Project to interact with terrestrial and aquatic habitats and the nature of such interactions, and identifying mitigation strategies, including offsetting or enhancement, as appropriate, to address potential Project-related effects. The Proponent is committed to obtaining input from Aboriginal Groups on habitat enhancement or restoration associated with the Project.
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation	Concern regarding the lack of consolidated effort to look at avenues for habitat compensation/restoration.	Environmental enhancement opportunities will be described in the Application, and net gain following mitigation will be identified, where applicable. The Proponent is committed to obtaining input from Aboriginal Groups on habitat enhancement or restoration that may be undertaken as part of the Project.
Kwikwetlem First Nation	Interest in ensuring further discussion between Kwikwetlem First Nation and the Proponent on habitat enhancement and offsetting. Request for a focused workshop on habitat enhancement and offsetting with the Proponent, Kwikwetlem First Nation and other Schedule B Aboriginal Groups.	Consultation with Aboriginal Groups will continue through the Application Review Phase. The Proponent has committed to focused discussions and planning with Aboriginal Groups regarding the Project's habitat enhancement/offsetting component and is planning for a workshop following submission of the Application.
Kwikwetlem First Nation	Specific interest in eulachon, sturgeon, sockeye restoration work being undertaken as a Project legacy.	
Kwikwetlem First Nation	Comment regarding the importance of considering cultural meaning and archaeology in habitat offsetting given the location of the Project.	
Lake Cowichan First Nation	Interest in the area being restored as healthy habitat for camping, food gathering and other purposes.	

Source	Issue	Proponent Response/Action
Lyackson First Nation	Although habitat protection in general is a good thing, it should be noted that restoration, enhancement and habitat protection in areas outside of the Project, may not be sufficient for mitigating migration barriers and/or offsetting the impacts that the Project will impose on the current ecosystem.	Lyackson's perspective is noted; MOTI is committed to continue working with Aboriginal Groups to obtain input on Project-focused habitat restoration, enhancement and offsetting measures.

Wildlife

Source	Issue	Proponent Response/Action
All	Concern regarding Project-related effects to terrestrial wildlife.	Potential effects of the Project on terrestrial wildlife will be assessed and recommended mitigations identified in the Wildlife section of the Application.
Lyackson First Nation, Musqueam Nation	Concern regarding wildlife in the Project footprint during Project construction and the potential for impacts to wildlife habitat, and consequently the ability to harvest these resources.	<p>Potential effects of the Project on terrestrial wildlife will be assessed and recommended mitigations identified in the Wildlife section of the Application.</p> <p>Potential impacts to habitat that could affect wildlife will be considered in the wildlife assessment.</p> <p>Impacts to Aboriginal Interests related to Project-related effects on wildlife will be assessed in Part C of the Application.</p>
Lyackson First Nation	Concern regarding impact on duck, geese, bald eagle and blue heron populations, due to direct interaction with Project activities.	Potential for Project-related activities to effect species identified as being of interest by Aboriginal Groups, including those identified in the comment (ie. mallards, Canada geese, bald eagles and blue herons) will be discussed in the Wildlife section of the Application.
Musqueam Nation	Concern regarding Project-related noise from construction and operations (i.e. traffic) having the potential to increase animal stress and lead to avoidance of the area.	Sensory disturbance to wildlife resulting from noise associated with Project construction will be addressed in the Wildlife section of the Application.

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Concern regarding seasonal timing of surveys and extent of surveys, and a need to consider rehabilitation of habitat conducive to revitalization.	<p>Surveys coincided with the breeding season to best capture the presence of resident wildlife and migratory birds. Visual encounter surveys supplemented species- or species group specific surveys for a more thorough coverage of current conditions.</p> <p>Replacing invasive plants with a diversity of native species is proposed in all areas of temporary disturbance, which will revitalize wildlife habitat. The Proponent looks forward to Kwikwetlem’s undertaking a vegetation survey which will inform this invasive species management and vegetation restoration plan.</p>
Tsawwassen First Nation	<p>Potential wildlife-related impacts of the Project that are of concern to Tsawwassen Members include:</p> <ul style="list-style-type: none"> • loss or restriction of harvest opportunity • disturbance and displacement of wildlife species • loss or degradation of wildlife habitat • increased wildlife mortality due to vehicle collisions. 	<p>Potential effects of the Project on wildlife and their habitat will be assessed in the Wildlife section of the Application.</p> <p>Impacts of potential Project-related effects on wildlife and their habitat on current use of land and resources for traditional purposes and Aboriginal Interests will be discussed in Section 11.0 (Summary of Statutory requirements under CEAA 2012) and Part C of the Application.</p>
Tsawwassen First Nation	Concern that the exercise of the Tsawwassen Right to Harvest Wildlife, to Harvest Migratory birds, and to Harvest Plants may be impacted by the displacement of wildlife species in the area that are available to hunt, due to the presence of workers and equipment, and activities related to the Project.	<p>Potential effects of the Project on wildlife and their habitat will be assessed in the Wildlife section of the Application.</p> <p>Impacts of potential Project-related effects on wildlife and their habitat on current use of land and resources for traditional purposes and Aboriginal Interests will be discussed in Section 11.0 (Summary of Statutory requirements under CEAA 2012) and Part C of the Application. In accordance with the Project’s Section 11 Order, the definition of Aboriginal Interests used, includes the determined treaty rights of the Tsawwassen First Nation.</p>

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Interest in enhancement and mitigation strategies that support the installation of wildlife trees or structures of a size to support the return and revitalization of large bird species. Smaller wildlife trees that can support smaller nesting cavities should be a priority in all parts of the Project area, but especially on the south side.	Noted. Potential impacts to birds, including potential impacts to habitat for species at risk, will be assessed in the Wildlife section of the Application, and mitigation measures to address potential adverse effects will be proposed.
Musqueam Nation	Concern regarding the shifting of migratory/flight patterns.	Project effects on migratory birds is within scope of the environmental assessment studies and will be assessed in the Wildlife section of the Application.
Tsleil-Waututh Nation	Concern regarding bat species not being included in the wildlife assessment.	There are no habitat features to accommodate this species group's critical life history requisites (i.e. overwintering bats or maternal colonies). It was consequently not listed as a VC during the environmental assessment process.
Lyackson First Nation	Concern regarding the timing of wildlife studies.	Surveys coincided with the breeding season to best capture the presence of resident wildlife and migratory birds. Visual encounter surveys supplemented species- or species group specific surveys for a more thorough coverage of current conditions.
Kwikwetlem First Nation	With respect to the data collection area referenced in the draft wildlife survey, there is concern that the 250 metre buffer is not sufficient for species subject to disturbance, such as raptors and heron.	Predators have the largest spatial requirements for habitat. Urban raptors are the largest predator in the LSA. Urban raptor mitigation is achieved through a no disturbance buffer of 1.5 tree lengths, and an additional noise buffer of 100 m according to the provincial raptor conservation guidelines. The LSA dimensions are twice as large. A 250 m buffer was used for projects of similar scope and size in the lower mainland.

Source	Issue	Proponent Response/Action
Kwkwetlem First Nation	Concern that that some seasonality might be missed in wildlife surveys. For example, 4 call-playback surveys may be insufficient. Similarly, it is difficult to assess whether five VES transects conducted to document general wildlife observations in the bigger vegetation patches of the LSA are sufficient to capture biological/seasonal variable/presence. This same concern applies to observations of "no signs of river otter, mink, or other riverine obligates; nor were there signs of other wildlife species commonly found in edge or riparian habitats such as snakes or amphibians".	The Proponent is of the view that surveys were suitable for a highly developed area and successfully capture the local species assemblage based on site characteristics. Surveys targeted not only species sightings and signs of occurrence, but the habitat features that would accommodate each species/species group. The environmental assessment extrapolates from these observations accordingly, so that mitigation addresses all potential wildlife in the LSA.
Kwkwetlem First Nation	Request for analysis on exactly how degraded wildlife habitats are, and the potential for rehabilitation of such habitats through future mitigation. That mitigation could include artificial nesting sites, especially in the light of a dearth of observed large trees in the LSA.	Available habitats are well described in the wildlife and vegetation baseline reports and in the equivalent sections of the environmental assessment Application. The Wildlife environmental assessment chapter references the Vegetation environmental assessment chapter, where additional habitat information is needed. Proposed mitigation will include replacement of invasive plants with a diversity of native species, in all temporarily disturbed areas. Habitat restoration is proposed in the most extensive riparian areas under the existing Pattullo Bridge in Surrey. The Proponent looks forward to Kwkwetlem's undertaking a vegetation survey which will inform this invasive species management and vegetation restoration plan.

Source	Issue	Proponent Response/Action
Kwkwetlem First Nation	Request for the Proponent to consider compiling recorded historic preindustrial ecosystem and wildlife patterns in the area in order to strategize priority mitigation goals. Restoring and revitalizing species, ecosystems of varying type, terrestrial and avian movement corridors is a key priority. Reviving habitats to support highest at-risk native species is critical.	<p>Aboriginal Traditional Knowledge where provided in Project-specific studies provided by Aboriginal Groups and through consultation (subject to permission for use in the Application) and historical source material will be reviewed to inform the understanding of existing conditions of VCs, including trends over time, and presented in the relevant sections of the Application.</p> <p>The Proponent looks forward to Kwkwetlem’s ongoing input into the effects assessment and to upcoming planning for habitat restoration.</p>
Kwkwetlem First Nation	Request for enhancement and mitigation strategies that support the installation of wildlife trees or structures of a size to support the return and revitalization of large bird species (osprey, red-tailed hawk, bald eagle, heron). Smaller wildlife trees that can support smaller nesting cavities should be a priority in all parts of -the Project area, but especially on the south side.	Noted. The Proponent looks forward to Kwkwetlem’s vegetation survey and input into upcoming planning for habitat restoration.
Kwkwetlem First Nation	Request for the implementation of pre-construction wildlife surveys to assess the Project area for the presence of low density wildlife that may not have been apparent during the very limited baseline field surveys.	Pre-construction wildlife surveys will be conducted which will inform site-specific mitigation strategies to address potential Project-related effects.

Source	Issue	Proponent Response/Action
Musqueam Nation	Interest in the restoration and protection of the two riparian zones in the LSA being a priority. Not only would this maintain the remaining riparian areas within an industrialized zone it would also serve the multiple purposes of habitat offset and mitigations strategies by providing a natural buffer to bridge activities, recreational possibility and also aiding in preserving Musqueam presence.	The Proponent will continue to work with Musqueam and other Aboriginal Groups in Project-related habitat restoration and enhancement planning.
Musqueam Nation	Comment that while most animals are culturally important screech owls are messengers from the other side.	The significance of screech-owls is noted. There were surveys targeting this species, and the species will be surveyed again prior to construction.
Musqueam Nation	Concern regarding the shifting of migratory/flight patterns due to reliance on migratory birds for a variety of needs.	Noted. Potential Project-related effects on migratory birds is within scope of the environmental assessment studies and will be assessed in the Wildlife section of the Application.
Musqueam Nation	Comment that there are mink downstream and recommendation that the area be carefully reviewed for them.	Surveys for potential mink and river otter habitat were conducted, and no suitable denning microhabitats were observed. To err on the side of caution, a pre-construction survey for riverine species will be conducted along the Fraser River's south shore prior to the dismantling of the current Pattullo Bridge.
Lyackson First Nation	Question as to how Traditional knowledge will be incorporated in the wildlife surveys and identification of wildlife habitat.	Traditional knowledge, where provided by Aboriginal Groups with permission for use in the Application, in combination with other pertinent published data was used to gain context on the general habitat characteristics, wildlife assemblage, and potential species at risk within the assessment area, and inform subsequent field surveys.

Vegetation

Source	Issue	Proponent Response/Action
Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation, Lake Cowichan First Nation, Musqueam Nation, Kwikwetlem First Nation, Lake Cowichan First Nation, Tsawwassen First Nation	Request the use of traditional plants and trees in revegetation plans.	The environmental assessment Application will note that site restoration/revegetation plans will be informed by input from Aboriginal Groups, including vegetation studies completed by Aboriginal Groups. Consultation is ongoing and Aboriginal Groups will have an opportunity to provide input into planting and other management plans.
Musqueam Nation	Comment regarding the importance of a culturally informed revegetation Plan.	Information on culturally important species obtained from Project-specific studies provided by Aboriginal Groups and through consultation with Aboriginal Groups will be considered in the Vegetation section of the Application, including proposed mitigations. Consultation with Aboriginal Groups is ongoing and additional input will be sought in the development of a revegetation plan.
Lyackson First Nation, Musqueam Nation	Concern regarding the disturbance of green space and other riparian areas in the Project footprint during Project construction, potentially impacting native plant species.	Assessment of the Vegetation VC will address potential effects of Project-related disturbance of green space and riparian areas within the Project footprint on native plant species during Project construction. Potential disturbance of riparian areas within the Project footprint during construction will also be addressed in the assessment of Fish and Fish Habitat VC. The results of these two assessments will inform assessment of the Wildlife VC, which will include consideration of disturbance to wildlife habitat within the Project footprint during Project construction.

Source	Issue	Proponent Response/Action
Musqueam Nation, Tsawwassen First Nation, Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation	Concern regarding the introduction of invasive species/management of invasive species.	Potential for the introduction of invasive plant species to the Project area through construction-related activities and measures proposed to avoid them will be discussed in the Vegetation section of the Application.
Musqueam Nation	Request that Proponent work with Musqueam's AHRP department to develop an Invasive Species removal and Native Plant Restoration Plan.	The Proponent has committed to further discussion with Musqueam regarding the development of an invasive species removal and native plant plan.
Musqueam Nation	Project-related noise likely to decrease ability to harvest plant, particularly medicine plants, and to rehabilitate and restore species and their habitats to be able to harvest in the future.	Project-related changes in noise conditions will be assessed in the Noise & Vibration section of the Application and will include locations identified as important by Aboriginal Groups such as on the water and on the south shoreline (in Brownsville Bar Park). Potential influences of those changes in noise conditions will be considered in the assessment of current use of land and resources for traditional purposes of the Application. Impacts to Aboriginal Interests related to Project-Related effects on vegetation, wildlife and fish will be assessed in Part C of the Application.
Tsleil-Waututh Nation, Musqueam Nation	Concern that the Project will impact traditional plant gathering areas.	Impacts to Aboriginal Interests related to Project-related effects on vegetation will be assessed in Part C of the Application. This assessment will be supported by the assessment of Project related effects on the Vegetation VC. Baseline vegetation studies were undertaken and the draft report was shared with Aboriginal Groups for review and comment. Feedback received from Aboriginal Groups through Project-specific studies and consultation will be considered in the vegetation assessment, subject to receiving permission for use in the Application.

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Comment that KFN supports the implementation of select area pre-construction plant surveys to assess and appropriately mitigate the presence of rare plants and plants with a narrow seasonal window.	Noted. Early- and late-flowering pre-construction surveys will be conducted.
Kwikwetlem First Nation	Request for Proponent to consider compiling recorded historic stream mapping, preindustrial ecosystem mapping, and recorded information on preindustrial plant species in the Project area to plan and strategize mitigation goals. Comment that restoring and revitalizing ecosystems to support economically valued plants is a key priority for KFN.	The Proponent will be incorporating any information provided by Kwikwetlem through its upcoming vegetation survey or through any other means in habitat restoration planning. Other sources of information for informing vegetation restoration planning will be considered as those plans are developed.
Musqueam Nation	Comment that there should have been a cumulative impacts assessment to determine what plant species were previously in the area. Some of this can be gleaned from TUS and from surveyor records. This would inform the historic Project impacts, potential current impacts, and re-vegetation discussions with Musqueam.	The discussion of existing conditions for relevant VCs will include existing conditions and trends. This includes discussion of how existing conditions for specific VCs have been influenced by past human activities. This will be as informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application. Information about historic vegetation will be considered in planning for restoration which will be further informed by discussions with Musqueam.
Musqueam Nation	Concern regarding pollution or runoff potentially affecting marine/intertidal/riparian vegetation.	There are no marine or intertidal plant species in, or immediately downstream of the LSA (the salt wedge is further downstream). Pollution or runoff is not expected to affect riparian vegetation as terrestrial plants can process and neutralize contaminants without any structural or functional damage to their system.

Source	Issue	Proponent Response/Action
Tsleil-Waututh Nation	Comment regarding environmental integrity and the importance of using an ecosystem approach, with a net environmental benefit to the area.	<p>The Proponent is working with the EAO and members of the Advisory Working Group to ensure that the methodology used to support the assessment of environmental values is consistent with current best practice and guidance materials that support the assessment of projects under the British Columbia <i>Environmental Assessment Act</i>.</p> <p>The Proponent is committed to further consultation with Aboriginal Groups on Project-related offsetting/enhancement strategies.</p>

Heritage

Source	Issue	Proponent Response/Action
All	Concern with potential impacts to archaeological and heritage resources and importance of protection of cultural heritage.	<p>Potential impacts to archaeological and heritage resources will be assessed in the Heritage Resources section of the Application.</p> <p>The Proponent will continue to work with Aboriginal Groups to minimize and/or mitigate potential impacts to these resources.</p>
Katzie First Nation, Kwantlen First Nation, Semiahmoo First Nation, Kwkwetlem First Nation	Comment that concerted effort should be made to find the transformer stone; if found, suggestion to reinstall on the bank of the river. Measures are required to address the cultural sensitivities and make appropriate restitutions for the spirit site and home of the transformer stone.	The Proponent is committed to working with Aboriginal Groups to develop plans and protocols for working in areas with archaeological potential, including areas where the transformer stone could be located. It is also committed to further consultation with Aboriginal Groups about the appropriate relocation of the transformer stone if it is encountered during Project activities.
Kwkwetlem First Nation	Concern that hydraulic modelling should include intertidal archaeological site locations.	Assessment of potential Project induced change to patterns of shoreline erosion or channel reconfiguration, including scour and deposition, is a fundamental goal of the hydraulic modelling. The potential for impacts on intertidal archaeological site locations is informed by this model and will be assessed in the Heritage Resources section of the Application.
Tsawwassen First Nation	Comment that heritage activities of Aboriginal people extend into the present time and into the future. Heritage practises that need to come in the future need to be taken into consideration in the environmental assessment.	Clarification about the referenced practices/activities is requested.

Source	Issue	Proponent Response/Action
Musqueam Nation	Comment that archaeology is an aspect of heritage. Heritage resources must be understood as the tangible and intangible aspects of Musqueam’s culture passed down from their ancestors and to which there is an onus to protect and maintain for successive generations. Heritage resources include, but are not limited to, transformer sites, s̓x̓eləqəm sites, named sites, “archaeological” sites, spiritual use sites (e.g. bath sites), aspects of the landscape and all associated hən̓q̓əmi̓h̓əm language and knowledge. Heritage resources are central to Musqueam’s continuity and sense of place.	<p>Potential Project effects to cultural heritage sites and resources are considered in the Heritage Resources section of the Application, which includes archaeological resources. The Proponent has received information from Musqueam and other Aboriginal Groups regarding named sites and other heritage resources within the Project Boundary. This information is will be used to inform the assessment of Project-related effects in the Heritage Resources chapter of the Application.</p> <p>Related impacts to Musqueam’s cultural continuity and sense of place will be assessed in Part C of the Application.</p> <p>The Proponent is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.</p>
Kwikwetlem First Nation	Concern that additional archaeological investigation be undertaken in advance of construction and importance of Aboriginal involvement in future archaeological work.	Involvement of Aboriginal Groups will be considered in any archaeological work undertaken in advance of Project construction.
Musqueam Nation	Importance of bringing concepts of heritage closer to Musqueam’s understanding of heritage. Intangible areas are important – names, transformer sites, teaching areas. The river itself is a heritage site.	Noted. The Proponent has sought input from Musqueam and other Aboriginal Groups to inform the development of the Application, including the Heritage Resources section. Information provided by Musqueam has been considered in the preparation of the Application. The Proponent has received information from Musqueam and other Aboriginal Groups regarding named sites and other heritage resources within the Project Boundary. This information will be integrated into the Application. The section of the Heritage study to which this comment specifically referred, has been updated.

Source	Issue	Proponent Response/Action
Kwkwetlem First Nation	<p>With historic development in the area, site protection has been treated poorly. Request for an increased level of effort by the Proponent to protect sites which includes modifying plans and design.</p> <p>Request for the ability to be able to make contributions with respect to sites and methods. To inform the Project how they can proceed without impacting the site. Importance of site protection being prioritized over mitigation.</p> <p>Comment that mitigation is used to accept impacts on culture and the continued chipping away at cultural heritage. Archaeological sites are considered something of the past but they are part of our culture being lived today, part of our identity and who we are. Impacts to cultural heritage are impacting First Nations identity.</p>	<p>Aboriginal consultation is ongoing. To date Aboriginal Groups have participated in the Proponent's archaeological fieldwork program and have been provided the opportunity to review and comment on draft archaeological documents/plans. The Proponent will continue to consult Kwkwetlem First Nation and other Aboriginal Groups with respect to the archaeological component of the Project, including mitigation and site protection measures.</p>
Kwkwetlem First Nation	<p>Concerns regarding ancestral remains on the New Westminster side of the Project and importance of dialogue regarding ancestral remains with Aboriginal Groups.</p>	<p>The Proponent will undertake further consultation with Aboriginal Groups to ensure ancestral remains are treated appropriately and respectfully, in accordance with the Project's ancestral remains policy which is being updated in consultation with Aboriginal Groups.</p>
Kwkwetlem First Nation	<p>Request for a cultural heritage and archaeological orientation session done by First Nations with the contractor at the start of Project construction to ensure full awareness of the significance of cultural heritage and archaeology to First Nations.</p>	<p>The Proponent will work with Kwkwetlem First Nation and other Aboriginal Groups to explore the opportunity for a First Nations-led orientation session/awareness training for the contractor.</p>

Source	Issue	Proponent Response/Action
Cowichan Tribes, Halalt First Nation, Penelakut Tribe, Stz'uminus First Nation, Lake Cowichan First Nation	Archaeology and importance of indigenous cultural/archaeological monitors being onsite during construction and participating in monitoring.	Aboriginal Groups' involvement will be considered in any archaeological work undertaken in advance of Project construction.

River Hydraulics and Morphology

Source	Issue	Proponent Response/Action
All	Concern regarding water flow changes and impacts on fisheries and fishing.	<p>Potential changes to river flow conditions will be assessed in the Fraser River Hydraulics and Morphology section of the Application. Project-related effects to Fraser River hydraulics and morphology support the assessment of potential Project impacts to fisheries and fishing in the following manner:</p> <p>With regard to Aboriginal fisheries, the focus of the Marine Use VC will be to describe those fisheries as regulated by DFO (i.e., timing and frequency of communal FSC licences, limited participation licences, and licences with an allowance for sale), in the context of commercial and recreational fisheries that are also regulated by DFO as part of DFO's CRA regime.</p>
Musqueam Nation	Concern that the proposed Project is located at one of the narrowest sections and areas most severely impacted by scouring and deposition along the lower Fraser River. Concern regarding the potential to impact river hydraulics and morphology and to cause additive synergistic contributions to existing and already substantial cumulative effects on the Fraser River.	The Proponent acknowledges the potential for the Project to affect the hydraulics and morphology of the Fraser River. The assessment of potential effects of the Project on Fraser River hydraulics and morphology is ongoing. Details on the approach/methodology for this assessment were shared with the Advisory Working Group meeting on October 23, 2017. Results of this assessment, including the nature and magnitude of the effects of the Project and measures proposed for avoiding or mitigating them, will be described in the Application.

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern regarding hydrological changes as a result of piers in the river, including installation and removal.	The Proponent acknowledges the potential for the Project to affect the hydraulics and morphology of the Fraser River. The assessment of potential effects of the Project on Fraser River hydraulics and morphology is ongoing. Details on the approach/methodology for this assessment were shared with the Advisory Working Group meeting on October 23, 2017. Results of this assessment, including the nature and magnitude of the effects of the Project and measures proposed for avoiding or mitigating them, will be described in the Application.
Kwikwetlem First Nation	Interest in understanding how the sensitive habitat areas in the hydraulic modelling were identified.	The hydraulic modelling will be used to inform the assessment of potential impacts on Fish and Fish Habitat in the Fish and Fish Habitat section of the Application. Areas of sensitive habitat for consideration in the assessment have been identified by the Fish and Fish Habitat assessment team. This identification was supported by a review of Traditional Knowledge provided by Aboriginal Groups in Project-specific studies or during consultation, by review of scientific and related literature and by the team's background knowledge and experience.
Kwikwetlem First Nation	Concern regarding changing patterns of shoreline erosion or reconfiguration stemming from the new bridge construction.	Potential for changing patterns of shoreline erosion or reconfiguration stemming from new bridge construction will be assessed in the Fraser River Hydraulics & Morphology section of the Application.
Lyackson First Nation	DFO's regulations may not sufficiently address First Nations' concerns with respect to fisheries and fishing.	Lyackson's comment is noted. Scoping of the fish and fish habitat assessment has been informed by input received from Aboriginal Groups through consultation and EAO's Working Group process. To help better understand concerns related to fisheries and fishing, and scope the assessment accordingly, an early draft of the Fish and Fish Habitat baseline study was shared with Aboriginal Groups for review, and a focused meeting with Working Group members with a specific interest in fish and fish habitat was conducted; feedback received was used to update the baseline report and refine the scope of assessment. MOTI is committed to continue working with Aboriginal Groups to obtain input on Project-related fish and fish habitat mitigation and management strategies.

Valued Components

Source	Issue	Proponent Response/Action
Kwikwetlem First Nation	Forage fish such as shiners not included in the VC document.	Noted. The assessment will consider potential adverse effects of the Project on “forage fish” (e.g. fish that are prey to the identified species that form part of Commercial, Recreational and Aboriginal fisheries as defined in the Canada <i>Fisheries Act</i>). The VC Selection and Rationale Document has been updated accordingly.
Kwikwetlem First Nation	Project needs to recognize the Pattullo Bridge as an Indigenous site and it should be recognized as a VC in the dAIR.	The Proponent will seek further clarification on the comment from Kwikwetlem First Nation during on-going consultation.
Musqueam Nation	Concern that Aboriginal Rights and title, including CEAA, 2012, 5 (1)(c) requirements should be addressed in the draft VC document, rather than in Part C requirements.	CEAA 2012, 5(1)(c) requirements will be summarized in Chapter 11 of the Application, with reference to specific VCs. Potential impact of Project-related effects on the environment on Aboriginal Interests will be assessed in Part C of the Application.
Musqueam Nation	A VC is necessary for the assessment of both tangible and intangible cultural heritage, specific to Musqueam.	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be summarized in Section 11 of the Application. The Project team is committed to continue working with Musqueam to identify measures to avoid, minimize or mitigate potential Project effects on cultural continuity, sense of place, intergenerational knowledge and other related Musqueam values.
Musqueam Nation	A VC is necessary for the assessment of effects on current and future harvesting and cultural rights-based activities within the Project area.	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application. Impacts to Aboriginal Interests will be discussed in Part C of the Application.

Source	Issue	Proponent Response/Action
Musqueam Nation	A VC is required for the assessment of socio-economic and health conditions, specific to Musqueam.	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application. Impacts to Aboriginal Interests will be discussed in Part C of the Application.
Musqueam Nation	The baseline information the Proponent is planning to use in relation to VC's of importance to Musqueam, (e.g., fish and fish habitat, current and future traditional use, river navigation, access and use, etc.), is examined between the parties and information gaps identified.	The Proponent has shared early drafts of baseline information on key VCs/ICs with Aboriginal Groups, for review and comment. Comments received from Musqueam have informed the development of the Application.
Musqueam Nation	Concern regarding the concept of "Intermediate Components" for end point values such as air quality, water quality, and atmospheric noise (i.e., acoustic environment), and requests that these specific values be designated as VCs.	The Proponent notes that the environmental assessment approach proposed for the proposed Project is consistent with EAO guidance-specifically, Guideline for the Selection of Valued Components and Assessment of Potential Effects (2013), and current practice, as reflected by EAO review of current/recent Environmental Assessment Certificate Applications.
Musqueam Nation	A VC is required for the assessment of effects on current and future harvesting and cultural rights-based activities	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application. Impacts to Aboriginal Interests will be discussed in Part C of the Application.
Musqueam Nation	No Indigenous perspectives, VCs or Indicators, have been integrated into the VC Document.	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. Impacts to Aboriginal Interests will be discussed in Part C of the Application. Indigenous perspectives have been included in the Application, including information provided by Aboriginal Groups through Project-specific studies, comments on baseline reports and through other consultation.

Source	Issue	Proponent Response/Action
Musqueam Nation	No explanation of VC selection process (exclusion/inclusion) has been provided.	<p>The Proponent notes that the environmental assessment approach proposed for the proposed Project, including the VC selection process, is consistent with EAO guidance-specifically, Guideline for the Selection of Valued Components and Assessment of Potential Effects (2013), and current practice, as reflected by EAO review of current/recent Environmental Assessment Certificate Applications.</p> <p>Further information on the selection of VCs is provided in the Project’s Valued Components Selection and Rationale document. Evolving versions of this document have been provided by EAO to the Working Group and updates have been made, informed by comments from Working Group members.</p>
Musqueam Nation	Proposed indicators and measurable parameters are undeveloped. The Proponent indicates its intention to defer key aspects of the VC Selection Document until the Application. This is not acceptable and at variance with other environmental assessments.	Indicators proposed for assessing Project-related effects on VCs are identified in the dAIR. Evolving versions of this document have been provided by EAO to the Working Group and updates have been made, informed by comments from Working Group members.
Musqueam Nation	A number of VCs that should be treated as “end-point receptors” worthy of a significance determination have been incorrectly assigned to be “Intermediate Components” that would not be assessed for significance, e.g., surface water and sediment quality, soil and groundwater quality, etc.	The Proponent notes that the environmental assessment approach proposed for the proposed Project is consistent with EAO guidance-specifically, Guideline for the Selection of Valued Components and Assessment of Potential Effects (2013), and current practice, as reflected by EAO review of current/recent Environmental Assessment Certificate Applications.
Musqueam Nation	Federal CEAA 2012 5(1)(c) requirements for assessing effects on Aboriginal peoples have been omitted from the VC Selection document	<p>The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application.</p> <p>Impacts to Aboriginal Interests will be discussed in Part C of the Application.</p> <p>This approach is outlined in the dAIR.</p>

Source	Issue	Proponent Response/Action
Musqueam Nation	Unexplained references to “sections” in another unidentified document appear throughout the VC Selection document. Are these in reference to the dAIR? The draft Application? Other?	The Proponent requests clarification from Musqueam Nation.
Musqueam Nation	Musqueam has identified three rights-based VCs that may be impacted by the Project: cultural continuity; sense of place; fish.	The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application. Impacts to Aboriginal Interests will be discussed in Part C of the Application.
Tsleil-Waututh Nation	It is important that climate change be explicitly incorporated into the relevant VCs, if not become a stand-alone VC. Climate change is especially important for the marine and air VCs and ICs.	The potential for the Project to contribute to greenhouse gas emissions will be assessed in the Air Quality section of the Application. Climate change for example, with respect to increasing water temperatures, is considered in the Fish and Fish Habitat section of the Application. Any effects to Aboriginal fishing, which result from changes in fish abundance identified in the Fish and Fish Habitat chapter or changes in river hydraulics that could affect marine use will be considered in Part C of the Application.
Tsleil-Waututh Nation	Heritage Resource VC should incorporate archaeological and cultural heritage sites, impacts to cultural or spiritual practices and places, cultural transmission, cultural travel (this can be linked to the Aboriginal component of human health VC)	Potential Project related effects to cultural heritage sites are considered in the Heritage Resources section of the Application. Potential cultural heritage effects on Aboriginal Groups resulting from Project-related changes to the environment will be included as part of the assessment of current use of land and resources for traditional purposes (Part B) and the Aboriginal Interests assessment (Part C), as outlined in the dAIR.
Tsleil-Waututh Nation	Do not feel that the Heritage VC is robust enough; it needs to be broken down into more detailed elements. Project location is crucial because of the Village site.	The Proponent acknowledges the importance of the Project area, including village sites on the north and south shores. Further information on the proposed approach to assessment of Heritage Resources is provided in the Project’s dAIR.

Source	Issue	Proponent Response/Action
Tsleil-Waututh Nation	Would like to see the human health VC include an Aboriginal specific component for both aboriginal individuals and communities.	Impacts on human health that could disproportionately affect Aboriginal peoples will be assessed in the Physical Determinants Human Health and Social Determinants of Human Health sections of the Application. Impacts that are related specifically to Aboriginal Interests will be assessed in Part C of the Application.
Tsleil-Waututh Nation	<p>Would like to see these included as VCs:</p> <ul style="list-style-type: none"> - Air quality - Climate change - Traffic <p>Would like to see these added, or better understand why they were excluded at this point:</p> <ul style="list-style-type: none"> - Regional Traffic or transportation - Terrestrial Wildlife - Agricultural use (if applicable) - Underwater Noise - Marine Mammals - Environmental integrity (using an ecosystem approach to understanding Project impacts to its environment) 	<p>Air Quality is included as an IC that will inform the assessment of VCs including Wildlife and Physical Determinants of Human Health.</p> <p>The influence of climate change on the Project is considered in the design of the Project and will be discussed in the Application. Greenhouse gases will be included as part of the assessment of air quality. Changes in traffic volumes and patterns will inform the assessment of several VCs and ICs, including Air Quality, Noise and Community Cohesion.</p> <p>Terrestrial wildlife is included as a VC (“Wildlife”).</p> <p>Changes in land use will be assessed as part of the Land Use VC. The Proponent notes that no agricultural uses have been identified in the area that is expected to be influenced by the Project.</p> <p>Underwater Noise will be assessed as part of the Fish and Fish Habitat VC.</p> <p>Marine mammals are excluded as a VC because as there is no marine influence in the Project area, it does not support suitable habitat for marine mammals.</p> <p>With respect to assessment approach, the Proponent notes that the environmental assessment approach proposed for the proposed Project is consistent with EAO guidance-specifically, Guideline for the Selection of Valued Components and Assessment of Potential Effects (2013), and current practice, as reflected by EAO review of current/recent environmental assessment certificate Applications.</p>

Source	Issue	Proponent Response/Action
Musqueam Nation	Federal environmental assessment requirements under section 5(1)(c) must be incorporated into the VC Document, including distinct, stand-alone VCs for the following: -Health and socio-economic conditions; -Cultural heritage; -The current use of land and resources for traditional purposes; and -Any structure, site or thing that is of historical, archaeological, paleontological, or structural significance.	Section 4.3 has been amended to include Section 4.3.2 Consideration of CEAA 2012 Requirements, which outlines the CEAA 2012 factors that will be assessed in the Application. The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be assessed under relevant VCs/ICs, and summarized in Section 11 of the Application. Impacts to Aboriginal Interests will be discussed in Part C of the Application.
Musqueam Nation	The VC Document should clarify that a cumulative effects assessment and significance determination based on consideration of both Project residual effects and cumulative-residual effects must be undertaken for all VCs.	The methodology proposed for determining residual Project effects and subsequent cumulative effects assessment is based on the EAO's <i>Guideline for the Selection of Valued Components and Assessment of Potential Effects</i> and includes consideration of the effects past, present and reasonably foreseeable projects. The discussion of existing conditions for relevant VCs will include existing conditions and trends. This includes discussion of how existing conditions for specific VCs have been influenced by past human activities. This will be as informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application.
Musqueam Nation	The VC Document should refer to the "sixth pillar" of environmental assessment: the assessment of impacts on Aboriginal rights and title. The VC Document should explain how the Proponent intends to support the assessment of impacts to Aboriginal rights and title.	The Proponent has followed EAO guidance on the five pillars of assessment. The Proponent understands that the practice of Aboriginal Interests cross-cuts several of these pillars, and that Part C is where potential adverse impact to the practice of Aboriginal Interests linked to these pillars are assessed. The Proponent acknowledges the need for the Part B assessments to meaningfully inform the Part C assessment. The VC Document has been updated to reflect Musqueam's request to include an explanation of how the Proponent intends to support the assessment of potential adverse impacts to the practice of Aboriginal Interests. These updates have been informed by Musqueam's comments regarding the bridging of Part B and Part C and the braiding of Aboriginal Traditional Knowledge into the Part B assessments.

Source	Issue	Proponent Response/Action
Musqueam Nation	For greater certainty, Musqueam requests that soil and groundwater, surface water and sediment, noise and vibration and air quality (including GHGs) be included as VCs and that a significance determination be conducted for each.	The Proponent notes that the environmental assessment approach proposed for the proposed Project is consistent with EAO guidance-specifically, Guideline for the Selection of Valued Components and Assessment of Potential Effects (2013), and current practice, as reflected by EAO review of current/recent Environmental Assessment Certificate Applications.

Land Use

Source	Issue	Proponent Response/Action
Musqueam Nation	Concern that land may be disposed of without appropriate consultation.	The Ministry of Forests Lands and Natural Resource Operations, who is currently responsible for land disposition, has been made aware of this comment.

Noise

Source	Issue	Proponent Response/Action
Musqueam Nation, Tsawwassen First Nation, Kwikwetlem First Nation, Kwantlen First Nation	Comment that both surface and in water noise levels are important to monitor.	Potential changes in atmospheric noise will be assessed in the Noise section of the Application. Potential effects of underwater noise will be discussed in the Fish and Fish Habitat section of the Application. These sections will propose mitigation measures, including monitoring, as appropriate.
Musqueam Nation	Comment that noise levels should be monitored along any proposed Project footprints as well as the existing bridge location.	Potential changes in atmospheric noise will be assessed in the Noise section of the Application. Mitigation measures, including monitoring, will be proposed in this section as appropriate.
Tsawwassen First Nation	Concern regarding potential impact of noise on people using the river and adjacent areas.	Potential changes in atmospheric noise will be assessed in the Noise section of the Application. In response to comments from Aboriginal Groups about potential noise impacts to users on the river, an on-river noise receptor was added to this assessment.

Source	Issue	Proponent Response/Action
Lake Cowichan First Nation	Interest in the integration of noise reduction measures in design/noise abatement.	Where Project-related noise impacts are predicted, the Noise and Vibration section of the Application will identify strategies for addressing such increases.
Kwikwetlem First Nation	Concerns regarding effects of underwater noise on eulachon spawning.	Potential for Project-related activities to change underwater noise conditions, and the impact of any such change on fish will be included in the fish and fish habitat assessment presented in the Application.
Kwikwetlem First Nation	Request for the Proponent to approach assessing atmospheric noise in a manner consistent with Health Canada's/Port of Vancouver's approaches. If the Project results in noise, then it should be considered a Project impact and the Proponent should work with others such as the railroad to reduce the impact.	<p>Atmospheric noise assessment will be undertaken in a manner that supports the assessment of noise-related effects on human health consistent with Health Canada's guidance.</p> <p>The Proponent is committed to reducing the impact of Project-related increase in ambient noise levels on human health. Change in ambient noise levels at sensitive receptor locations due to Project-related changes in traffic conditions, and measures proposed to reduce such changes will be described in the Application under Noise and Vibration. Potential human health implications of Project-induced change in noise conditions will be discussed under the Health Assessment.</p>
Kwantlen First Nation, Katzie First Nation, Kwikwetlem First Nation, Musqueam Nation, Semiahmoo First Nation, Tsleil-Waututh Nation	Concern regarding aquatic acoustic effects (underwater noise and vibration) on fish migration, habitat, behavior patterns.	Potential Project-related change in underwater noise conditions and consequent effect on fish and fish habitat will be discussed in the Application under Fish and Fish Habitat. (Section 4.3).
Kwantlen First Nation	Comment regarding the need for post-construction noise monitoring. Without post-construction monitoring and assessment we are left to draw our own conclusions and feel that these studies should be incorporated into the environmental assessment.	Underwater noise conditions will be monitored during construction activities to confirm the validity of predictions, and make adjustments to activities and/or apply further mitigation as required.

Source	Issue	Proponent Response/Action
Kwantlen First Nation	Concern regarding the impact of noise and how changes to the historic landscape have impacted the ability to engage in cultural practices. Culture and spirituality are important to human health and wellbeing.	<p>Potential changes in atmospheric noise will be assessed in the Noise section of the Application. In response to comments from Aboriginal Groups about potential noise impacts to users on the river, an on-river noise receptor was added to this assessment.</p> <p>The discussion of existing conditions for relevant VCs includes existing conditions and trends. This includes discussion of how existing conditions for specific VCs have been influenced by past human activities. This will be as informed by historical research and Aboriginal knowledge provided through Project-specific studies and consultation, subject to receiving permission for use in the Application.</p> <p>Potential effects on Aboriginal Groups; ability to engage in cultural practices resulting from Project-related changes to the environment will be considered as part of the assessment of current use of land and resources for traditional purposes (Part B, Section 11) and the Aboriginal Interests assessment (Part C, Section 12), as outlined in the dAIR.</p>
Musqueam Nation	Concern that migration patterns of fish have changed due to stress from aquatic noise.	Potential effects of Project-related change in underwater noise on fish will be assessed under Fish and Fish Habitat in Section 4.3 of the Application. The assessment will consider habitat suitability and requirements for each of the key species and applicable life stages in identifying potential Project-related effects and associated mitigation requirements.
Musqueam Nation	Concern regarding the effect of land based noise on migrating fish. Fishers have noticed that higher volumes of noise associated with rail traffic and roads adjacent to the Project area have resulted in fish moving closer to the centre of the river where vessel volumes are higher. Previously fish would use the sides of the river to rest as there is less current and to avoid the higher levels of vessel traffic in the centre of the river. Noise appear to affect this behaviour.	<p>Potential Project-related change in traffic noise on the Fraser will be assessed under Noise and Vibration (Section 4.7) of the Application.</p> <p>Musqueam’s concern regarding the effect of land-based noise on migrating fish has been provided to the fish and fish habitat discipline lead for consideration in the assessment of potential Project-related effects.</p>

Source	Issue	Proponent Response/Action
Kwkwetlem First Nation	Concern with how vibration affects fish, noting that fishers clearly saw an impact on fish behaviour during Mary Hill Bypass and Port Mann Bridge construction/demolition. Comment that construction and demolition timing should consider fish behavior patterns – and be aware that different species are affected differently – as well as ongoing vehicle traffic vibration. Comment that spawning time is also a critical concern.	Potential effects of Project-related vibration transmitted through water (i.e. underwater noise) will be assessed under Fish and Fish Habitat in Section 4.3 of the Application. The assessment will consider habitat suitability and requirements for each of the key species and applicable life stages in identifying potential Project-related effects and associated mitigation requirements.

Tsawwassen First Nation Treaty and Other Interests

Source	Issue	Proponent Response/Action
Tsawwassen First Nation	Concern that the exercise of Tsawwassen Fishing Right will be impacted by Project-related activities in the design phase, including geo-technical testing in the Fraser River.	Project-related geotechnical investigations undertaken to date have included consultation with Aboriginal Groups. The Proponent will continue to consult with Aboriginal Groups throughout Project development.
Tsawwassen First Nation	Comment that members navigate the Fraser River using powered fishing vessels, pleasure craft and unpowered craft such as canoes to get to and from other First Nation communities, sites for harvesting activities, and ceremonial activities, such as the First Salmon ceremony. Concern that the Project is likely to hamper or interfere with these movements and activities.	<p>Noted. The assessment of Project effects on Current Marine Use by Aboriginal Peoples for Traditional Purposes, including Aboriginal, domestic and food, social, and ceremonial (FSC) fish harvesting will be assessed in Part C (Section 12.2 Other Matters of Concern to Indigenous Groups) of the Application. This assessment will be informed by the assessment of Project-related effects on the following VCs:</p> <ul style="list-style-type: none"> • Fish and Fish Habitat section of the Application), • Marine Use section of the Application, which will include an assessment of potential effects of the Project on locations used for fishing and other marine activities. <p>The Proponent is committed to continuing to work with Aboriginal Groups to develop a plan to address concerns related to interference with Aboriginal fisheries during Project construction. To inform the planning process, the Proponent has shared</p>

Source	Issue	Proponent Response/Action
		<p>information with Aboriginal Groups that includes preliminary details on general methodology and sequencing of construction of the new bridge and decommissioning and removal of the existing bridge. General information on navigation safety and related considerations during in-river activities has also been provided. The Proponent will continue to work with Aboriginal Groups during the pre-Application and Application review phases with respect to concerns related to navigability and access during construction and decommissioning.</p>
Tsawwassen First Nation	<p>Concern that the Project will permanently alter the viewscape of the area, which will impact upon the quality of the experience that Tsawwassen Members have when using the area for ceremonial or spiritual activities, or during those times when Tsawwassen Members are observing and documenting changes in the environment to transmit knowledge to younger generations.</p>	<p>The Visual Quality assessment section of the Application will include on-river viewpoints from up and downstream that were identified during a site visit with representatives from Aboriginal Groups.</p> <p>Potential impacts on Aboriginal Groups' resulting from Project-related changes to the environment will be included as part of the assessment of current use of land and resources for traditional purposes (Part B, Section 11) and the Aboriginal Interests assessment (Part C, Section 12).</p>
Tsawwassen First Nation	<p>Comment that the Project occurs within the "Tsawwassen Fishing Area". Concern that Project activities may impact upon the ability of Tsawwassen Members to exercise the Tsawwassen Fishing Right, including, but are not limited to:</p> <ul style="list-style-type: none"> • impacts on water quality which could in turn affect fisheries resources that Tsawwassen depends on • direct impacts on fish and fish habitat which would directly affect the Tsawwassen Fishing Right • direct impacts on Tsawwassen 	<p>The assessment of Project effects on Current Marine Use by Aboriginal Peoples for Traditional Purposes, including Aboriginal, domestic and food, social, and ceremonial (FSC) fish harvesting will be assessed in Part C (Section 12.2 Other Matters of Concern to Aboriginal Groups) of the Application. This assessment will be informed by the assessment of Project-related effects on the following ICs/VCS:</p> <ul style="list-style-type: none"> • Surface Water and Sediment Quality section of the Application, which will include an assessment of potential effects of the Project on water quality in the Fraser River and upland tributaries • Fish and Fish Habitat section of the Application • Marine Use section of the Application, which will include an assessment of potential effects of the Project on locations used for fishing and other marine activities

Source	Issue	Proponent Response/Action
	<p>fishing locations due to bridge components (e.g. pilings, foundations, etc.)</p> <ul style="list-style-type: none"> interference or displacement of Tsawwassen fishing opportunities within or near the Project area. 	
Tsawwassen First Nation	<p>Comment that Project activities may also impact on the ability of Tsawwassen Members to participate in commercial fisheries, either under the authority of the Tsawwassen Harvest Agreement or as participants in the general commercial fishery.</p>	<p>Potential effect of the Project on Aboriginal commercial fishing will be assessed in the Application as follows:</p> <p>With regard to Aboriginal fisheries, the focus of the Marine Use VC will be to describe those fisheries as regulated by DFO (i.e., timing and frequency of communal FSC licences, limited participation licences, and licences with an allowance for sale), in the context of commercial and recreational fisheries that are also regulated by DFO as part of DFO’s CRA regime. The Proponent recognizes, however, that participation in Aboriginal fisheries under DFO’s CRA regime are rights-based activities, and as such requires an additional analytic lens and approach to address complexities that are associated with Tsawwassen use and navigation of the Fraser River. To this end, The Proponent will further examine potential effects on Tsawwassen’s use and navigation of the Fraser River in Part B, which will contain the current use of land and resources for traditional purposes assessment, and in Part C of the Application, which will assess potential impacts on Aboriginal Interests.</p>
Tsawwassen First Nation	<p>Comment that it is likely that opportunities for Tsawwassen Members to harvest wildlife would be diminished during construction, and depending on the extent of the Project footprint, areas where harvesting is currently permissible will likely be lost due to infrastructure footprint and/or safety concerns.</p>	<p>The Proponent is committed to continuing to work with Aboriginal Groups to develop a plan to address concerns related to access to traditional harvesting areas during construction and operation. To inform the planning process, the Proponent has sought information from Aboriginal Groups regarding traditional harvesting areas and shared information with Aboriginal Groups that includes preliminary details on general methodology and sequencing of construction of the new bridge and decommissioning and removal of the existing bridge.</p> <p>Information on access to any traditional wildlife harvesting areas which have been identified by Aboriginal Groups through Project-specific studies or during consultation will be provided in the Wildlife section of the Application. Any associated impacts to</p>

Source	Issue	Proponent Response/Action
		Aboriginal Interests will be assessed in Part C of the Application.
Tsawwassen First Nation	<p>Comment that the Project area is home to many migratory bird species that are valuable to Tsawwassen Members for the consumptive and/or non-consumptive values they confer. Potential migratory bird-related impacts of the Project that are of concern to Tsawwassen Members include</p> <ul style="list-style-type: none"> • loss or restriction of harvest opportunity over the status quo, • disturbance and displacement of migratory birds, • loss or degradation of migratory bird habitat, and • increased mortality of migratory birds due to vehicle collisions and collisions with infrastructure. 	<p>Noted. Potential effects of the Project on migratory bird species and their habitat will be assessed in the Wildlife section of the Application.</p> <p>Impacts of potential Project-related effects on migratory birds and their habitat on current use of land and resources for traditional purposes and Aboriginal Interests, which is defined as asserted or determined Aboriginal rights, including title, and treaty rights, will be discussed in Section 11.0 (Summary of Statutory requirements under CEAA 2012) and Part C of the Application.</p>
Tsawwassen First Nation	<p>Concern regarding Proponent, EAO and VFPA setting conditions for the Project. TFN is of the view that commitments in their Treaty should be made into valued components, since effects are not limited to the natural environment and Indigenous groups have modified their ways and the exercising of treaty interests may be impacted.</p>	<p>This concern has been deferred to the EAO and VFPA for response.</p>
Tsawwassen First Nation	<p>Tsawwassen proposes that Tsawwassen Treaty rights be added as VCs to be studied in the Environmental</p>	<p>The Proponent has been advised by the EAO that, for this Project, Aboriginal-specific VCs will not be assessed in Part B. However, to meet the needs of a Section 67 review under CEAA 2012, potential Project-related effects on subsection 5(1)(c) factors will be</p>

Source	Issue	Proponent Response/Action
	<p>Assessment process, and help the proponent develop options to mitigate impacts on those values, through changes in design or other methods.</p> <p>Comment that the Project will have an impact on natural resources and important ecological functions. These impacts should be measured and negative effects should be mitigated. Tsawwassen proposes that along with Treaty rights, the associated wildlife and fish species that are targeted for harvesting under these rights be identified as VCs.</p>	<p>assessed under relevant VCs/ICs, and summarized in Section 11 of the Application.</p> <p>Impacts to Aboriginal Interests, which is defined as asserted or determined Aboriginal rights, including title, and treaty rights, will be assessed in Part C of the Application. This assessment will be informed by potential Project-related effects on vegetation and wildlife, including species identified as being of interest to Aboriginal Groups during consultation or in Project-specific studies.</p>
Tsawwassen First Nation	<p>Comment that changes in river hydrology have the potential to affect shorelines, tidal wetlands, mudflats, drainage channels and uplands of the South Arm Marshes Wildlife Management Area and other adjoining areas, and those changes may impact on the ability of Tsawwassen Members to gather and use plants.</p>	<p>Potential Project related effects on Fraser River hydrology will be assessed under the River Hydraulics and Morphology section of the Application.</p> <p>Potential cultural heritage effects on Aboriginal Groups resulting from Project-related changes to the environment will be considered in the assessment of current use of land and resources for traditional purposes (Part B, Section 11) and the Aboriginal Interests assessment (Part C), as outlined in the dAIR.</p>