



Tilbury Phase 2 LNG Expansion Project

Environmental Assessment Certificate Application

Assessment Summary

Revision 0

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FortisBC Energy Inc.

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Acronyms and Abbreviations

%HA	percent highly annoyed
AAQO	Ambient Air Quality Objective
AIA	Archaeological Impact Assessment
AIR	Application Information Requirements
Application	Application for an Environmental Assessment Certificate
ARD	acid rock drainage
B.C.	British Columbia
B.C. EAO	British Columbia Environmental Assessment Office
BAT	Best Available Technologies
BCER	British Columbia Energy Regulator
BEP	Best Environmental Practice
BMP	best management practice
CAC	criteria air contaminant
CCME	Canadian Council of Ministers of the Environment
CCRA	Climate Change Resilience Assessment
CEA	Cumulative Effects Assessment
CEMP	Construction Environmental Management Plan
CO	carbon monoxide
CSA	CSA Group
dB	decibel(s)
dBA	A-weighted decibel(s)
Delta	City of Delta
DPD	Detailed Project Description
EA	environmental assessment
EAA	<i>Environmental Assessment Act</i>
EAC	Environmental Assessment Certificate
EMS	Environmental Management System
ERP	Emergency Response Plan
ESD	emergency shutdown
FSC	food, social, and ceremonial
FTE	full-time equivalent
GDP	gross domestic product
GHG	greenhouse gas

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HAZMAT	hazardous material
HHRA	Human Health Risk Assessment
IAA	<i>Impact Assessment Act</i>
IAAC	Impact Assessment Agency of Canada
ID	identification
km	kilometre(s)
LAA	Local Assessment Area
LFN	low-frequency noise
LNG	liquefied natural gas
m	metre(s)
MOF	Material Offloading Facility
NO ₂	nitrogen dioxide
NO _x	oxides of nitrogen
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PM	particulate matter
PM ₁₀	respirable particulates of less than 10 microns
PM _{2.5}	fine particulates smaller than 2.5 microns
PSL	permissible sound level
QP	Qualified Professional
RAA	Regional Assessment Area
SACC	Strategic Assessment of Climate Change
SO ₂	sulphur dioxide
SO _x	oxides of sulphur
SRKW	Southern Resident killer whale
T1B	Tilbury Phase 1B
TDR	Technical Data Report
TEGF	totally enclosed ground flare
VC	Valued Component
VOC	volatile organic compound
ZEV	zero-emission vehicle

1 Introduction

2 FortisBC Holdings Inc. with its regulated natural gas subsidiary FortisBC Energy Inc. (collectively referred
3 to as FortisBC) is proposing the Tilbury Phase 2 LNG Expansion Project (proposed Project) that includes
4 construction of a new Liquefied Natural Gas (LNG) Storage Tank with a working volume of 142,400 cubic
5 metres (approximately 3.5 petajoules), new liquefaction facilities with capacity of up to 7,700 tonnes per
6 day of LNG production, natural gas receiving facilities, and supporting infrastructure. The existing Tilbury
7 site includes the original LNG production and storage facility in operation since 1971.

8 This document includes a high-level summary of the Application for an Environmental Assessment
9 Certificate (Application) prepared for the proposed Project and submitted to the British Columbia (B.C.)
10 Environmental Assessment Office (EAO) according to the *Environmental Assessment Act (EAA)* and the
11 *Impact Assessment Act (IAA)*.

1 **Project Information**

- 2 The proposed Project is located on the existing Tilbury LNG facility on Tilbury Island within the Tilbury
- 3 Industrial Park, adjacent to the Fraser River in Delta, B.C. The proposed Project is located at 7651 Hopcott
- 4 Road, on Tilbury Island in Delta, B.C. (proposed Project Site) and is shown on Figures ES-1 and ES-2.

**FIGURE ES-1
REGIONAL LOCATION
TILBURY PHASE 2 LNG
EXPANSION PROJECT**

- Proposed Project Footprint
- Existing FortisBC Pipeline
- Highway
- Road
- Railway
- Municipality
- Park/Protected Area
- Waterbody
- Conservation Land

49° 8' 27.4" N 123° 2' 4.8" W
NTS Grid: 092G03

Scale: 1:25,000



(All Locations Approximate)

Jacobs

Project Number CE778100

NAD1983 UTM Zone 10 North.
Proposed Project: Jacobs 2022; Roads: NRCan 2015; Hydrography: BC Forests, Lands and Natural Resource Operations 2011; Municipal Boundaries, Regional District: BC MF/LNRO 2016; Railway: BC Forests, Lands, Natural Resource Operations and Rural Development 2015; Parks: NRCan 2017; Metro Vancouver 2020; BC MF/LNRO 2008; Conservation Land: BC MF/LNRO 2013; Existing FortisBC Pipeline: FortisBC 2012; Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.

Mapped By: SL Checked By: DJN

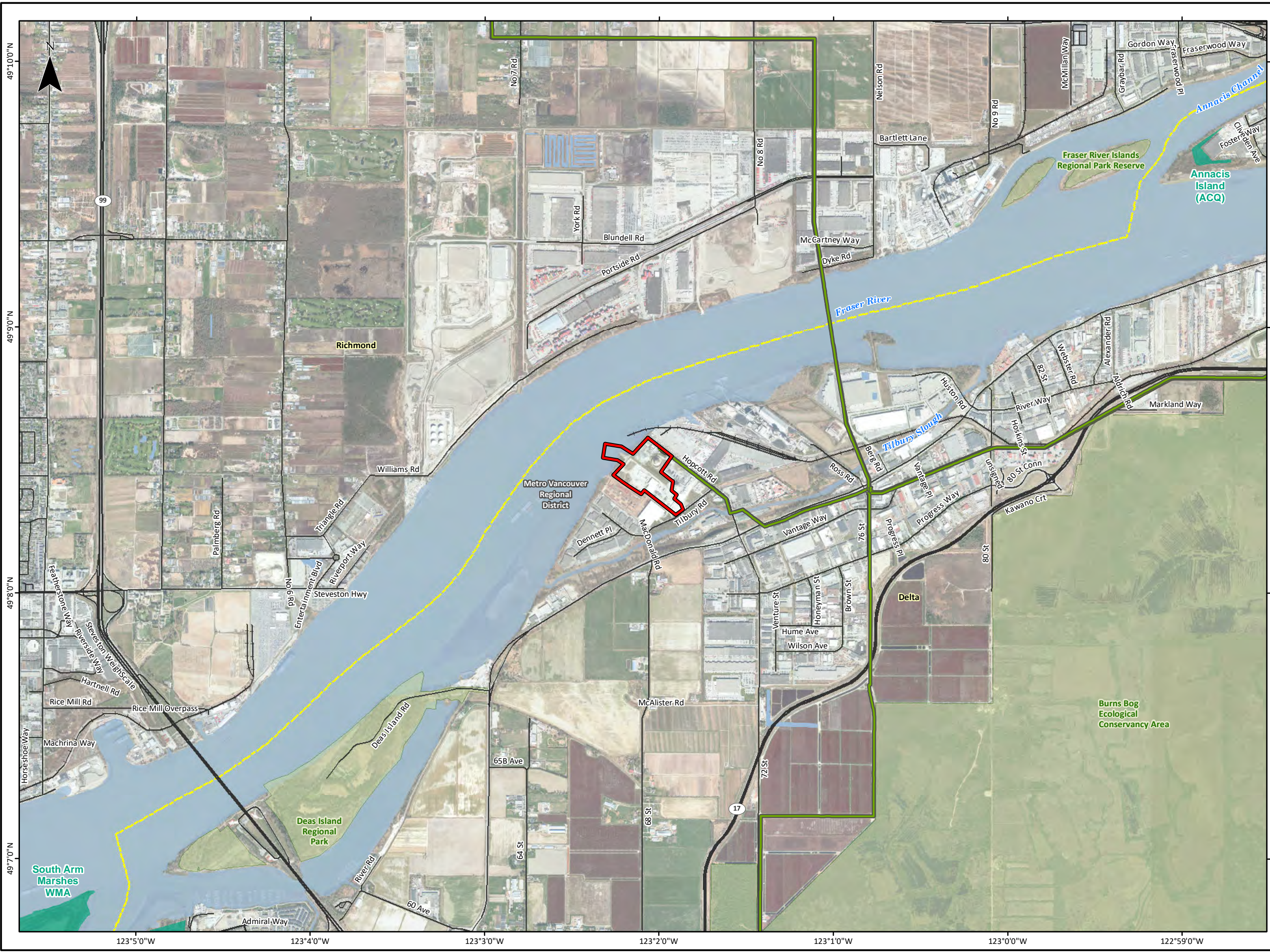


FIGURE ES-2
PROPOSED PROJECT SITE
TILBURY PHASE 2
LNG EXPANSION PROJECT

Proposed Project Components

Proposed Project Footprint

Base Data

Existing FortisBC Pipeline

Highway

Road

Railway

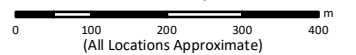
Watercourse

Municipality

Waterbody

Project Site at NTS Grid: 092G03
 49° 8' 27.4" N 123° 2' 4.8" W

SCALE: 1:10,000



Jacobs

Project Number CE778100

UTM Zone 10 North, NAD 1983.
 Proposed project footprint: Jacobs 2022; Existing FortisBC Pipeline:
 FortisBC 2012; Transportation: BC FLNRD 2012; Regional Districts
 & Municipalities: BC FLNRD, 2017; Political Boundaries: ESRI
 2005, USNIMA 2000; Hydrology: BC FLNRD 2011; Imagery
 Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics,
 and the GIS User Community.

*Although there is no reason to believe that there are any errors associated
 with the data used to generate this product or in the product itself,
 users of these data are advised that errors in the data may be present.*

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1 Proposed Project Purpose

2 The proposed Project purpose is to increase LNG storage for energy resilience in the Lower Mainland and
3 increase LNG production to meet the need for LNG as a transportable and storable low-carbon-intensity
4 fuel. The proposed Project will also provide low-carbon fuel to support local and global energy transition
5 goals. The Tilbury facility has provided backup energy supply to British Columbians since 1971.

6 The proposed Project's increased LNG storage capacity creates benefit through adding resilience to
7 FortisBC's gas system (that is, increasing its ability to withstand, manage through, and recover from supply
8 emergencies), which will improve the security of supply to FortisBC's approximately 1.1 million natural gas
9 customers in B.C.

10 Proposed Project Benefits

11 The proposed Project has many benefits, including the following:

- 12 ▪ **Reliable energy supply:** The proposed Project will enhance the gas system's capability to withstand
13 unforeseen events and maintain reliable service to B.C. homes and businesses as the population
14 grows, particularly during times of peak demand.
- 15 ▪ **Greenhouse gas (GHG) emissions reductions:** The low-carbon fuel produced by the proposed Project
16 could be equivalent to removing more than 500,000 cars from the road.
- 17 ▪ **Air pollution reductions:** LNG as a fuel can reduce emissions such as particulate matter (PM) by
18 90 percent, oxides of sulphur (SO_x) by 98 percent, and oxides of nitrogen (NO_x) by 76 percent
19 compared to petroleum-based fuel.
- 20 ▪ **Economic opportunities:** The proposed Project could add approximately \$1.7 billion to B.C.'s gross
21 domestic product (GDP) during construction and \$500 million GDP during operation.
- 22 ▪ **Job opportunities:** The proposed Project could create more than 6,200 full-time equivalent (FTE)
23 person-years of employment during construction and more than 100 FTE jobs during operation.
- 24 ▪ **Tax revenue:** The proposed Project could generate approximately \$300 million in tax revenues for the
25 B.C. government during construction and \$200 million for Federal and B.C. governments during
26 operation.

27 Summary of Changes from Detailed Project Description

28 The core proposed Project components listed in the Detailed Project Description (DPD) have not changed
29 since the submission of the DPD on January 4, 2022 (FortisBC 2022). Updates to proposed Project
30 components described in the DPD are summarized as follows:

- 31 ▪ The Preliminary Project Schedule has been refined.
- 32 ▪ FortisBC has conducted a screening assessment on the Best Available Technologies (BAT) to reduce
33 proposed Project GHG emissions as described in the BAT Report (Appendix P of the Application).
- 34 ▪ FortisBC has also committed to installing air emissions control technologies (such as scrubbers) with
35 the technology selection process being determined post-Environmental Assessment Certificate (EAC)
36 and during the detailed proposed Project design phase.

1 The DPD (FortisBC 2022) describes the need for six to eight proposed Project cargo vessels and the use of
2 barges to deliver modular components to a Material Offloading Facility (MOF) during the construction
3 phase. The DPD includes the construction of a MOF for delivery of these prefabricated modules. The DPD
4 also outlines that existing roadways would be used to deliver bulk construction materials to the proposed
5 Project. During Application Development, guided by the Application Information Requirements (AIR) (B.C.
6 EAO 2022), FortisBC conducted an analysis of the transportation methods available to bring materials to
7 the proposed Project Site during construction. FortisBC reported the findings in the Construction Logistics
8 Update and Alternative Means Memo submitted to the B.C. EAO March 2023 (FortisBC 2023). In this
9 memorandum, FortisBC clarified the number of barges with prefabricated modules and construction
10 materials that would be brought to the proposed Project Site.

11 During FortisBC's engagement and an additional round of B.C. EAO-led consensus seeking with Indigenous
12 nations during the Application Development phase to discuss the Construction Logistics Update and
13 Alternative Means Memo (FortisBC 2023), concerns were raised about potential negative effects to
14 Indigenous rights to fish, as well as negative cumulative effects on the Fraser River resulting from the
15 proposed barge traffic.

16 FortisBC has considered feedback from all participants and decided not to utilize the waterborne delivery
17 of modules or bulk construction materials described in the DPD (FortisBC 2022). To address concerns
18 about potential effects to the Fraser River, FortisBC has committed to removing construction of the MOF
19 and barge deliveries to the proposed Project Site during construction as an avoidance mitigation measure.
20 Construction materials, equipment, and any other deliveries to the proposed Project Site during
21 construction will be by road freight on existing roads and highways. Because waterborne activities during
22 construction will be avoided, the MOF and associated barge deliveries will no longer be required for the
23 proposed Project. FortisBC has therefore rescinded the Construction Logistics Update and Alternative
24 Means Memo (FortisBC 2023).

25 FortisBC will proceed with completing the Application consistent with the AIR (B.C. EAO 2022), which the
26 B.C. EAO sought consensus on and published on June 13, 2022. In accordance with the AIR, potential
27 effects from construction of the MOF and barge delivery vessels to the MOF are assessed in each Valued
28 Component (VC) assessment subsection. In the assessment, avoidance mitigation measures (that is, no
29 waterborne deliveries and no MOF construction) are presented and considered in the determination of
30 potential residual effects.

31 **Proposed Project Components**

32 The proposed Project's components are divided into two categories:

- 33 ▪ Temporary construction components, such as laydowns, staging areas, and construction offices
- 34 ▪ Operation components, consisting of an LNG storage tank, a natural gas receiving area, natural gas
35 processing and liquefaction, and supporting infrastructure

36 The proposed Project concept described in the DPD (FortisBC 2022) considers modular construction of
37 the liquefaction trains, which would be delivered via the MOF. Potential effects of using the MOF are
38 assessed in the Application to comply with the AIR (B.C. EAO 2022). However, as stated previously, as a
39 result of concerns received from engagement activities during the Application Development phase, the
40 proposed Project will no longer involve any waterborne delivery of modular components and bulk
41 construction materials to the proposed Project Site as an avoidance mitigation measure (refer to
42 subsection 1.5.5). The storage tank, processing area, and supporting infrastructure are shown in the artistic
43 rendering on Figure ES-3.



1

2 **Figure ES-3. Tilbury Phase 2 Proposed Project Facilities Artistic Rendering**

1 **Assessment Methodology**

2 This section provides information on how potential environmental, economic, social, cultural, and health
3 effects from construction, operation, and decommissioning of the proposed Project have been assessed
4 for this Application. This section also describes the methods used to identify and assess potential effects
5 of the proposed Project on Indigenous interests.

6 **Valued Component Assessment Methodology**

7 VCs are aspects of the environmental, health, social, and economic conditions that may be important or
8 considered of value to Indigenous nations, government agencies, and stakeholders. VCs and potential
9 issues for the proposed Project were selected based on the B.C. EAO's AIR (B.C. EAO 2022) and the Impact
10 Assessment Agency of Canada's (IAAC's) Tailored Impact Statement Guidelines Template for Designated
11 Projects Subject to the IAA (IAAC 2022). These elements were also chosen to reflect FortisBC's
12 understanding of the proposed Project and what is most important to Indigenous nations and B.C. EAO
13 Technical Advisors.

14 The Application considered the potential effects of the proposed Project on VCs in the context of defined
15 spatial and temporal assessment boundaries. Spatial boundaries were determined by the distribution,
16 movement patterns, and potential geographic area wherein an anticipated interaction between a VC and
17 proposed Project activities are anticipated. The spatial boundary of a VC may be limited to the area
18 directly disturbed by proposed Project activities (proposed Project Footprint), or it may extend beyond the
19 physical boundaries of the general area within and adjacent to the proposed Project Footprint to capture
20 the spatial extent of the potential proposed Project's effects and cumulative effects to the VC. The
21 boundaries chosen include the proposed Project Site, the proposed Project Footprint, the Local
22 Assessment Area (LAA), and the Regional Assessment Area (RAA). The temporal boundaries defined for
23 the assessment encompass the periods when the proposed Project is expected to interact with VCs via
24 effects pathways.

25 Existing conditions describe the current conditions of each VC and consider the effects of past and existing
26 projects and activities that have been carried out to date. The Historical Context section provides
27 information on past projects and activities that have resulted in existing conditions, and existing
28 conditions can also be referred to as the cumulative effects to date due to past project and activities. How
29 the incremental contribution of the proposed Project changes existing conditions (or expected conditions
30 before proposed Project construction) is the potential effect to be assessed. After implementing
31 mitigation measures to avoid or minimize the potential effect, any remaining effects are referred to as the
32 residual effects of the proposed Project. The Cumulative Effects Assessment (CEA) was completed in
33 respective RAAs for all residual effects and considers the overlap in space and time of residual effects of
34 the proposed Project and the effects of certain and reasonably foreseeable projects and activities that will
35 be carried out (that is, other projects and activities are already considered in the existing and expected
36 conditions cases described previously).

37 The assessment team completed a desktop review and field studies to characterize the existing conditions
38 of the VCs in their respective LAAs and RAAs. The potential effects of the proposed Project on VCs were
39 identified through engagement with Indigenous nations, the B.C. EAO Technical Advisory Committee, the
40 public, and government and regulatory agencies; experience gained by FortisBC during operation of the
41 existing FortisBC facilities; and the assessment team's professional judgment. Proposed Project-VC
42 interactions with the potential to result in measurable adverse effects before the implementation of
43 mitigation measures became the focus of the effects assessment.

- 1 The following technical reports (Appendices A through U) inform existing and future conditions:
- 2 ▪ Appendix A, Mitigation Tables
 - 3 ▪ Appendix B, Air Quality Technical Data Report
 - 4 ▪ Appendix C, Noise and Vibration Technical Data Report
 - 5 ▪ Appendix D, Terrestrial Biophysical Technical Data Report
 - 6 ▪ Appendix E, Aquatic Biophysical Technical Data Report
 - 7 ▪ Appendix F, Visual Quality Assessment Technical Data Report
 - 8 ▪ Appendix G, Climate Change Resilience Assessment
 - 9 ▪ Appendix H, Nitrogen and Acid Deposition Receiving Environment Report
 - 10 ▪ Appendix I, Socio-economic Baseline Technical Data Report
 - 11 ▪ Appendix J, Human Health Risk Assessment
 - 12 ▪ Appendix K, Seismic Hazard Assessment
 - 13 ▪ Appendix L, Desktop Assessment of Acid Rock Drainage and Metal Leaching Potential of Bedrock
 - 14 ▪ Appendix M, Upstream Greenhouse Gas Assessment
 - 15 ▪ Appendix N, Greenhouse Gas Emissions Technical Data Report
 - 16 ▪ Appendix O, Greenhouse Gas Net-zero Plan Technical Data Report
 - 17 ▪ Appendix P, Tilbury Phase 2 LNG Expansion Project BAT Study in Accordance with Strategic
 - 18 Assessment of Climate Change Requirements
 - 19 ▪ Appendix Q, Regulatory Hydrostatic Test Water Study Memorandum
 - 20 ▪ Appendix R, Transportation Desktop Analysis, Tilbury Island
 - 21 ▪ Appendix S, Golder Chance Find Protocol
 - 22 ▪ Appendix T, Market Research

23 The VC assessment methods (Section 7) include the following:

- 24 ▪ Identification of the potential proposed Project interactions with VCs
- 25 ▪ Identification and description of the potential positive and negative (adverse) direct and indirect
- 26 effects¹ resulting from each proposed Project phase (construction, operation, and decommissioning)
- 27 ▪ Identification of feasible mitigation measures that avoid, minimize, or otherwise address potential
- 28 adverse effects using the tiered approach described in the B.C. Ministry of Environment's
- 29 Environmental Mitigation Procedures (B.C. MOE 2014)

¹ As defined in the B.C. EAO User Guide (B.C. EAO 2021), direct and indirect effects are defined as follows:

- A direct effect is the result of a cause-effect relationship between a project and a component of the biophysical or human environment (A→B).
- An indirect effect is the result of a change a project may cause that is often one step removed (secondary) from a project's activities due to complex relationships among components (A→B→C).

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- 1 ▪ Determination of anticipated residual effects (that is, effects after the implementation of proposed
2 mitigation)
- 3 ▪ Characterization of the anticipated residual adverse effects based on the B.C. EAO's Effects
4 Assessment Policy (B.C. EAO 2020a) for their temporal and spatial extent, context, magnitude, level of
5 confidence or uncertainty, and probability or likelihood of occurrence
- 6 ▪ Evaluation of the potential for residual adverse effects associated with the proposed Project to interact
7 with similar effects of other past or reasonably foreseeable projects or activities
- 8 ▪ Identification of any potential cumulative effects
- 9 ▪ Identification of mitigation measures that avoid, minimize, restore, or otherwise address potential
10 proposed Project cumulative effects (if any)
- 11 ▪ Identification of residual cumulative adverse effects
- 12 ▪ Incorporation of feedback from Indigenous nations, the public, stakeholders, and government
13 agencies, as appropriate

14 FortisBC will develop detailed mitigation measures in the Construction Environmental Management Plan
15 (CEMP) before construction and in the Environmental Management System (EMS) before operation,
16 through engagement with applicable regulators and Indigenous nations. Monitoring will occur as required
17 by EAC conditions to confirm that mitigation measures are effective at reducing predicted residual effects.
18 If a mitigation measure is found to be ineffective at reducing potential effects, corrective measures will be
19 taken through adaptive management, as specified in the management plans and as appropriate, through
20 engagement with applicable regulators and Indigenous nations.

21 Section 25 of the 2018 B.C. *EAA* defines matters that must be considered in the assessment. The
22 Application addresses these assessment matters to the extent that these matters apply to the proposed
23 Project, including the following:

- 24 ▪ The Proposed Project's GHG emissions and the potential effects of those emissions on the
25 Government of B.C.'s ability to meet its legislated emission reduction targets under the former
26 *Greenhouse Gas Reduction Targets Act*, which is now the *Climate Change Accountability Act*
27 (Section 8)
- 28 ▪ The risk of malfunctions and accidents (Section 9)
- 29 ▪ The potential disproportionate effects on distinct human populations (Section 13)
- 30 ▪ The potential effects on biophysical factors that support ecosystem function (Section 12)
- 31 ▪ The potential effects to current and future generations (Section 14)

32 Under the *IAA*, the assessment must consider, among other factors, any relevant regional or strategic
33 assessments, any changes to the designated project that may be caused by the environment, and the
34 extent to which the effects of the designated project hinder or contribute to the Government of Canada's
35 ability to meet its commitments regarding climate change. The Strategic Assessment of Climate Change
36 (SACC) is a required strategic assessment under Section 95 of the *IAA* for projects designated under the
37 *Physical Activities Regulations*. The Application addresses the requirements of SACC, including the
38 following:

- 39 ▪ Section 8, Climate Change and Greenhouse Gas Emissions
- 40 ▪ Appendix G, Climate Change Resilience Assessment
- 41 ▪ Appendix M, Upstream Greenhouse Gas Assessment

- 1 ▪ Appendix N, Greenhouse Gas Emissions Technical Data Report
- 2 ▪ Appendix O, Greenhouse Gas Net-zero Plan Technical Data Report
- 3 ▪ Appendix P, Tilbury LNG Phase 2 Expansion BAT Study in Accordance with Strategic Assessment of
- 4 Climate Change Requirements

5 **Indigenous Interests Assessment Methodology**

6 Indigenous interests are matters of importance to an Indigenous nation that have the potential to be
7 affected by the proposed Project. These interests include Aboriginal and Treaty Rights recognized and
8 affirmed by Section 35 of the *Constitution Act, 1982*. Indigenous interests in the proposed Project may
9 include the following:

- 10 ▪ Biophysical
- 11 ▪ Environmental
- 12 ▪ Social
- 13 ▪ Economic
- 14 ▪ Cultural
- 15 ▪ Spiritual
- 16 ▪ Governance

17 In accordance with the AIR (B.C. EAO 2022), FortisBC included these interests in the following six broad
18 categories for the purposes of assessing Indigenous interests related to the proposed Project
19 (subsections 11.2 through 11.18):

- 20 ▪ Harvesting and Subsistence Activities
- 21 ▪ Cultural Use Sites and Areas
- 22 ▪ Social and Economic conditions
- 23 ▪ Indigenous Health and Well-being
- 24 ▪ Cultural Continuation
- 25 ▪ Indigenous Governance Systems

26 Two of the Indigenous interests, Cultural Continuation and Indigenous Governance Systems, are only
27 assessed in subsections 11.2 through 11.18 when Indigenous Knowledge relating to those topics was
28 provided by the Indigenous nations or when feedback was received from an Indigenous nation regarding
29 the proposed information sources and preliminary potential effects identified in Table 6 of the AIR (B.C.
30 EAO 2022).

31 The Indigenous interests assessment incorporates the residual effects conclusions of linked VCs and other
32 assessed matters that are relevant to Indigenous interests. These interests are assessed for each
33 Indigenous nation separately in Section 11. Section 11 serves as an important component of informing
34 decision makers of the potential effects of the proposed Project on Indigenous interests.

35 Indigenous nations were initially identified as potentially affected by the proposed Project via a review of
36 the Consultative Areas Database, which indicated the Indigenous nations whose Treaty Lands, traditional
37 territories, or other areas of use or management overlap with the proposed Project Area. Potentially
38 affected Indigenous nations were also identified through FortisBC's engagement activities. Further
39 identification of potentially affected Indigenous nations then occurred via the Joint Summary of Issues and
40 Engagement. In accordance with the B.C. EAA, Indigenous nations can notify the B.C. EAO of their interest
41 in the proposed Project if they believe it may affect their interests and can self-identify as a participating
42 Indigenous Nation for the proposed Project assessment. Indigenous nations listed in Table ES-1 are

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- 1 potentially affected by the proposed Project and further identified as participating or nonparticipating
- 2 under the B.C. EAA.

Table ES-1. Potentially Affected Indigenous Nations

Potentially Affected Indigenous Nations	Formally Identified as a Participating Indigenous Nation	Not Formally Identified as a Participating Indigenous Nation
Chawathil First Nation	✓	—
Cheam First Nation	✓	—
Kwantlen First Nation	✓	—
Kwikwetlem (kʷikwəʔləm) First Nation	✓	—
Tsawwassen First Nation	✓	—
Tsleil-Waututh First Nation	✓	—
Snuneymuxw First Nation	✓	—
Quw'utsun Nation, including the following: <ul style="list-style-type: none"> ▪ Lyackson First Nation ▪ Stz'uminus First Nation ▪ Penelakut Tribe ▪ Cowichan Tribes ▪ Halalt First Nation 	✓	—
Ts'uubaa-asatx	✓	—
Musqueam Indian Band	✓	—
S'ólh Téméxw Stewardship Alliance, including the following: <ul style="list-style-type: none"> ▪ Aitchelitz First Nation ▪ Kwaw-kwaw-a-pilt First Nation ▪ Seabird Island Band ▪ Semá:th (Sumas) First Nation ▪ Shxw' ǝwhámél First Nation ▪ Shxwhá:y Village ▪ Skowkale First Nation ▪ Skwah First Nation ▪ Soowahlie First Nation ▪ Sq'ewá:lxw (Skawahlook) First Nation ▪ Sq'éwlets (Scowlitz) First Nation ▪ Squiala First Nation ▪ Tzeachten First Nation ▪ Yakweakwioose First Nation ▪ Yale First Nation 	✓	—

Table ES-1. Potentially Affected Indigenous Nations

Potentially Affected Indigenous Nations	Formally Identified as a Participating Indigenous Nation	Not Formally Identified as a Participating Indigenous Nation
Katzie First Nation	—	✓
Semiahmoo First Nation	—	✓
Squamish Nation	—	✓
Stó:lō Nations, ^a including the following: <ul style="list-style-type: none"> ▪ Leq'á:mel First Nation ▪ Popkum First Nation ▪ Matsqui First Nation 	—	✓
W̱SÁNEĆ Nations, including the following: <ul style="list-style-type: none"> ▪ Malahat First Nation ▪ Pauquachin First Nation ▪ Tsartlip First Nation ▪ Tsawout First Nation ▪ Tseycum First Nation 	—	✓

^a The Stó:lō Nation Chiefs Council is the political partnership of 11 Stó:lō Nation bands. Eight of these Indigenous nations are members of the S'ólh Téméxw Stewardship Alliance.

Notes:

✓ = applicable

— = not applicable

1 On January 12, 2022, the B.C. EAO issued a notice of the Readiness Decision for the proposed Project to
 2 proceed to an environmental assessment (EA) under the B.C. *EAA*. On January 20, 2022, the proposed
 3 Project Federal impact assessment under the *IAA* was substituted to the Government of B.C.
 4 Subsection 7.9 of the IAAC's Impact Assessment Cooperation Agreement Between Canada and B.C. states
 5 that any consultation conducted by B.C. with Métis or organizations representing Métis within B.C. under a
 6 substituted impact assessment is understood to be conducted on behalf of the Government of Canada and
 7 should not be construed in any way as an acknowledgement by B.C. that it owes a duty of consultation or
 8 accommodation to Métis within B.C. under Section 35 of the Constitution Act, 1982.

9 The Readiness Decision initiated the legislated 120-day Process Planning phase of the EA for the
 10 proposed Project. On June 13, 2022, the B.C. EAO issued the Process Order for the proposed Project EA,
 11 including the Assessment Plan and AIR. The Assessment Plan of the Issued Process Order set out its
 12 notification approach for the proposed Project, consistent with opportunities provided to Indigenous
 13 nations listed in subsection 2.3, requiring FortisBC to undertake specific engagement activities with Métis
 14 Nation British Columbia to meet the Federal requirements of the *IAA* under the substituted Provincial
 15 process, and should not be construed in any way as a recognition of rights, title, or interests in the
 16 proposed Project.

17 FortisBC values the concerns and feedback provided by Indigenous nations, recognizing that the
 18 information shared contributes to the proposed Project siting, design, mitigation development, and,
 19 ultimately, a more successful project. The Application includes a summary of the engagement activities
 20 with each Indigenous nation, including engagement regarding potential effects of the proposed Project on

1 Indigenous interests, input received from Indigenous nations, issues raised by Indigenous nations, and
 2 Indigenous nations' views on the engagement approach. The summary of engagement activities describes
 3 how FortisBC has and will continue to engage with Indigenous nations, including any collaboration with
 4 Indigenous nations. The summary of engagement activities also describes how the Indigenous nations'
 5 perspectives are integrated into the assessment of potential effects on Indigenous interests. When made
 6 available, the views of Indigenous nations are clearly identified as they relate to potential effects, the
 7 approach to effects management, potential residual and cumulative effects, and conclusions. FortisBC has
 8 had and continues to have discussions with each Indigenous nation regarding how they prefer to be
 9 engaged, including policies, protocols, and traditional approaches to inform the development of the
 10 engagement process.

11 Table ES-2 describes the information in the Application used to assess the potential effects of the
 12 proposed Project on Indigenous interests. The assessment team conducted a desktop review of publicly
 13 available information relevant to Indigenous interests. To the extent that Indigenous Knowledge was
 14 available, the individual effects assessments in subsections 11.2 through 11.18 are informed by
 15 Indigenous Knowledge in accordance with the B.C. EAO Guide to Indigenous Knowledge in Environmental
 16 Assessments (B.C. EAO 2020b), the Government of Canada's Practitioner's Guide to the IAA (IAAC n.d.),
 17 and the First Nations Major Projects Coalition's Guidance Appendices to the Major Projects Assessment
 18 Standard (First Nations Major Projects Coalition 2021).

19 The Application considers the potential effects of the proposed Project on Indigenous interests in the
 20 context of defined assessment boundaries, including spatial, temporal, administrative, and technical
 21 boundaries, when applicable. The LAAs and RAAs are based on the potential of the proposed Project to
 22 interact with the Indigenous nations' exercise of their Indigenous interests within their traditional
 23 territories, regardless of the location of their reserves or community locations. Lack of input from
 24 Indigenous nations on the characterization of residual effects on their Indigenous interests may represent
 25 an additional technical limitation in the Application. The technical boundaries subsections in each
 26 individual assessment section of the Application note when no input was received from Indigenous
 27 nations. If Indigenous nations provide input on the Application during the Application Review phase, it will
 28 be incorporated into the Revised Application.

Table ES-2. Indigenous Interests in the Application

Process	Details
Existing conditions	Existing conditions are described to enable the identification, understanding, and assessment of interactions between the proposed Project and existing Indigenous interests. Existing conditions reflect the effects of past projects and activities.
Potential effects to Indigenous interests	Potential effects are changes to the existing environment or to existing health, social, or economic conditions and the positive and negative consequences of these changes. An analysis of VCs that may affect Indigenous interests is conducted to determine how residual effects to the VCs may interact with and affect Indigenous interests. Additional direct or indirect positive or negative effects that are specific to Indigenous nations are also considered when identifying and assessing potential effects.
Mitigation measures	Enhancement measures and mitigation measures proposed by FortisBC to avoid, restore, reduce, or offset potential effects to Indigenous interests are identified (including proposed mitigation measures for linked VCs).

Table ES-2. Indigenous Interests in the Application

Process	Details
Residual effects	Residual effects are potential effects that are predicted to remain after mitigation measures are implemented and enhancements are applied. After being identified, these residual effects were rated, or “characterized,” based on the B.C. EAO Effects Assessment Policy (B.C. EAO 2020a) and IAAC Practitioner’s Guide to Federal Impact Assessment for their temporal and spatial extent, context, magnitude, level of confidence or uncertainty, and probability or likelihood of occurrence.
Cumulative effects	Cumulative effects are effects that are predicted to occur when adverse residual effects of the proposed Project overlap in space and time with effects from other future projects.

1 **Cumulative Effects Assessment Methodology**

2 Cumulative effects are changes to the environment that are caused by an action in combination with other
 3 past, present, and reasonably foreseeable human actions (Hegmann et al. 1999). The CEA was conducted
 4 in accordance with the AIR for the proposed Project (B.C. EAO 2022) and both B.C. EAO and IAAC guidance
 5 (Hegmann et al. 1999; IAAC n.d.; B.C. EAO 2020a).

6 FortisBC conducted a CEA in their respective RAAs where adverse residual proposed Project effects were
 7 identified. The RAA is the area where the proposed Project’s predicted residual effects may act in
 8 combination with effects from past and future projects and activities, resulting in cumulative effects. The
 9 future projects and activities within the RAA that could contribute to cumulative effects are shown on
 10 Figure ES-4. The CEA characterizes the total cumulative residual effects (past, existing, and future
 11 conditions), as well as the incremental contribution of the proposed Project to the total cumulative effects
 12 (after the implementation of mitigation measures). Existing conditions include the effects of projects and
 13 activities that have affected or are affecting the existing conditions and, therefore, reflects cumulative
 14 effects to date. The context for each potential cumulative effect was informed by past and existing
 15 conditions, predictions of future conditions with and without the proposed Project, and regulatory policies,
 16 guidelines, standards, and thresholds or targets.

17 The CEA was conducted as follows:

- 18 ▪ Determination of spatial and temporal boundaries for each VC or Indigenous interests when potential
 19 adverse residual proposed Project effects have been identified.
- 20 ▪ Identification of potential adverse residual effects of the proposed Project that may interact with
 21 effects of other future projects or activities. In some cases, potential residual effects of the proposed
 22 Project were determined to be negligible (not detectable or measurable) and were therefore not
 23 carried forward in the assessment of future cumulative effects. If an adverse residual effect is excluded
 24 from consideration in the CEA, the rationale for this exclusion is provided in the respective VC
 25 assessment section. Unlikely adverse proposed Project residual effects are not carried forward into the
 26 CEA.
- 27 ▪ Identification of other future projects and activities with potential adverse residual effects that may act
 28 in combination (in space and time) with the potential adverse proposed Project residual effects.
- 29 ▪ Identification of potential adverse cumulative effects.
- 30 ▪ Development, if warranted and feasible, of additional technically and economically feasible mitigation
 31 measures to address the incremental contribution of the proposed Project to residual adverse
 32 cumulative effects.

- 1 ▪ Identification and characterization of any potential residual adverse cumulative effects.

2 **Incorporating Indigenous Knowledge and Interests into the Environmental Assessment**

3 FortisBC conducted a detailed and collaborative engagement process to identify and incorporate
4 Indigenous Knowledge, information from policy documents and stewardship plans, and Indigenous
5 interests into the Application (Section 7 and Section 11). The engagement process included the following:

- 6 ▪ Sharing multiple versions of lists of potential secondary sources for input and approval with
7 Indigenous nations
- 8 ▪ Requesting the use of Indigenous Knowledge in a process as approved by each nation
- 9 ▪ Identifying how Indigenous Knowledge will be used in Section 11 by sharing early drafts of Section 11
10 with Indigenous nations
- 11 ▪ Using an Indigenous Knowledge Information Database for disciplines to use to incorporate into each
12 VC in the Application

FIGURE ES-4
CUMULATIVE EFFECTS ASSESSMENT -
REASONABLY FORESEEABLE
FUTURE PROJECTS
TILBURY PHASE 2 LNG
EXPANSION PROJECT

- Mineral Resources
- Oil and Gas Developments
- Settlement and Rural and Urban Development
- Transportation and Infrastructure
- Utilities and Energy Transmission
- Proposed Project Footprint
- First Nations Reserve
- Treaty Lands
- International Boundary

Scale: 1:175,000
 (All Locations Approximate)

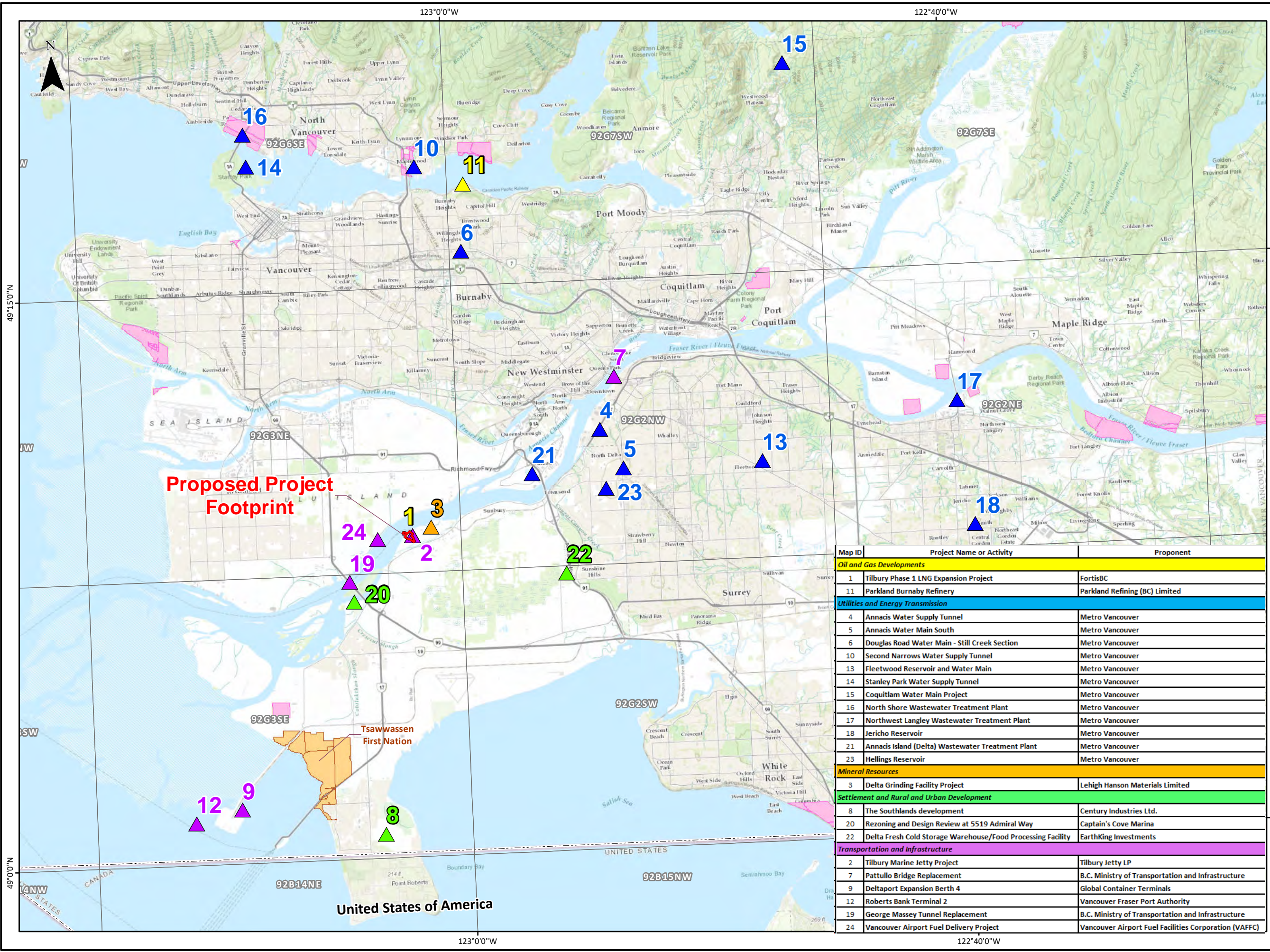


Project Number CE778100

BC Albers Projection, NAD83. Graticule: UTM Zone 10 North.
 Reasonably Foreseeable Future Projects: Jacobs 2023; Project Area: Jacobs (05-09-2022); LAA/RAA Boundaries: Jacobs, August 19, 2022; Tsawwassen Treaty Lands: Tsawwassen First Nation, 2022 First Nation Reserves; Government of Canada 2018; International Boundary: ESRI 2005; Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.

Mapped By: AM Checked By: DN



Map ID	Project Name or Activity	Proponent
Oil and Gas Developments		
1	Tilbury Phase 1 LNG Expansion Project	FortisBC
11	Parkland Burnaby Refinery	Parkland Refining (BC) Limited
Utilities and Energy Transmission		
4	Annicis Water Supply Tunnel	Metro Vancouver
5	Annicis Water Main South	Metro Vancouver
6	Douglas Road Water Main - Still Creek Section	Metro Vancouver
10	Second Narrows Water Supply Tunnel	Metro Vancouver
13	Fleetwood Reservoir and Water Main	Metro Vancouver
14	Stanley Park Water Supply Tunnel	Metro Vancouver
15	Coquitlam Water Main Project	Metro Vancouver
16	North Shore Wastewater Treatment Plant	Metro Vancouver
17	Northwest Langley Wastewater Treatment Plant	Metro Vancouver
18	Jericho Reservoir	Metro Vancouver
21	Annicis Island (Delta) Wastewater Treatment Plant	Metro Vancouver
23	Hellings Reservoir	Metro Vancouver
Mineral Resources		
3	Delta Grinding Facility Project	Lehigh Hanson Materials Limited
Settlement and Rural and Urban Development		
8	The Southlands development	Century Industries Ltd.
20	Rezoning and Design Review at 5519 Admiral Way	Captain's Cove Marina
22	Delta Fresh Cold Storage Warehouse/Food Processing Facility	EarthKing Investments
Transportation and Infrastructure		
2	Tilbury Marine Jetty Project	Tilbury Jetty LP
7	Pattullo Bridge Replacement	B.C. Ministry of Transportation and Infrastructure
9	Deltaport Expansion Berth 4	Global Container Terminals
12	Roberts Bank Terminal 2	Vancouver Fraser Port Authority
19	George Massey Tunnel Replacement	B.C. Ministry of Transportation and Infrastructure
24	Vancouver Airport Fuel Delivery Project	Vancouver Airport Fuel Facilities Corporation (VAFFC)

1 Engagement Activities

2 FortisBC has engaged with Indigenous nations, the public, local government, Provincial and Federal
3 government agencies, and stakeholders throughout the EA process. FortisBC will continue to engage
4 throughout the remainder of the assessment process, including during post-EAC permitting and
5 construction activities.

6 Early engagement with the public and other parties began in February 2020 and included notifying the
7 public, posting the Initial Project Description to the B.C. EAO's Project Information Centre website, and
8 conducting market research to determine the public's preferred engagement channels. A public comment
9 period (June to July 2020 and March to April 2022) and virtual open houses (June 2020 and March 2022)
10 followed. FortisBC maintains an email and phone information outlet, as well as a newsletter. Through
11 engagement, the following key issues were raised by the public and other parties:

- 12 ▪ Why the new tank is needed
- 13 ▪ How LNG will be used domestically
- 14 ▪ The amount of LNG for export
- 15 ▪ Customer rate increases
- 16 ▪ FortisBC's decarbonization strategy
- 17 ▪ How GHG emissions will be assessed in the Application
- 18 ▪ Certainty around displacing higher-carbon fuels internationally
- 19 ▪ Source of FortisBC's LNG
- 20 ▪ How the proposed Project will support FortisBC in meeting Provincial targets to reduce emissions for
21 the industrial sector
- 22 ▪ Questions regarding shipping regulations
- 23 ▪ Concerns about tanker traffic in the Fraser River estuary
- 24 ▪ Concerns regarding upstream effects of fracking
- 25 ▪ Concerns regarding nighttime visual effects of flaring
- 26 ▪ Inquiries regarding potential employment and contracting opportunities
- 27 ▪ Questions regarding the number of personnel for the proposed Project, duration of the construction
28 period, and whether permanent staff would be onsite on a 24-hour basis

29 Indigenous nations have had multiple opportunities to review the information included in the Application,
30 such as Indigenous Knowledge included in Section 11 subsections, through review of early drafts.

31 Since late 2019, FortisBC has maintained regular engagement with government representatives and
32 agencies to keep them informed of the proposed Project, provide updates, answer questions, and seek
33 feedback on the proposed Project. Engagement occurred during the early engagement phase, through
34 process planning, and during Application Development. Government representatives and agencies were
35 contacted by email and through in-person meetings and weekly phone calls, workshops, site tours, and
36 draft documents and technical studies. The following summarizes the key issues raised by government
37 representatives and agencies:

- 38 ▪ Engagement Program: Timelines, potential extensions, and engaging diverse populations and
39 Indigenous nations

- 1 ▪ VC Assessment Areas: Technical Data Report (TDR) data collection and consideration of data outside
2 of the LAA and RAA boundaries
- 3 ▪ Malfunctions and Accidents: Incorporating wildlife overhead flight paths and potential transboundary
4 effects; modelling contaminants released to air or water in the assessment of malfunctions and
5 accidents
- 6 ▪ Acoustic: Guidelines and methods for collecting baseline acoustic data, community engagement to
7 inform baseline acoustic conditions and concerns, and the use of Federal (Health Canada) guidelines
8 for noise and comparison of baseline data
- 9 ▪ Air Quality: Consideration of linking air quality with other VCs, the use of air quality modelling
10 methodology and alignment with air quality guidelines, and dust and noise monitoring throughout
11 construction and operation
- 12 ▪ Fish and Fish Habitat:² Transient killer whale (*Orcinus orca*) and SRKW Critical Habitat; cumulative
13 effects to Southern Resident killer whales (SRKWs) (*Orcinus orca*); the acoustic environment as a
14 measurable parameter for fish and fish habitat; a proposed Project least-risk fish work window; a plan
15 for offsetting fish habitat; indicators and measurable parameters for marine mammals, marine fish
16 and fish habitat, and freshwater fish and fish habitat; potential effects related to the MOF (including
17 pile driving, fill, riprap, and vessel strikes); legacy flood control infrastructure (such as Tilbury Slough);
18 inclusion of specific chemicals in sampling efforts; and the presence of salmonids in Tilbury Slough
- 19 ▪ GHG and Climate Change: Air quality modelling, fugitive methane, challenges to meet Provincial GHG
20 targets, Net-zero Plan and offsetting, refrigerants, risk and consequence analytical framework,
21 extreme climate events, adequate emergency response notification and training for facility staff,
22 infrastructure's ability to withstand potential effects from extreme weather events, and leak detection
23 measures
- 24 ▪ Soil: Acid-generating potential, historical contamination, soil excavation, and fill and placement of
25 rock
- 26 ▪ Surface Water, Groundwater, and Water Quality: Hydraulic studies for riverbed densification, shoreline
27 armour, and scour protection; surface water for hydrotesting, acid deposition, and emerging
28 contaminants of potential concern or pharmaceuticals; water quality data for the Tilbury Slough RAA
29 outside the LAA; hydrotesting effluent, water, and sediment quality data for all contaminants of
30 potential concern in the context of protecting SRKWs; and seasonal and interannual variation in
31 groundwater quality data
- 32 ▪ Vegetation: Spatial boundary adjustments to align with air quality and treating invasive plant species
33 on stored soil
- 34 ▪ Wildlife and Wildlife Habitat: Mitigation measures for nesting and breeding migratory birds, spatial
35 boundary adjustments for wildlife related to marine and road traffic, and conservation measures for
36 species noted or absent in field or desktop studies
- 37 ▪ Noise and Vibration: Construction noise and vibration comparison to local bylaws, baseline noise
38 conditions for various construction phases, and earthquake ground motion emergency response
- 39 ▪ Visual Quality: Sky glow and light trespass, and residential units in proximity to the proposed Project

² To address concerns about potential effects to the Fraser River, FortisBC has committed to removing construction of the MOF and barge deliveries to the proposed Project Site during construction as an avoidance mitigation measure.

Assessment Summary

- 1 ▪ Employment and Economy: Cost benefit analysis; benefits and equal opportunity to potentially
2 underrepresented groups; potential effects to vulnerable groups, workforce, and community
3 well-being; use of Gender-based Analysis Plus; Indigenous Knowledge; upstream employment; and
4 potential effects of operation reduction or suspension on employment
- 5 ▪ Human Health: Safety regarding the proposed Project's location (in an urban setting); carcinogenic
6 and noncarcinogenic effects associated with chronic or acute exposure to diesel PM; and data
7 disaggregation by identity factor, such as gender and age
- 8 ▪ Infrastructure and Services: Demand for potable water; community infrastructure, such as roads
9 (and traffic volumes) and water mains; childcare services information; and potential effects of flooding
10 on infrastructure
- 11 ▪ Land and Resources: Monitoring or research activities underway with Indigenous nations and the
12 Government of Canada, and vessel traffic during construction and operation
- 13 ▪ Alternate Scenario Barge Scope: Potential effects to air quality, emissions modelling, logistics
14 considerations, alternative options, barge characteristics, supply chain details, potential effects on the
15 Fraser River, spills and accidents, and potential LAA and RAA expansion
- 16 As stated previously, as a result of concerns received from engagement activities during the Application
17 Development phase, which occurred after the development of the AIR (B.C. EAO 2022), the proposed
18 Project will no longer involve any waterborne delivery of modular components and bulk construction
19 materials to the proposed Project Site during construction. As a result, no MOF is required to be
20 constructed or used for the proposed Project to accommodate waterborne deliveries. Key issues raised by
21 government representatives and agencies reflect engagement on the DPD (FortisBC 2022) before the
22 Application Development phase engagement and FortisBC's commitment to not use waterborne deliveries
23 during construction.

1 Valued Components Assessment Overview

2 The Application has been prepared in accordance with the AIR (B.C. EAO 2022), in which potential effects
3 were identified from waterborne delivery associated with the proposed Project. However, as described in
4 subsection 1.5.5, as a result of concerns received during the Application Development phase engagement
5 activities, which occurred after the development of the AIR, the proposed Project will no longer involve any
6 waterborne delivery of modular components and bulk construction materials to the proposed Project Site
7 during construction. Avoidance of waterborne deliveries are included in the assessment as an avoidance
8 mitigation measure, and implementation of this avoidance mitigation measure has been incorporated into
9 the determination of potential residual effects to VCs from the proposed Project in Section 7.

10 The following subsections discuss the assessment of potential effects of the proposed Project on VCs and
11 assessment matters as required under Section 25 of the 2018 B.C. *EAA*.

12 Air Quality

13 The Air Quality VC is divided into two subcomponents: (1) air quality and (2) acid deposition.

14 The proposed Project is in a heavily developed, urban, coastal, industrial environment with nearby
15 industrial, commercial, and residential zones. Data about existing ambient air quality conditions of criteria
16 air contaminants (CACs) at the proposed Project Site before construction were obtained from the Metro
17 Vancouver ambient air monitoring network. CACs include nitrogen dioxide (NO₂), NO_x, sulphur dioxide
18 (SO₂), carbon monoxide (CO), particulate matter of a diameter less than 10 microns (PM₁₀), particulate
19 matter of a diameter less than 2.5 microns (PM_{2.5}), ozone, and volatile organic compounds (VOCs). Trends
20 in the Metro Vancouver area show that most air pollutant levels have been improving over the last decade,
21 even while the region's population has grown. Although the AirCare program has ended, Metro Vancouver
22 introduced the Clean Air Plan in 2021 (Metro Vancouver 2021), which is a management plan focused on
23 air quality and GHG reduction efforts to be implemented through 2030 and a commitment to becoming a
24 carbon neutral region by 2050. The CleanBC Roadmap to 2030 (Government of B.C. n.d.) sets targets for
25 the adoption of zero-emission vehicles (ZEVs) in an effort to further reduce emissions from the
26 transportation sector. The plan requires that 26 percent of all new light-duty vehicles sold be ZEVs, with
27 the target increasing to 90 percent by 2030 and reaching 100 percent by 2035 (Government of B.C. n.d.).

28 Like most of the Metro Vancouver airshed, the area near the proposed Project experiences elevated
29 ambient levels of NO₂, with ambient background concentrations over half of existing Metro Vancouver
30 short- and long- term ambient air quality objectives (AAQOs) and current Canadian Ambient Air Quality
31 Standards (CAAQS-2020), and over 70 percent and 90 percent of the upcoming short-term and
32 long-term CAAQS-2025, respectively. Contributors to background concentrations of NO₂ include
33 two major cement facilities, motor vehicle emissions, and vessel traffic on the Fraser River. Existing
34 background levels of PM_{2.5} and PM₁₀ are nearly half of the short- and long-term Metro Vancouver AAQOs,
35 whereas other CACs (CO and SO₂) are below the Metro Vancouver objectives near the proposed Project.

36 Air dispersion modelling and meteorological modelling were used to predict ambient baseline
37 concentrations of CACs and proposed Project emissions during unmitigated operation. Calculation of the
38 ambient background concentrations adhered to the methodology outlined in the approved Metro
39 Vancouver Dispersion Modelling Plan, which was developed in consultation with Metro Vancouver
40 specifically for the proposed Project (Appendix B of the Application) and was generally consistent with
41 B.C. Air Quality Dispersion Modelling Guideline (B.C. ENV 2022). Existing levels of CACs were compared to
42 the ambient air quality criteria, including the Metro Vancouver AAQOs (Metro Vancouver 2020),
43 B.C. AAQOs (B.C. ENV 2021), and CAAQS (CCME 2021) for CACs developed by the Canadian Council of

1 Ministers of the Environment (CCME). On an annual basis, existing NO₂ background levels reach
2 65 percent of the current Metro Vancouver AAQO and 93 percent of the CAAQS-2025 in the Air Quality
3 RAA; existing PM_{2.5} levels reach about 60 percent of the Metro Vancouver annual AAQO; and other CAC
4 background levels (CO and SO₂) are low (less than 1 percent and 5 percent of their annual Metro
5 Vancouver AAQOs, respectively).

6 Since completing the modelling of an unmitigated conceptual design during operation, FortisBC has
7 committed to installing air emissions control technologies (the specific technology will be determined
8 during detailed design post EAC); as such, the modelled air quality effects overstate the anticipated
9 effects. Final engineering design will incorporate air emissions control technologies selected based on the
10 specific final design elements, proven efficacy and effectiveness, and reliability.

11 FortisBC considered the following key factors when assessing the potential effect of the proposed Project
12 on Air Quality:

- 13 ▪ Modelling of the potential for nitrogen and acid deposition resulting from proposed Project operation
14 suggests no proposed Project-related Air Quality interactions with Soil, Surface Water, or Vegetation.
- 15 ▪ It is anticipated that CAC levels (in particular, NO₂ levels that are already high and exceed both the
16 1-hour and annual CAAQS-2025 for the baseline case) will decrease by the time the proposed Project
17 is in operation due to government programs such as the Metro Vancouver Clean Air Plan (Metro
18 Vancouver 2021), CleanBC (Government of B.C. n.d.), and implementation of low-sulphur fuel
19 requirements for marine transportation. In addition, FortisBC is committed to installing air emissions
20 control technologies (a range of potential mitigation options have been investigated and documented
21 in a BAT report; the specific technology will be determined during detailed design following
22 Certification); as such, the modelled air quality effects presented in Appendix B of the Application (Air
23 Quality TDR) overstate the anticipated effects. Combined with the continuing current trend of
24 decreasing background levels of CACs and FortisBC's commitment to installing air emissions control
25 technologies for the proposed Project, FortisBC anticipates negligible effects from NO₂ during
26 steady-state operations compared to existing conditions. FortisBC will conduct detailed modelling
27 post approval for air permitting requirements and to inform final proposed Project design when
28 emissions control mitigation options are selected.
- 29 ▪ Ambient levels of SO₂ are expected to increase during operation, but in a limited way, due to the
30 implementation of emissions control measures during operation, resulting in a low-magnitude effect
31 localized to within the proposed Project facility property line. Levels of CACs during construction and
32 levels of CO, PM, and VOCs during operation are expected to contribute negligible concentrations in
33 comparison to existing concentrations.
- 34 ▪ Overall cumulative effects of future reasonably foreseeable projects' predicted cumulative
35 concentrations of NO₂ during operation (measured ambient plus Tilbury Phase 1A plus proposed
36 unmitigated Project conceptual design plus future reasonably foreseeable projects) are predicted to
37 be of high magnitude. This is because the concentrations will exceed hourly Metro Vancouver AAQOs
38 and hourly and annual CCME CAAQS-2025 at locations in Richmond and Delta, B.C., and at the
39 historical Indigenous village site across from the proposed Project. This high-magnitude effect is
40 predicted to occur with or without the proposed Project. The prediction is also based on modelling
41 with highly conservative assumptions (with no proposed Project mitigation measures and no
42 consideration of existing and future programs in Metro Vancouver to reduce NO₂ levels). FortisBC
43 anticipates that the incremental contribution of the proposed Project to this high-magnitude
44 cumulative effect is negligible.
- 45 ▪ Predicted cumulative concentrations of SO₂ from existing conditions, proposed Project operation, and
46 future reasonably foreseeable projects are predicted to exceed the 1-hour SO₂ Metro Vancouver
47 AAQOs (but not the CAAQS-2025) once per year at most, localized within 200 metres (m) southwest

1 of the proposed Project facility property line, resulting in an overall medium-magnitude cumulative
2 effect. On average annually, cumulative SO₂ effects might double the low existing ambient SO₂
3 concentrations across the Fraser River and on its northern bank but remain well below the annual
4 Metro Vancouver AAQO and CCME CAAQS-2025. This prediction is based on modelling with highly
5 conservative assumptions (that is, no mitigation for the proposed Project and no consideration of
6 potential mitigation measures for the reasonably foreseeable projects). FortisBC anticipates that the
7 incremental contribution of the proposed Project to this medium-magnitude effect is low.

8 Proposed mitigation measures are anticipated to reduce changes in Air Quality resulting from air
9 emissions during construction and operation of the proposed Project and will be incorporated into the
10 CEMP and EMS. As stated previously, FortisBC has committed to installing air emissions control
11 technologies during operation. Proposed mitigation measures are generally considered by FortisBC as
12 having high effectiveness with best management practices (BMPs) and technologies that are widely and
13 successfully used in various industries in B.C. and worldwide.

14 Table ES-3 summarizes the potential effects, proposed mitigation measures, potential residual effects,
15 and potential cumulative effects from changes in air quality from the proposed Project. No potential
16 residual effects from the proposed Project were characterized as having greater than a low-magnitude
17 effect during the assessment of the Air Quality VC.

18 **Acoustic**

19 The Acoustic VC is divided into the subcomponents: (1) noise and (2) vibration. The activities associated
20 with construction (excavation, ground improvements, installation of stone columns, installation of sheet
21 pile wall), operation (LNG liquefaction), and decommissioning of the proposed Project have the potential
22 to increase in-air noise.

23 Desktop reviews and field studies were completed to characterize the existing conditions of noise and
24 vibration within the Acoustic LAA and RAA. Ambient levels of noise during the construction and operation
25 phases of the proposed Project were predicted using a combination of measured and modelled noise
26 levels at five specific locations (two nearest residential receptors, two receptor points related to
27 recreational land use, and the historic Indigenous village site across from Tilbury Island). Predicted
28 ambient noise levels and noise levels from the proposed Project (ambient plus proposed Project) were
29 evaluated against permissible sound levels (PSLs) by the British Columbia Energy Regulator (BCER) and
30 Health Canada guidance. Due to the industrial nature of the LAA, existing ambient noise levels are already
31 relatively high (between 46.6 and 57.1 decibels [dB]). The existing ambient sound level at the receptors
32 was measured and found to be dominated by industrial, road, rail, river, and air transportation activities.

33 Noise effects are defined as annoyance, speech intelligibility, sleep disturbance, and ground-borne
34 vibration. Health Canada uses a risk-based "percent highly annoyed" (%HA) approach.

35 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
36 on noise and vibration levels:

- 37 ▪ The potential increase in noise and vibration resulting from the proposed Project construction and
38 operation are not anticipated to affect speech intelligibility at four out of five receptors (R1 to R4).
39 Noise levels at Receptor R5 (informal public pathway) are predicted to exceed the %HA and speech
40 intelligibility thresholds during construction and operation. Prior to construction and operation of the
41 proposed Project, mitigation and contingency measures will be developed through engagement with a
42 QP to manage potential acoustic disturbance at Receptor R5. Noise levels are predicted to exceed the
43 threshold for nighttime disturbance at the historic Indigenous village site, and noise levels currently
44 exceed the Health Canada sleep disturbance threshold at two residential sites. The cumulative noise

1 levels during construction and operation (that is, existing conditions, TMJ project, and the proposed
2 Project) are predicted to be approximately 1 dB and 2 dB greater than existing noise levels,
3 respectively. FortisBC has committed to no waterborne deliveries (barges and tugs) to reduce
4 potential effects on traditional use activities from noise during construction.

5 ▪ Proposed mitigation measures identified in subsection 7.3, Acoustic, are anticipated to reduce the
6 noise levels within the LAA during the proposed Project construction and operation and will be
7 incorporated into the CEMP and EMS. Proposed mitigation measures are generally considered by
8 FortisBC as having high effectiveness with BMPs and technologies that are widely and successfully
9 used in various industries in B.C. and worldwide.

10 ▪ An increase in noise levels during construction is predicted to be of negligible magnitude, as the
11 increase complies with the Health Canada annoyance criterion at receptors R1 to R4. Prior to
12 construction and operation of the proposed Project, mitigation and contingency measures will be
13 developed through engagement with a QP to manage potential acoustic disturbance at Receptor R5.
14 The predicted nighttime change at all assessed receptors is less than 3 A-weighted decibels (dBA) and
15 not expected to be audible to the human ear. Vibration during construction is predicted to be of
16 negligible to low magnitude, as it may be perceptible.

17 ▪ The predicted change at all applicable receptors compared to the operation expected future condition
18 and existing ambient condition will be less than 3 dBA, and it is not expected to be discernable from
19 existing conditions by the human ear. The magnitude rating for the increase in noise during operation
20 is therefore considered negligible to low.

21 ▪ Characterization of future cumulative effects on noise levels is considered comparable to that of
22 residual effects from the proposed Project (that is, they will be the same with or without the proposed
23 Project).

24 Table ES-3 summarizes the potential effects, mitigation measures, potential residual effects, and potential
25 cumulative effects (if applicable) for the Acoustic VC. No potential residual effects were characterized
26 greater than a low magnitude during the assessment of the Acoustic VC.

27 Surface Water

28 The Surface Water VC includes the subcomponents surface water quality, surface water quantity, and
29 sediment quality within the Fraser River and Tilbury Slough. Facility construction, operation, and
30 decommissioning activities have the potential to affect surface water through instream construction
31 activities, infrastructure installation, and barge deliveries. Desktop reviews and site investigations were
32 completed to characterize the existing conditions of surface water within the Surface Water LAA and RAA.

33 The south arm of the Fraser River, where the proposed Project Site is located, is influenced by tidal
34 currents and freshet flows. The proposed Project Footprint, Surface Water LAA, and Surface Water RAA are
35 in the lower Fraser River. The Tilbury Slough is approximately 4.5 kilometres (km) in length, connecting
36 with the lower Fraser River at each end, and is crossed by multiple roads with culverts. Tilbury Slough is a
37 stagnant, poorly flushed channel with high turbidity. Flow through Tilbury Slough is controlled by a pump
38 station and flood box. Surface water samples taken within the LAA near Tilbury Slough contain several
39 metals in concentrations exceeding the B.C. freshwater, estuarine, or marine guidelines for protection of
40 aquatic life, irrigation, or wildlife.

41 Available water quality monitoring data in the Fraser River within the LAA show several metals exceeding
42 the B.C. or CCME freshwater, estuarine, or marine guidelines for the protection of aquatic life, irrigation, or
43 wildlife. Substance concentrations of sediment samples that exceeded the B.C. water sediment guidelines
44 included arsenic, chromium, copper, iron, manganese, and nickel. These concentrations were within range
45 of the Fraser River Ambient Monitoring Program sediment concentrations measured in the south arm and

1 are therefore considered to be representative of existing conditions within the Surface Water LAA.
2 Concentrations of polychlorinated biphenyls (PCBs), VOCs, phenols, or polycyclic aromatic hydrocarbons
3 (PAHs) were mostly less than detection limits or less than the B.C. sediment quality guidelines and the
4 Fraser River Objectives. Water samples from the adjacent drainage ditch on Tilbury Road show
5 exceedances of several PAHs. Site runoff discharges to the City of Delta (Delta) storm sewer, which
6 conveys flow to two outfalls located at Tilbury Slough.

7 With the implementation of proposed mitigation measures, potential changes to the Fraser River due to
8 the proposed Project were determined to be negligible and not further assessed, including changes to
9 river currents and tidal patterns; water quality and sediment load; sedimentation, resuspension of
10 sediments, and sediment quality; and acidification and eutrophication.

11 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
12 on Surface Water in the Fraser River:

- 13 ▪ Mitigation measures will be implemented to avoid or minimize potential effects of proposed Project
14 construction and operation on surface water quality and quantity and will be incorporated into the
15 CEMP. As described in subsection 1.5.5, as a result of concerns received during the Application
16 Development phase engagement activities, which occurred after the development of the AIR (B.C.
17 EAO 2022), the proposed Project will no longer involve any waterborne delivery of modular
18 components and bulk construction materials to the proposed Project Site during construction.
19 Avoidance of waterborne deliveries are included in the assessment as an avoidance mitigation
20 measure, and implementation of this avoidance mitigation measure has been incorporated into the
21 determination of potential residual effects to Surface Water.
- 22 ▪ Proposed mitigation measures described in subsection 7.6, Soil, (that is, erosion and sediment control)
23 are anticipated to result in no residual effects on Surface Water quality due to construction activities
24 on land.
- 25 ▪ Indirect potential effects during proposed Project operation include changes to water quality within
26 the Fraser River through acid and nitrogen deposition from air emissions. Subsection 7.4 considered
27 the potential effects of proposed Project-related changes in Air Quality on Surface Water and
28 concluded there are no interactions between Air Quality and Surface Water.
- 29 ▪ Proposed mitigation measures are generally considered by FortisBC as having high effectiveness with
30 BMPs and technologies that are widely and successfully used in various industries in B.C. and
31 worldwide. With the implementation of proposed mitigation measures, no residual effects on the
32 Surface Water VC are anticipated; therefore, a characterization of residual and cumulative effects is not
33 warranted.

34 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects, and
35 cumulative effects, if applicable, for Surface Water. No adverse residual effects were predicted for Surface
36 Water.

37 **Groundwater**

38 The Groundwater VC includes the subcomponents groundwater quantity and groundwater quality.
39 Changes to groundwater quantity and quality have the potential to occur through construction
40 excavations during facility construction, operation, and decommissioning activities within the proposed
41 Project Footprint.

Assessment Summary

1 Existing groundwater conditions, including quality and quantity, were characterized for the proposed
2 Project Site. Tilbury Island is located within a provincially mapped aquifer (Aquifer 42), which is an
3 unconfined sand and gravel aquifer comprising Fraser River sediments. The aquifer classification is
4 moderate due to light demand (withdrawing through wells) with respect to productivity (the aquifer's
5 ability to supply groundwater for use). Aquifer 42 aquifer classification notes a high vulnerability (with
6 respect to potential contamination from surface stores). Groundwater samples collected as part of the
7 Tilbury LNG Facility Stage 2 Preliminary Site Assessment indicated that groundwater at the proposed
8 Project Site is not considered to be contaminated (Jacobs 2022).

9 With the implementation of proposed mitigation measures, no residual effects on Groundwater are
10 anticipated. FortisBC considered the following key factors when assessing the potential effects of the
11 proposed Project on Groundwater:

- 12 ▪ Subsection 7.5, Groundwater, identified Indigenous interests in groundwater levels as it relates to
13 drinking water supply and water availability for fish and wildlife habitat within the Fraser River and
14 Tilbury Slough. Changes in groundwater levels have the potential to affect an Indigenous nation's
15 ability to practise traditional harvesting. A change in groundwater level due to proposed Project
16 construction is anticipated to be temporary and confined to the excavation area; therefore, effects to
17 drinking water supply and fish and wildlife habitat are not anticipated.
- 18 ▪ No change to infiltration rate within the proposed Project Area due to a change in land cover is
19 anticipated, as the surfaces within the area will remain gravelled or paved. Local drawdown of the
20 aquifer during construction will return to preconstruction water levels shortly after ceasing dewatering
21 activities, if required.
- 22 ▪ Surface water within the proposed Project RAA has the potential to infiltrate into groundwater.
23 Subsection 7.4, Surface Water, discusses the proposed mitigation measures to contain and control
24 surface water runoff. FortisBC will collect contact water (that is, water that has contacted process
25 equipment and has the potential to be contaminated) using containments and impoundments.
26 Contact water captured in sumps will be monitored before being released to the onsite drainage
27 ditches that flow into the Delta storm sewer. Noncontact water (that is, water that has not contacted
28 process equipment and is not assumed to be contaminated) will be conveyed into the Delta
29 stormwater ditches, where it will infiltrate into the aquifer.
- 30 ▪ Removal and disposal of approximately 32 square metres of arsenic-contaminated soil before
31 proposed Project construction is anticipated to improve groundwater quality by preventing continued
32 arsenic leaching into the aquifer.
- 33 ▪ Subsection 7.5, Groundwater, considers the effects of proposed Project-related changes in Air Quality
34 and concludes there are no interactions with Air Quality and Groundwater.
- 35 ▪ Implementation of the proposed mitigation measures is described in subsection 7.5, Groundwater.
36 The mitigation measures seek to avoid or reduce proposed Project effects and are anticipated to result
37 in no residual effect on Groundwater. Proposed mitigation measures are generally considered by
38 FortisBC as having high effectiveness with BMPs and technologies that are widely and successfully
39 used in various industries in B.C. and worldwide.

40 Table ES-3 summarizes the potential effects, mitigation measures, potential residual effects, and potential
41 cumulative effects for the environment VCs. No potential adverse residual effects were identified for the
42 Groundwater VC.

1 Soil

2 The Soil VC includes the subcomponents terrain, soil quality (including acid rock drainage [ARD] and
3 metal leaching, contamination, metals concentration, soil capability, and acid deposition), and soil
4 quantity. The LNG facility construction, operation, and decommissioning activities have the potential to
5 affect soil through alteration of topography, terrain instabilities, potential contamination, and erosion.

6 Zoning in the area is primarily industrial and agricultural and is generally developed. Little to no topsoil
7 remains on the proposed Project Footprint. The proposed Project Footprint is currently estimated to
8 consist of coarse textured fill material overlaid by approximately 40 percent pavement and 60 percent
9 gravel.

10 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
11 on Soil:

- 12 ▪ Mitigation measures will be implemented to avoid or minimize potential effects of proposed Project
13 construction and operation on soil and will be incorporated into the CEMP. As described in
14 subsection 1.5.5, as a result of concerns received during the Application Development phase
15 engagement activities, which occurred after the development of the AIR (B.C. EAO 2022), the
16 proposed Project will no longer involve any waterborne delivery of modular components and bulk
17 construction materials to the proposed Project Site during construction. Avoidance of waterborne
18 deliveries and the need for a MOF are included in the assessment as an avoidance mitigation measure,
19 and implementation of this avoidance mitigation measure has been incorporated into the
20 determination of potential residual effects to Soil.
- 21 ▪ Subsection 7.8, Surface Water, and subsection 7.4, Groundwater, determined that the risk of
22 mobilizing legacy contaminants or causing ARD and metal leaching due to the proposed Project
23 construction is negligible to low. Sediment and erosion control measures, along with engineering and
24 design of the proposed Project, are anticipated to reduce the risk of sedimentation from surface water
25 to the Tilbury Slough and Fraser River. The acid-generating potential of materials encountered in the
26 proposed Project Area is low.
- 27 ▪ The potential for acidification and nitrogen deposition on soil is discussed in subsection 7.2,
28 Air Quality. The mitigation measures proposed to alleviate the effects of air contaminants from the
29 proposed Project operation are anticipated to result in no adverse effects to soil.
- 30 ▪ An area of soil contaminated with arsenic will be removed before construction. Removing the
31 contaminated soil may decrease the contaminants being mobilized in soil and water in the future.
- 32 ▪ The mitigation measures identified in subsection 7.6, Soils, are based on the principles of avoidance,
33 minimization, and offsetting. The measures, which will be incorporated into the CEMP, are generally
34 considered by FortisBC as having high effectiveness with BMPs and technologies that are widely and
35 successfully used in various industries in B.C. and worldwide.

36 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects
37 (and cumulative effects, if applicable) for the environment VCs. No potential residual effects were
38 identified during the assessment of the Soil VC.

39 Vegetation

40 The Vegetation VC is divided into three subcomponents:

- 41 ▪ Plant species of interest (including plant species of conservation concern, invasive plant species, and
42 culturally important plant species)

Assessment Summary

- 1 ▪ Ecological communities of interest (including ecological communities of conservation concern and the
2 presence, distribution, and function of wetland ecosystems)
- 3 ▪ Ecosystems (including riparian ecosystems)

4 Desktop reviews and field studies were completed to characterize the existing vegetation conditions within
5 the Vegetation LAA and RAA. The proposed Project Footprint was previously cleared of natural forest and
6 has been heavily disturbed, with the majority of the proposed Project Footprint being used for industrial
7 purposes. The proposed Project Footprint is predominantly covered by anthropogenic surfaces, including
8 paved areas and built-up fill and gravel, and approximately 98 percent of the proposed Project Footprint
9 consists of unvegetated industrial land uses. The vegetation within the proposed Project Footprint is
10 mostly limited to riparian and wetland (marsh and swamp) ecosystems along the Fraser River foreshore,
11 and outside of the proposed Project Footprint in the Vegetation LAA, the Tilbury Slough. Wetlands
12 comprise approximately 0.5 percent of the proposed Project Footprint. Riparian ecosystems comprise
13 approximately 2.2 percent of the total area within the proposed Project Footprint. Limited vegetation is
14 also present within the existing facility on private property, in ditch lines, and is dominated by nonnative
15 and invasive plant species.

16 No records of plant species listed on Schedule 1 of the Federal *Species at Risk Act* are within the proposed
17 Project Footprint. Suitable areas of the Vegetation LAA were surveyed for rare plants, rare ecological
18 communities, invasive plant species, and culturally important plant species during field assessments.

19 Before the commencement of construction of the proposed Project, vegetation within the existing facility
20 site will be removed by construction activities associated with the existing Tilbury facility and the Tilbury
21 Phase 1B (T1B) project. Maintenance of existing landscaping and vegetation along existing fence lines are
22 part of the existing facility and not part of the scope of the proposed Project.

23 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
24 on Vegetation:

- 25 ▪ Mitigation measures will be implemented to avoid or minimize potential effects of proposed Project
26 construction and operation on vegetation and will be incorporated into the CEMP. As described in
27 subsection 1.5.5, as a result of concerns received during the Application Development phase
28 engagement activities, which occurred after the development of the AIR (B.C. EAO 2022), the
29 proposed Project will no longer involve any waterborne delivery of modular components and bulk
30 construction materials to the proposed Project Site during construction. Avoidance of waterborne
31 deliveries and the need for a MOF are included in the assessment as an avoidance mitigation measure,
32 and implementation of this avoidance mitigation measure has been incorporated into the
33 determination of potential residual effects to Vegetation. No MOF will be constructed or used for the
34 proposed Project and no vegetation will be cleared.
- 35 ▪ Wetland or riparian disturbance from the proposed Project is not anticipated because a MOF is not
36 required by the proposed Project during any phase.
- 37 ▪ Subsection 7.4, Surface Water, and subsection 7.7, Vegetation, determine that there are no changes in
38 hydrological or drainage patterns affecting Vegetation as a result of the proposed Project.
- 39 ▪ As assessed in subsection 7.6, Soil, the proposed Project Footprint has been previously disturbed and
40 has little to no topsoil remaining. Soil capacity at the location of the proposed MOF is reduced due to
41 past and present project activities, but it is capable of supporting existing vegetation growth. The
42 proposed Project is not anticipated to result in a residual effect to soil quality or quantity that could
43 negatively affect Vegetation.

- 1 ▪ Subsection 7.7, Vegetation, considers potential effects of proposed Project changes in Air Quality and
2 Surface Water on Vegetation. Based on the results of subsection 7.2, Air Quality, the Vegetation
3 assessment concluded there are no proposed Project-related Air Quality interactions with Vegetation.
- 4 ▪ As assessed in subsection 7.7, Vegetation, following the implementation of proposed mitigation
5 measures, no residual effects to plant species of conservation concern, culturally important traditional
6 use species, or ecological communities of concern (including wetland ecosystems of conservation
7 concern) are anticipated. The introduction or spread of invasive plant species may occur during all
8 phases of the proposed Project. The magnitude of the effect is anticipated to be reduced to negligible
9 to low magnitude with the implementation of measures developed as part of the CEMP and EMS.
- 10 ▪ The mitigation measures identified in subsection 7.7, Vegetation, are based on the principles of
11 avoidance and minimization. The measures, which are incorporated into the CEMP and EMS, are
12 generally considered by FortisBC as having high effectiveness with BMPs and technologies that are
13 widely and successfully used in various industries in B.C. and worldwide.

14 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
15 cumulative effects, if applicable) for the Vegetation VC. No potential residual effects were characterized
16 greater than a low magnitude during the assessment of the Vegetation VC.

17 **Wildlife and Wildlife Habitat**

18 The Wildlife and Wildlife Habitat VC is divided into three subcomponents:

- 19 ▪ Birds (resident and migratory forest birds, waterbirds, wading birds and shorebirds, and species
20 adapted to human infrastructure)
- 21 ▪ Mammals (terrestrial)
- 22 ▪ Amphibians and reptiles

23 Within these subcomponents, various wildlife species with potential to interact with the proposed Project
24 are assessed, including species at risk and culturally important species.

25 The proposed Project construction, operation, and decommissioning activities have the potential to affect
26 Wildlife and Wildlife Habitat through loss or alteration of habitat, change in wildlife movement, and
27 increased risk to wildlife health and mortality. Potential interactions with wildlife habitat may occur during
28 ground disturbance activities; alteration of property ditches; demolition of infrastructure; sensory
29 disturbance from noise, light, and activity; and introduction or spread of invasive plant species.

30 Little to no suitable wildlife habitat occurs within the proposed Project Footprint, as it consists of gravel
31 and paved areas, existing infrastructure, and equipment laydown areas. No natural watercourses or
32 drainages occur, but one artificial drainage has potential to support amphibians and small birds; however,
33 this drainage ditch will be modified during construction of the T1B project before construction of the
34 proposed Project. The Wildlife LAA consists of industrialized areas, disturbed habitat with no connectivity,
35 and a number of paved roadways with regular traffic and noise. The Fraser River has frequent and regular
36 shipping and vessel traffic. The proposed Project Footprint is located within Critical Habitat for barn owl;
37 however, no barn owls were observed during multiple field surveys in 2021. Wildlife use in the LAA is
38 limited to small, fragmented, previously disturbed riparian areas; the banks of and within Tilbury Slough;
39 and the foreshore and mudflats of the Fraser River. The slough has beaver activity, which has created a
40 ponded habitat. Invasive wildlife species are prevalent in the slough. Wildlife that occur in the Wildlife and
41 Wildlife Habitat LAA are adapted to or tolerant of human activity and noise or utilize anthropogenic
42 features.

- 1 There is little to no wildlife habitat within the proposed Project Footprint. The available potentially suitable
2 wildlife habitat within the Wildlife and Wildlife Habitat LAA is limited and has been substantially degraded
3 by past and existing disturbances. The total area of potentially suitable wildlife habitat within the
4 proposed Project Footprint consists of young forest habitat, shrub habitat, marsh habitat, mud flat habitat,
5 and open water in the Fraser River. Riparian habitat may provide cover and forage for small mammals
6 associated with urban environments, such as rats, raccoons, rabbits, minks, and bats.
- 7 Potential direct adverse effects from proposed Project construction and operation include changes in
8 wildlife habitat availability (quantity) and effectiveness (quality), wildlife movement, and wildlife health
9 and mortality risk. Potential indirect effects from changes in Surface Water (subsection 7.4) to Wildlife and
10 Wildlife Habitat during proposed Project operation were assessed. The potential for acidification and
11 eutrophication of wildlife habitat during proposed Project operation due to changes in air quality from SO_x
12 and NO_x emissions was also assessed (subsection 7.2).
- 13 After the implementation of proposed mitigation measures, FortisBC predicts a negligible (nonlisted
14 wildlife) to low-magnitude (species at risk) localized residual effect to wildlife habitat and to wildlife
15 health and mortality risk due to the proposed Project that is not anticipated to result in measurable effects
16 to wildlife populations, including species at risk. Wildlife that remains in the proposed Project Footprint is
17 assumed to be habituated to an urbanized, industrial environment with existing light, noise, and vibration.
- 18 FortisBC considered the following key factors when assessing the potential effect of the proposed Project
19 on Wildlife and Wildlife Habitat:
- 20 ▪ As assessed in subsection 7.4, Surface Water, potential sedimentation to the Fraser River would be
21 prevented by avoiding the construction and use of a MOF. There will be no waterborne deliveries of
22 modular components or construction materials to the proposed Project Site, and a MOF will not be
23 required for the proposed Project during any phase. No residual effects to water quality and sediment
24 load from the proposed Project are anticipated following the implementation of mitigation measures
25 to control erosion and sediment. There are no anticipated interactions of sedimentation or legacy
26 contaminants with wildlife health or mortality risk as a result of the proposed Project, and this effect
27 pathway was not carried through to the residual effects assessment in subsection 7.8.4.
 - 28 ▪ Subsection 7.8, Wildlife and Wildlife Habitat, considers Indigenous nations' concerns with the effects
29 of proposed Project-related changes in Air Quality on Wildlife and Wildlife Habitat. Based on the
30 results of subsection 7.2, Air Quality, the Wildlife and Wildlife Habitat assessment concluded there are
31 no anticipated proposed Project-related Air Quality interactions with Wildlife and Wildlife Habitat.
32 The results of the Air Quality assessment show that nearby receiving aquatic and terrestrial
33 environments for both surface water and soil within the Air Quality VC RAA are not susceptible to
34 acidification, nitrogen loading, or eutrophication from the proposed Project emissions. As such, there
35 are no anticipated interactions with wildlife health risk from emissions generated by the proposed
36 Project, and this effect pathway was not carried through to the residual effects assessment in
37 subsection 7.8.4.
 - 38 ▪ Subsection 7.8, Wildlife and Wildlife Habitat, identifies a combination of avoidance and minimization
39 measures that, along with monitoring, will be incorporated into the CEMP and EMS. With the
40 implementation of proposed mitigation measures, potential changes to wildlife movement are not
41 anticipated. Proposed mitigation measures are generally considered by FortisBC as having high
42 effectiveness with BMPs and technologies that are widely and successfully used in various industries in
43 B.C. and worldwide.
 - 44 ▪ As assessed in subsection 7.8, Wildlife and Wildlife Habitat, some residual adverse effects are
45 anticipated after the implementation of proposed mitigation measures, including loss or alteration of
46 wildlife habitat and increased wildlife health and mortality risk. Wildlife habitat within a zone of

1 influence from the proposed Project Footprint may be altered by noise, vibration, light, and activity
2 associated with the proposed Project construction, operation, and decommissioning activities. Sensory
3 disturbance has potential to temporarily displace resident and migratory birds and other wildlife
4 species from the proposed Project Footprint. Given the minor incremental contribution of the
5 proposed Project within an existing disturbance with limited wildlife habitat value, the magnitude of
6 these residual effects to Wildlife and Wildlife Habitat is negligible for most wildlife species; however,
7 species at risk is conservatively determined to be low magnitude. No measurable effects to wildlife
8 populations, including species at risk, are anticipated.

9 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
10 cumulative effects, if applicable) for Wildlife and Wildlife Habitat. No potential residual effects were
11 characterized greater than a low magnitude during the assessment of the Wildlife VC.

12 **Fish and Fish Habitat**

13 The Fish and Fish Habitat VC includes the following subcomponents: (1) freshwater/estuarine fish and
14 marine mammals and (2) fish habitat. The potential for the proposed Project to adversely affect fish and
15 fish habitat was scoped to assess potential adverse effects related to change in fish habitat, fish
16 movement, and fish mortality risk, including both direct and indirect pathways arising from construction,
17 operation, and decommissioning. The Fish and Fish Habitat LAA is divided into two subareas due to the
18 anticipated spatial extent of potential adverse effects to each: (1) a Fish LAA and (2) a Fish Habitat LAA.

19 As stated previously, during FortisBC's engagement and an additional round of B.C. EAO-led consensus
20 seeking with Indigenous nations during the Application Development phase to discuss the Construction
21 Logistics Update and Alternative Means Memo (FortisBC 2023), concerns were raised about potential
22 negative effects to Indigenous rights to fish, as well as negative cumulative effects on the Fraser River
23 resulting from the proposed barge traffic. FortisBC has considered feedback from all participants and
24 decided not to utilize the waterborne delivery of modules or bulk construction materials described in the
25 DPD (FortisBC 2022). To address concerns about potential effects to the Fraser River, FortisBC has
26 committed to removing construction of the MOF and barge deliveries to the proposed Project Site during
27 construction as an avoidance mitigation measure. Construction materials, equipment, and any other
28 deliveries to the proposed Project Site during construction will be by road freight on existing roads and
29 highways. As a result of the avoidance of waterborne activities during construction, the MOF and
30 associated barge deliveries will no longer be required for the proposed Project.

31 The lower Fraser River intertidal zone extends approximately 30 m from the end of the existing dock at
32 the proposed Project Footprint and provides shallower and lower velocity conditions that are suitable for a
33 variety of fish species. Marsh areas, mudflats, and coarse woody debris from riparian areas and log storage
34 activities within the intertidal zone contribute to the quality of fish habitat within the proposed Project
35 Footprint and Fish and Fish Habitat LAA. These habitat features provide areas of low velocity, abundant
36 emergent and submergent vegetative cover and likely provide rearing habitat for salmonids. The shoreline
37 of the Tilbury Slough and most of the shoreline of the lower Fraser River adjacent to the proposed Project
38 Site within the Fish Habitat LAA have been classified as highly productive (red coded) habitat for fish and
39 wildlife. The lower Fraser River shoreline within the Fish and Fish Habitat LAA and RAA includes areas of
40 lower productivity (yellow or green coded) due to historical and existing developments, such as riprap,
41 industrial facilities, and several jetties.

42 The lower Fraser River and estuary has been identified as being globally important for biodiversity and is
43 known to support 78 different species of fish, including 15 Provincially Red- and Blue-listed species or
44 federally listed species that have been documented within the RAA, including salmonids, eulachon, and
45 white sturgeon. The Fraser River estuary provides habitat for over 2 billion juvenile salmon that reside in

1 the estuary for weeks or months before migrating to the ocean. Intertidal marsh and mudflat areas within
2 the Fish and Fish Habitat LAA and RAA include lower velocity areas with cover and food production
3 (such as benthic invertebrates), providing important rearing and feeding habitat for salmonids.

4 Important habitat for large marine mammals (such as pinnipeds or cetaceans) in the proposed Project
5 Footprint and Fish Habitat LAA is not anticipated. Seals (harbour seals) and sea lions (Steller and
6 California sea lions) may occur in the Fraser River within the Fish Habitat LAA and RAA; however, they are
7 unlikely to be present in large numbers. Marine mammals that could occur in the Fish LAA include Pacific
8 harbour seals, Steller sea lions, and California sea lions.

9 The lower reach of the Tilbury Slough, below the tide gate, experiences saltwater intrusion, resulting in
10 minor saltwater influence above the tidal gate. The reach above the tidal gate generally consists of
11 freshwater and is fringed with similar riparian vegetation communities (FREMP and BIEAP n.d.). There is
12 limited habitat potential for salmonids and other fish species of management interest due to low dissolved
13 oxygen, high turbidity, poor access, and migration. Fish habitat is suitable for forage fish species, such as
14 threespine stickleback (*Gasterosteus aculeatus*) (observed in the slough at the time of field surveys), that
15 can tolerate low dissolved oxygen, low water velocities, abundant algae, and instream vegetation.

16 Existing conditions within the proposed Project Footprint along the foreshore of the Fraser River will likely
17 be altered before the commencement of construction of the proposed Project by works occurring outside
18 of the scope of the proposed Project. Before the commencement of construction of the proposed Project,
19 existing conditions along the foreshore of the Fraser River will likely be altered by construction activities
20 associated with the Tilbury Marine Jetty project, which is planned at the same location as the MOF.

21 FortisBC considered the following key factors when assessing the potential effect of the proposed Project
22 on Fish and Fish Habitat:

- 23 ▪ Subsection 7.9, Fish and Fish Habitat, considers input from Indigenous nations on the potential for
24 changes in fish and fish habitat. To address concerns about potential effects to the Fraser River,
25 FortisBC has committed to removing construction of the MOF and barge deliveries to the proposed
26 Project Site during construction as an avoidance mitigation measure. There will be no waterborne
27 deliveries of modular components or construction materials to the proposed Project Site, and a MOF
28 will not be used by the proposed Project during any phase.
- 29 ▪ As assessed in subsection 7.4, Surface Water, potential effects from the proposed Project are not
30 anticipated to result in a residual effect to fish habitat availability; fish habitat quality; fish health,
31 injury, and mortality; or fish distribution and abundance. The Surface Water assessment also
32 concluded that potential sedimentation during construction is not anticipated following the
33 implementation of measures for erosion and sediment control. Drainage design on the facility site will
34 direct surface water into the Delta stormwater system, and the water from paved areas will be treated,
35 where required, before discharge.
- 36 ▪ Based on the results of subsection 7.2, Air Quality, the Fish and Fish Habitat assessment concluded
37 there are no proposed Project-related Air Quality interactions with Fish and Fish Habitat. The results of
38 the Air Quality assessment show that the lower Fraser River within the RAA at Tilbury Island is not
39 sensitive to acid deposition, and deposition from the proposed Project sources during operation are
40 not predicted to result in acid exceedances in the RAA. In addition, eutrophication in the lower Fraser
41 River is not nutrient limited, and other physical constraints limit the growth of algae; therefore, the
42 trophic status of the river is not anticipated to change as a result of the nitrogen deposition from
43 proposed Project emissions during operation.

- 1 ▪ Subsection 7.9, Fish and Fish Habitat, identifies a combination of avoidance and minimization
2 measures that, along with monitoring, will be incorporated into the CEMP (also summarized in
3 Appendix A). With the implementation of proposed mitigation measures (including the avoidance of
4 waterborne deliveries during construction), potential changes to fish health, injury, and mortality risk,
5 and distribution and abundance are not anticipated. Proposed mitigation measures relate to proposed
6 Project design features, erosion and sediment control BMPs, spill contingency measures, and
7 stormwater and surface water management. Proposed mitigation measures are generally considered
8 by FortisBC as having high effectiveness with BMPs and technologies that are widely and successfully
9 used in various industries in B.C. and worldwide.
- 10 ▪ Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects
11 (and cumulative effects, if applicable) for Fish and Fish Habitat. No adverse residual effects were
12 predicted for Fish Habitat with the implementation of proposed mitigation measures.

13 **Employment and Economy**

14 The Employment and Economy VC describes existing economic conditions and the proposed Project's
15 potential effects on two subcomponents: (1) employment and (2) economy. The LAA and RAA include the
16 boundaries of Metro Vancouver, with a specific focus on Delta and Richmond, B.C. The scope of the
17 assessment of the effects on employment includes employment income and labour force indicators such
18 as unemployment rate, education and skills, access to economic opportunities, and income distribution.
19 The economy subcomponent considers potential proposed Project interactions with Municipal and
20 Regional government revenues, contributions to GDP, cost of living, and business revenue, as indicated by
21 consumer expenditures. Potential proposed Project-related effects to these subcomponents may occur
22 during construction, operation, and decommissioning.

23 The need for a large construction labour force is anticipated during the construction phase, a small
24 permanent workforce will be required for the 40-plus-year operation phase, and a small workforce for
25 decommissioning of the proposed Project is anticipated. Employment opportunities related to
26 construction, operation, and decommissioning of the proposed Project will include direct, indirect, and
27 induced employment. A range of positions will be needed for construction, including trades and skilled
28 labour positions, technical and professional positions, and entry-level positions (such as site security and
29 clerical staff).

30 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
31 on Economy and Employment:

- 32 ▪ FortisBC integrated Indigenous and local knowledge when considering the potential residual effects of
33 the proposed Project construction, operation, and decommissioning. Concerns associated with
34 potential effects of the proposed Project on Indigenous harvesting activities were noted to FortisBC
35 by Kwantlen First Nation, Katzie First Nation, Musqueam First Nation, and Tsleil-Waututh Nation.
36 To address concerns about potential effects to the Fraser River, FortisBC has committed to removing
37 construction of the MOF and barge deliveries to the proposed Project Site during construction as an
38 avoidance mitigation measure. There will be no waterborne deliveries of modular components or
39 construction materials to the proposed Project Site, and a MOF will not be used by the proposed
40 Project during any phase.
- 41 ▪ Subsection 7.11, Land and Resource Use, considers the potential for an increase in population growth
42 resulting from an increase in workforce needed to support proposed Project activities. An increase in
43 population has the potential to affect the ability of Indigenous Peoples to practice traditional
44 economic activities, such as subsistence activities on public land and waters near the proposed Project
45 Footprint.

- 1 ▪ As assessed in subsection 7.10, the effects to employment as a result of the proposed Project are
2 anticipated to be positive. Fortis considered the following key indicators when determining the
3 potential effects to the Employment and Economy VC:
- 4 – Employment income
 - 5 – Education and skills for Indigenous and non-Indigenous Peoples
 - 6 – Access to economic opportunities (including nonwage opportunities for Indigenous Peoples)
 - 7 – Income distribution and equity
 - 8 – Interactions with Municipal and Regional government revenues
 - 9 – Contributions to GDP
 - 10 – Business revenue (indicated by consumer expenditures)
 - 11 – The cost of living
- 12 ▪ FortisBC has engaged with affected stakeholders (including local businesses) to mitigate the potential
13 residual effects of the proposed Project. Subsection 7.10, Employment and Economy, identifies a
14 combination of avoidance and minimization measures that will be incorporated into the CEMP.
15 Implementation of the proposed mitigation measures has resulted in the determination of no negative
16 residual effects to the Employment and Economy VC. Enhancement measures are anticipated to
17 maximize the positive outcomes of the proposed Project.

18 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects
19 (and cumulative effects, if applicable) for Employment and Economy. No potential adverse residual effects
20 were identified for employment and economy. Potential positive effects included increased employment,
21 government and business revenue, and contracting opportunities.

22 **Land and Resource Use**

23 The Land and Resource Use VC includes the following subcomponents:

- 24 ▪ Private property
- 25 ▪ Tenured land and resource use
- 26 ▪ Public land and resource use
- 27 ▪ Parks and protected areas
- 28 ▪ Visual quality
- 29 ▪ Navigation

30 The proposed Project has potential effects to land and water resource use during construction, operation,
31 and decommissioning.

32 Tilbury Island is an industrial park consisting of gravel and paved areas, existing infrastructure, and
33 equipment laydown areas. Properties on Tilbury Island are used primarily for industrial uses, including
34 warehouse operations, manufacturing, cement production, marine terminal and ferry vessel facilities,
35 aerospace, and other industries and services. The existing Tilbury facility is located on private
36 industrial-zoned land owned by FortisBC (refer to Figure ES-5), except for a portion of the proposed
37 Project Footprint within Provincial Crown land (water lot lease) at the location of the MOF. Predominant
38 land uses nearby include industrial and commercial, agricultural, and residential land governed by land
39 use plans and policies from multiple levels of government.

40 Commercial marine transportation is a key industrial marine use activity in the RAA and LAA, with several
41 the Port of Vancouver's key marine terminals located within the south arm of the Fraser River upstream of
42 the proposed Project Footprint. The south arm of the Fraser River includes a main navigational channel
43 used by deep-sea cargo vessels, tugs towing barges and log booms, passenger vessels, government
44 vessels, service vessels, commercial fishing vessels, and recreational and tourism vessels. The Fraser River

1 is used for harvesting and subsistence activities, fishing, recreational activities, and travel by Indigenous
2 and non-Indigenous users. Fisheries activities within the south arm of the Fraser River occur from the Port
3 Mann Bridge downstream to the mouth of the river. In 2022, a total of 383 commercial salmon licences
4 were held in Fisheries and Oceans Canada Gillnet Management Area E, which consists of a geographic area
5 that extends beyond the LAA into the Salish Sea. Indigenous nations are also able to fish for food, social,
6 and ceremonial (FSC) purposes through communal licences or may transfer portions of their FSC
7 allocation to an Economic Opportunity licence, allowing for the sale of fish.



8

9 **Figure ES-5. Existing Tilbury Liquefied Natural Gas Infrastructure**

10 FortisBC considered the following key factors when assessing the potential effect of the proposed Project
11 on Land and Resource Use:

- 12
- 13 ■ FortisBC considered Indigenous land and resource plans when assessing the potential residual effects
14 of the proposed Project construction, operation, and decommissioning, including the Tsawwassen First
15 Nation Final Agreement, the Musqueam Indian Band Land Use Plan, the Quw'utsun Nation stewardship
16 agreement, the Chawathil First Nation Forest and Range Consultation and Revenue Sharing
17 Agreement, and Ts'uubaa-asatx Nation's policies and documents relating to land use in the Lower
18 Mainland.
 - 19 ■ Subsection 7.11, Land and Resources Use, considers the concerns of Indigenous nations when
20 assessing the potential for effects within the LAA as a result of the proposed Project construction,
21 operation, and decommissioning. It considers the patterns of current use of the land and water
22 surrounding the proposed Project for practising traditional activities. The subsection also considers
23 concerns expressed by Indigenous nations about the ability to use the Fraser River for travel and
24 fishing and about incremental changes to air, noise, views, and their relationship to cultural
25 knowledge. In response to the concerns received during the Application Development phase
26 engagement activities, the proposed Project will no longer involve any waterborne delivery of modular
27 components and bulk construction materials to the proposed Project Site during construction. As a
28 result, no MOF is required to be constructed or used for the proposed Project to accommodate
waterborne deliveries.

- 1 ▪ Subsection 7.3, Acoustic, assesses the potential effects of current and future noise conditions within
2 the LAA and RAA. An increase in noise and vibration levels during construction is attributed to
3 activities such as pile driving and vehicle operation. During the permitting process, detailed
4 engineering noise controls will be considered by a QP to manage the potential effect of noise on
5 receptors, if warranted. The potential for noise effects on receptors during construction and operation
6 of the proposed Project was considered negligible to low. The effects assessment determined that
7 decommissioning activities would produce a similar sound level as predicted to occur during
8 construction activities.
- 9 ▪ Commercial, recreational, and subsistence fishing are important activities for Indigenous nations and
10 stakeholders in the LAA and RAA. Subsection 7.4, Surface Water, and subsection 7.9, Fish and Fish
11 Habitat, consider concerns expressed by Indigenous nations; public land and resource users; tenure
12 holders; and federal, provincial, regional, and municipal land managers regarding the potential for
13 changes in water quality or quantity in the Fraser River and Tilbury Slough, which could result in
14 effects on fish habitat or fish health. With the avoidance of waterborne deliveries, no changes in water
15 quality or fish health are anticipated due to the proposed Project.
- 16 ▪ Proposed Project effects to Vegetation (in particular, culturally important plant species used for
17 gathering) have the potential to change the use and enjoyment of public lands where proposed
18 Project activities remove or disturb vegetation. Subsection 7.7, Vegetation, considers the potential
19 effect to Vegetation and concluded no residual effects from the proposed Project were anticipated
20 because vegetation management within the existing facility is managed by the existing facility,
21 existing vegetation within the proposed Project Site will be removed by the T1B project, and access to
22 the proposed Project Footprint is restricted. No MOF is required to be constructed for the proposed
23 Project to accommodate waterborne deliveries; therefore, vegetation along the foreshore will not be
24 disturbed as part of the proposed Project.
- 25 ▪ Bird watching and wildlife viewing were identified as important recreational activities within the
26 proposed Project LAA and RAA. Subsection 7.8, Wildlife and Wildlife Habitat, assessed the potential
27 for the proposed Project activities to effect wildlife habitat, movement, and health and mortality.
28 The negligible (nonlisted wildlife) to low magnitude (species at risk) residual effects to wildlife habitat
29 and wildlife health and mortality are anticipated to occur within the proposed Project Footprint where
30 little to no suitable wildlife habitat is found.
- 31 ▪ As assessed in subsection 7.4, Surface Water, residual effects as a result of the proposed Project are
32 not anticipated in relation to navigation or to public, tenure holder, and Indigenous nation use of the
33 Fraser River. With the avoidance of waterborne deliveries, there are no potential effects to the
34 navigation of marine users.
- 35 ▪ Subsection 7.2, Air Quality, considers private property owners; tenure holders; members of the public;
36 federal, provincial, regional, and municipal land managers, as well as Indigenous nations' concerns
37 with the potential effects of changes in Air Quality from the proposed Project. Subsection 7.2, Air
38 Quality, identifies mitigation measures to lessen the effects on Air Quality resulting from air emissions
39 during construction and operation of the proposed Project. With the implementation of mitigation
40 measures, the magnitude of residual effects to air quality during construction and operation range
41 from negligible to low.
- 42 ▪ As assessed in subsection 7.11, Land and Resource Use, no residual adverse effects are anticipated
43 after the implementation of proposed mitigation measures, including changes to the use and
44 enjoyment of private property, changes to the use of provincial tenures, and changes to the use and
45 enjoyment of public lands and waters.
- 46 ▪ As discussed in subsection 7.12, Infrastructure and Services, the potential effects to flood protection
47 infrastructure were not carried through to assessment because a MOF will not be used by the
48 proposed Project during any phase.

1 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
 2 cumulative effects, if applicable) for Land and Resource Use. No potential residual effects were
 3 characterized greater than a low magnitude during the assessment of the Land and Resource Use VC.

4 **Infrastructure and Services**

5 The Infrastructure and Services VC includes the following subcomponents:

- 6 ▪ Housing and accommodation
- 7 ▪ Community recreation, facilities, and services
- 8 ▪ Health care and social services and facilities
- 9 ▪ Educational and childcare services
- 10 ▪ Emergency response
- 11 ▪ Domestic water supply
- 12 ▪ Sewage and wastewater treatment
- 13 ▪ Solid waste management
- 14 ▪ Landfills and recycling facilities
- 15 ▪ Local and regional transportation infrastructure

16 Several Indigenous nations with kinship ties to the local nations have long occupied or used the Fraser
 17 River and surrounding lands for harvesting, transportation, trading, and other economic and traditional
 18 purposes and continue to rely on the Fraser River as an essential travel way, for harvesting, and for other
 19 cultural activities. Community and regional infrastructure in the LAA and RAA, including transportation
 20 infrastructure (roads, bridges, tunnels, and ferry terminals), water supply and waste management
 21 infrastructure, utilities, and housing, were constructed and improved for communities in the LAA and RAA
 22 as communities grew. At the same time, community and regional services for health care, emergency
 23 services, education, recreation, and other social services were created and continually expanded and
 24 diversified to serve the growing population. Because of population growth and a restricted land base for
 25 expansion in the RAA, there are existing pressures on housing, health care, social services, education,
 26 emergency response services, and childcare. Housing vulnerability and homelessness have been a
 27 persistent problem within Metro Vancouver, with Indigenous Peoples representing approximately one
 28 third of the 2020 homeless count (British Columbia Non-Profit Housing Association 2020).

29 The transportation infrastructure in Metro Vancouver includes a network of federal roads (those within
 30 Vancouver Airport Authority), provincial highways, and regionally important roads connecting destinations
 31 throughout Metro Vancouver, such as city and municipal centres, industrial areas, regional parks, and
 32 transportation hubs (that is, airports, ferry terminals, and border crossings). Metro Vancouver also plays a
 33 major role in the regional, national, and international movement of goods and is part of the Asia-Pacific
 34 Gateway. Current data on traffic volumes on River Road indicate that this route is most active during
 35 weekdays. Traffic count data logged along River Road near the entrances to Tilbury Island (MacDonald St.
 36 and Hopcott Road) recorded an average of nearly 16,040 vehicles per day on weekdays, approximately
 37 200 percent more per day than during weekends. Traffic volume is greatest during the day starting at
 38 6 a.m. and continuing until 5 p.m. before it tapers off.

39 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
 40 on Infrastructure and Services:

- 41 ▪ FortisBC considered Indigenous community services and vulnerability when assessing the potential
 42 effects of the proposed Project construction, operation, and decommissioning, including health care
 43 services specific to Indigenous Peoples, Indigenous nation-operated community-based daycare and
 44 school programs, and socio-economic vulnerabilities related to housing, education, and health care.

- 1 ▪ Subsection 7.11, Land and Resource Use, considered private property owners; tenure holders;
2 members of the public; and federal, provincial, regional, and municipal land managers, as well as
3 Indigenous nations' concerns with proposed Project-related effects to the availability of recreational
4 facilities and parks and other public or private infrastructure (including increased motorized and
5 nonmotorized use on public lands, parking at recreational facilities and parks, and wear and tear of
6 trails, roads, rail lines, and rights of way). Subsection 7.11, Land and Resource Use, identifies
7 mitigation measures to be implemented before construction to lessen potential effects from the
8 proposed Project.
- 9 ▪ Subsection 7.15, Human Health, no residual effects are anticipated with the implementation of
10 minimization and avoidance measures (such as no waterborne deliveries, an idle reduction policy, and
11 dust control measures).
- 12 ▪ FortisBC has engaged with local government and land managers, tenure holders, private landowners,
13 recreational groups, and the tourism industry to mitigate the potential effects of the proposed Project.
14 Subsection 7.12, Infrastructure and Services, identifies a combination of avoidance and minimization
15 measures that will be incorporated into the CEMP. Proposed mitigation measures are generally
16 considered by FortisBC as having high effectiveness with BMPs and technologies that are widely and
17 successfully used in various industries in B.C. and worldwide.
- 18 ▪ Subsection 7.10, Employment and Economy, assessed potential effects of the proposed Project
19 construction, operation, and decommissioning on the labour market, including the potential for labour
20 shortages and effects on the opportunity for Indigenous traditional economic activities. A positive
21 residual effect is anticipated for employment through each of the proposed Project phases.

22 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects
23 (and cumulative effects, if applicable) for Infrastructure and Services. No potential adverse residual effects
24 were identified for the Infrastructure and Services VC.

25 **Archaeological and Heritage Resources**

26 The Archaeological and Heritage Resources VC includes sites of historical and archaeological importance,
27 as well as paleontological resources.

28 Areas within the proposed Project Footprint are considered to have moderate to high archaeological
29 potential and have been the subject of desktop and in-field Archaeological Impact Assessments (AIAs).
30 During the desktop review, one previously recorded archaeological site (DgRs-17) was identified within
31 the RAA. DgRs-17 is located within 1 km of the proposed Project Footprint and contains precontact
32 heritage resources consisting of surface fire-broken rock, subsurface lithics, and a fishing weir. No
33 archaeological or heritage resources were identified during the AIAs completed within the proposed
34 Project Footprint or LAA.

35 FortisBC considered the following key factors when assessing the potential effect of the proposed Project
36 on Archaeological and Heritage Resources:

- 37 ▪ FortisBC integrated Indigenous and local knowledge when considering the potential effects of the
38 proposed Project construction and decommissioning on Archaeological and Heritage Resources. First
39 Nation use of the area includes historic and current fishing, hunting, harvesting of culturally important
40 plant species, and use for ceremonial purposes. An historic Indigenous village site was located on the
41 south arm of the Fraser River across from Tilbury Island and remains an important site for Indigenous
42 nations. Historic land use developments in the proposed Project Area have likely disturbed or altered
43 the integrity of previously unidentified archaeological and heritage resources.

- 1 ▪ Avoidance of archaeological and heritage resources is the primary mitigation strategy of protection.
 2 Subsection 7.13, Archaeological and Heritage Resources, identifies a combination of mitigation
 3 measures if avoidance of archaeological and heritage resources is not practical. These measures will
 4 be implemented before the commencement of construction and decommissioning or during
 5 construction and decommissioning. The mitigation measures will be incorporated into the CEMP
 6 (refer to Appendix A). Proposed mitigation measures are generally considered by FortisBC as having
 7 high effectiveness with BMPs and technologies that are widely and successfully used in various
 8 industries in B.C. and worldwide.
- 9 ▪ As assessed in subsection 7.13, residual effects to Archaeological and Heritage Resources as a result
 10 of the proposed Project are not anticipated. This conclusion was made after no archaeological or
 11 heritage resources were discovered during two AIAs in the proposed Project Footprint. The likelihood
 12 of encountering archaeological and heritage resources during proposed Project activities is considered
 13 low.
- 14 ▪ If archaeological or heritage resources are discovered during construction or decommissioning, the
 15 Archaeological Chance Find Management Guide (Golder 2022) will be implemented.
- 16 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
 17 cumulative effects, if applicable) for Archaeological and Heritage Resources. No potential adverse residual
 18 effects were identified for the Archaeological and Heritage Resources VC.

19 **Culture**

20 The Culture VC includes systems, customs, beliefs, languages, and practices that a group of people may
 21 share. Within B.C., this may include the culture of Indigenous nations or other cultural groups within a
 22 region. The focus of the Culture VC assessment is on the Indigenous cultural communities who have
 23 established historical and current cultural uses along the Fraser River, integrating aspects of other cultural
 24 groups when relevant. Culture subcomponents are as follows:

- 25 ▪ Governance and stewardship systems
- 26 ▪ Customs, beliefs, and values
- 27 ▪ Language and intergenerational knowledge transfer
- 28 ▪ Community, cultural cohesion, and continuity

29 The Fraser River and surrounding lands are important to the cultures of Indigenous nations with kinship
 30 ties to the local nations. Since time immemorial, these local nations have occupied and used the Fraser
 31 River for harvesting, transportation, trading, and other traditional purposes, establishing fishing camps,
 32 settlements, hunting grounds, and spiritual sites on the banks of the Fraser River and in the upland areas
 33 in Tsawwassen and North Delta, B.C. Transmission of culture depends on access to resources and cultural
 34 use sites, as well as the intergenerational transfer of knowledge through language and oral traditions and
 35 traditional activities. Kinship ties, travel, and gatherings are important for Indigenous nations' cultural
 36 cohesion.

37 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
 38 on Culture:

- 39 ▪ FortisBC considered Indigenous governance and stewardship systems when assessing the potential
 40 residual effects of the proposed Project construction, operation, and decommissioning, including the
 41 Tsawwassen First Nation Final Agreement, the Musqueam Indian Band Land Use Plan, the Quw'utsun
 42 Nation stewardship agreement, the Chawathil First Nation Forest and Range Consultation and
 43 Revenue Sharing Agreement, and Ts'uubaa-asatx Nation's policies and documents relating to land use
 44 in the Lower Mainland.

- 1 ▪ Subsection 7.11, Land and Resources Use, considers the concerns of Indigenous nations when
2 assessing the potential for effects within the LAA as a result of the proposed Project construction,
3 operation, and decommissioning. It considers the patterns of current use of the land and water
4 surrounding the proposed Project for practising traditional activities. The subsection also considers
5 concerns expressed by Indigenous nations about the ability to use the Fraser River for travel and
6 fishing and about incremental changes to air, noise, views, and their relationship to cultural
7 knowledge. Recreational and subsistence fishing are important activities for Indigenous nations and
8 stakeholders in the LAA and RAA. Subsection 7.4, Surface Water, and subsection 7.9, Fish and Fish
9 Habitat, consider concerns expressed by Indigenous nations; public land and resource users; tenure
10 holders; and federal, provincial, regional, and municipal land managers regarding the potential for
11 changes in water quality or quantity in the Fraser River and the Tilbury Slough, which could result in
12 effects on fish habitat or fish health.
- 13 ▪ As a result of concerns received during the Application Development phase engagement, the
14 proposed Project will no longer involve any waterborne delivery of modular components and bulk
15 construction materials to the proposed Project Site during construction. As a result, no MOF is
16 required to be constructed or used for the proposed Project to accommodate waterborne deliveries,
17 and no residual effects to Land and Resource Use are anticipated. Following the implementation of
18 mitigation measures (described in subsection 7.4, Surface Water), no introduction of contamination
19 and no changes in water quality or fish health are anticipated within Tilbury Slough due to the
20 proposed Project. Measures include erosion and sediment control and site drainage design and water
21 treatment.
- 22 ▪ Subsection 7.3, Acoustic, assesses the potential effects of current and future noise conditions within
23 the LAA and RAA. A predicted increase in noise levels during construction is attributed to activities
24 such as pile driving and vehicle operation. During the permitting process, detailed engineering noise
25 controls will be considered by a QP to manage the effects of noise on the affected receptors, if
26 warranted. The potential for effects on residential receptors from LFN during proposed Project
27 operation was considered low. The effects assessment determined that decommissioning activities
28 would produce a similar sound level as predicted to occur during construction activities.
- 29 ▪ The proposed Project will not result in changes to culturally important plant species used for
30 gathering, and no changes to the use and enjoyment of public lands are anticipated (subsection 7.7,
31 Vegetation). A MOF is not required by the proposed Project during any phase, and Vegetation along
32 the Fraser foreshore will not be disturbed. Vegetation within the existing facility footprint is restricted
33 to the public and periodically cleared as part of the existing Tilbury facility and will be modified during
34 construction of the T1B project.
- 35 ▪ As assessed in subsection 7.8, Wildlife and Wildlife Habitat, some residual adverse effects are
36 anticipated after the implementation of proposed mitigation measures, including loss or alteration of
37 wildlife habitat and increased wildlife health and mortality risk for species at risk (such as barn owl)
38 but are not anticipated to affect Culture compared to existing conditions.
- 39 ▪ As assessed in subsection 7.4, Surface Water, residual effects as a result of the proposed Project are
40 not anticipated in relation to Indigenous nations' use of the Fraser River, as a MOF will not be used for
41 the proposed Project.
- 42 ▪ Subsection 8, Climate Change, identifies an annual increase in GHG emissions due to the proposed
43 Project construction and operation. However, with the implementation of proposed mitigation
44 measures, the proposed Project is expected to be carbon neutral (that is, net zero) by 2030
45 (Appendix O, GHG Net-zero Plan TDR).
- 46 ▪ Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
47 cumulative effects, if applicable) for Culture. No potential adverse residual effects were identified for
48 the Culture VC.

1 Human Health

2 The Human Health VC includes environmental determinants of health (including air and water quality and
3 noise pollution) and social determinants of health (including socio-economic status, population health
4 status, and health practices). Environmental determinants of health are physical, biological, and chemical
5 aspects of the environment that may affect health and are external to the individual, such as air, water,
6 soil, country foods, and noise. Social determinants of health are the social, economic, political, and cultural
7 conditions into which people are born, play, grow, live, work, and age. Social determinants of health inform
8 the assessment of the proposed Project on population health. The Human Health VC integrates the
9 importance of country foods to Indigenous health and well-being and identifies potential environmental
10 pathways effects on country foods and human health.

11 The LAA and RAA for population health is Metro Vancouver. For environmental determinants of health,
12 the LAA and RAA encompasses the boundaries of the biophysical VCs (Air Quality, Noise, Soil and
13 Sediment Quality, Surface Water, and Groundwater Quality) and thus uses the same LAA and RAA study
14 areas as the respective VC assessments.

15 A Human Health Risk Assessment (HHRA) is included in the Application Appendix J. An HHRA is a
16 quantitative assessment that evaluates the potential health effects on individuals exposed to biophysical
17 stressors and, more specifically, to increased levels of chemicals in the environment associated with
18 various phases of a proposed project.

19 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
20 on Human Health:

- 21 ▪ As assessed in subsection 7.7, Vegetation; subsection 7.8, Wildlife and Wildlife Habitat; and
22 subsection 7.9, Fish and Fish Habitat, changes to the quality, quantity, and availability of harvested
23 country foods (that is, plants, wildlife, and fish) are not anticipated as a result of the proposed Project.
24 Predicted residual effects to Vegetation and Wildlife and Wildlife Habitat due to the proposed Project
25 are anticipated to occur within the proposed Project Footprint, and the residual effects are negligible
26 to low magnitude after the implementation of mitigation measures and are not anticipated to
27 adversely affect the harvesting of country foods compared to existing conditions. There will be no
28 waterborne deliveries of modular components or construction materials to the proposed Project Site,
29 and no MOF will be required; therefore, no residual effects to Fish and Fish Habitat are anticipated.
- 30 ▪ As assessed in subsection 7.2, Air Quality, the increase in ambient concentrations during construction
31 and operation are considered to have a negligible (NO₂) to low (SO₂) residual effect. Other CACs
32 increase from the Base Case during construction and operation but are not substantively greater than
33 existing air quality conditions. FortisBC has committed to electrifying the liquification process and
34 incorporating emissions reduction or control technology in the plant to meet air emission
35 performance standards and ambient air concentrations standards and objectives during steady-state
36 operation in a safe and efficient manner.
- 37 ▪ The HHRA for the proposed Project considered exposure pathways for humans from air and water
38 contaminants, and noise due to the proposed Project that exceed Canadian health guidelines. Surface
39 water and groundwater quality are not anticipated to be affected by contaminants of concern as a
40 result of proposed Project activities. With respect to noise, the HHRA concluded that users of the
41 recreational trail (R5) would experience noise levels exceeding health guidelines during construction.
42 During the permitting process, detailed engineering noise controls will be considered by a QP to
43 manage the effects of noise on the affected receptors, if warranted. Indigenous Peoples are not
44 anticipated to experience a measurable change in the quality of their experiences fishing, hunting, or

- 1 gathering that indirectly affects their health and well-being due to changes in air quality or noise
2 levels.
- 3 ■ FortisBC predicts that there are no potential proposed Project effects on the quality of country foods
4 due to contamination. The HHRA examined the potential for the proposed Project to contaminate
5 country foods (such as berries, fish, and game) via potential changes in Soil, Air Quality, Groundwater,
6 and Surface Water. The HHRA concluded that contamination of country foods, including berries and
7 wildlife, as a result of proposed Project activities is highly unlikely. There will be no waterborne
8 deliveries of modular components or construction materials to the proposed Project Site, and no MOF
9 will be required; therefore, no residual effects to Fish and Fish Habitat are anticipated. In addition, acid
10 or nitrogen deposition from air emissions during construction and operation on country foods was
11 considered, and no effects are predicted in the receiving environments from predicted acid or nitrogen
12 deposition from air emissions.
- 13 ■ As assessed in subsection 7.10, Economy and Employment, the proposed Project's positive effects on
14 socio-economic determinants of health, such as employment, education, income, socio-economic
15 status, and other indicators, may directly and indirectly contribute to positive effects on Human
16 Health. While individuals and families benefiting from employment associated with the proposed
17 Project may experience higher incomes and an increased quality of life, potential direct adverse
18 effects associated with socio-economic determinants of health could occur. For instance, shift work
19 could lead to increased family stress, unhealthy practices, or substance use, potentially affecting
20 health.
- 21 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
22 cumulative effects, where applicable) for Human Health. There were no potential residual effects that were
23 characterized greater than a low magnitude during the assessment of the Human Health VC.

24 **Climate Change and Greenhouse Gas Emissions**

- 25 The Application includes an assessment of climate change and GHG emissions as a result of the proposed
26 Project. Section 8, Climate Change and Greenhouse Gas Emissions, describes the meteorological
27 environment and evaluates the proposed Project's climate change resilience, quantifies GHG emissions,
28 and potential carbon sinks for the proposed Project. The assessment also assesses the potential effects of
29 the proposed Project on federal emissions reduction efforts and global GHG emissions, outlines GHG
30 mitigation measures, and presents the proposed Project's plan to achieve net-zero emissions.
- 31 The Climate Change Resilience Assessment (CCRA) completed for the proposed Project predicts increased
32 future climate scenarios, including short-duration, high-intensity rainfall; extreme heat events; and heat
33 waves (Appendix G of the Application). The potential cumulative effects on the local environment caused
34 by climate change and the proposed Project are considered to be limited based on design considerations,
35 planning, and regulatory requirements. The proposed Project workshops provided an initial list of design
36 considerations for moderate and high-risk events. Section 8, Climate Change and Greenhouse Gas
37 Emissions, presents potential adaptation measures to address major climate risks. These measures serve
38 as a starting point to enhance climate resiliency by leveraging currently available technologies, industry
39 standards and practices for design and construction, and FortisBC operation and maintenance practices.
40 FortisBC will consider these strategies to increase the resilience of its infrastructure and address climate
41 change vulnerabilities.
- 42 The Base Case GHG TDR (Appendix N of the Application) quantifies the baseline proposed Project GHG
43 emissions and describes the methodology and data used in the quantification. GHG emissions from
44 upstream sources are quantified in the Upstream GHG Assessment TDR (Appendix M of the Application).
45 The operation phase of the proposed Project will include direct GHG emissions from combustion in

1 industrial processes, flaring, fugitive losses, and indirect emissions from acquired energy (in the form of
2 electricity). The proposed Project will also be the final emission point for the formation (entrained) CO₂,
3 which is naturally present within upstream gas reserves and follows the feed natural gas to the facility,
4 where CO₂ must be removed before liquefaction. Emissions from acquired energy vary over the proposed
5 Project life due to variation in the assumed future electricity intensity. Since the expected lifetime of the
6 proposed Project is beyond 2050, the proposed Project needs to present a credible path toward net-zero
7 GHG emissions by 2030 under the proposed requirements of the Government of B.C. and 2050 based on
8 Federal requirements.

9 The Net-zero Plan (Appendix O of the Application) outlines a technically and economically feasible
10 approach to achieve net-zero GHG emissions by 2050. This plan has the flexibility to be accelerated to
11 meet the 2030 timeframe, as required by the Government of B.C. As FortisBC advances the proposed
12 Project design, a GHG Management Plan will be developed that will build on the current BAT and Best
13 Environmental Practice (BEP) and by using best industry practice to manage the proposed Project direct
14 GHG emissions. The adoption of additional mitigation measures over the life of the proposed Project will
15 confirm that the proposed Project remains best-in class by meeting net-zero emissions by 2030 and
16 beyond. To meet net zero by 2030 requirements, the proposed Project will consider the use of renewable
17 fuels for combustion and use of offset measures. The Net-zero Plan prioritizes reducing direct GHG
18 emissions, as indirect GHG emissions from the use of electricity are expected to decrease as the grid
19 becomes net zero.

20 FortisBC emphasizes that the Application is based on a proposed Project design with highly conservative
21 emissions estimates, representing a “high case” scenario. FortisBC continues to explore opportunities for
22 further emissions reduction throughout the proposed Project development.

23 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
24 cumulative effects, where applicable) for Climate Change and GHG Emissions.

25 **Summary of Biophysical Factors that Support Ecosystem Function**

26 The Application includes an assessment of the effects on biophysical factors that support ecosystem
27 function. The Ecosystem Function Scoping Tool was used to identify topics that may be relevant to
28 effectively assess 10 biophysical factors that support ecosystem function in accordance with the guidance
29 from Appendix 1 of the B.C. EAO Effects Assessment Policy (B.C. EAO 2020a). As presented in
30 Table 12.2-1 of Section 12, effect indicators, existing conditions, and potential residual and cumulative
31 effects of applicable biophysical VCs (Section 7) were reviewed to inform a summary of biophysical factors
32 that support ecosystem function. A combination of VCs, effect indicators, and residual and cumulative
33 effects were chosen to best inform each of the biophysical factors that support ecosystem function
34 outlined in the B.C. EAO Effects Assessment Policy (B.C. EAO 2020a).

35 The proposed Project Site is located in a predominantly industrial area where air contaminants are
36 relatively high due to nearby industrial activities and marine traffic emissions. Soils in the proposed Project
37 Area have been heavily disturbed due to agricultural use in the early part of the 20th century and
38 industrial land use activities. Remnants of previously disturbed vegetated areas can be found in the Soil
39 LAA consisting of portions of the riparian area along the northern boundary of the proposed Project
40 Footprint and the Tilbury Slough. The existing environmental conditions, characterized by compromised
41 air quality, disturbed soils, and fragmented vegetation, reflect the industrial nature of the surroundings
42 and the historical land use patterns in the area.

Assessment Summary

1 The lower Fraser River and Tilbury Slough have the potential to support fish and wildlife species that rely
2 on adequate levels of surface water for habitat. The riparian vegetation along the Fraser River is
3 deciduous-dominated young forest with an understorey dominated by plant species that are common on
4 disturbed and riparian sites. Intertidal marsh and mudflats within the proposed Project Footprint provide
5 rearing habitats for several fish species, such as salmonids (specifically, chum [*Oncorhynchus keta*] and
6 Chinook salmon [*Oncorhynchus tshawytscha*]) and species such as northern pikeminnow and starry
7 flounder. Benthic invertebrates provide foraging value for several fish, including salmonid species.

8 Riparian areas within the Vegetation LAA include the riparian area on the banks of Tilbury Slough along
9 the southeastern perimeter of the proposed Project Footprint, as well as a small area of previously
10 disturbed riparian vegetation on the bank of the Fraser River. These vegetated areas are dominated by
11 nonnative and invasive and noxious plant species; culturally important plant species are also present in
12 Appendix G of the Application. The foreshore of the Fraser River within the Vegetation LAA has been
13 affected by past industrial activities, including log transportation and storage, and regular disturbance
14 from shipping and other boat activity associated with the adjacent Seaspan Corporation ferry terminal.

15 The majority of wildlife habitat within the LAA has been altered by industrial and agricultural
16 development, and little suitable wildlife habitat exists within the proposed Project Site. From an ecosystem
17 function perspective, the Wildlife and Wildlife Habitat LAA lacks habitat connectivity between the Fraser
18 River and Tilbury Slough. This disconnection is due to the presence of the existing Tilbury LNG facility and
19 paved roadways with regular traffic from industrial trucks and workers accessing sites on Tilbury Island.

20 FortisBC considered the following key factors when assessing the proposed Project's effects on biophysical
21 factors that support ecosystem function:

- 22 ▪ The Application has been prepared in accordance with the AIR (B.C. EAO 2022), in which potential
23 effects were identified from waterborne delivery associated with the proposed Project and
24 construction of the MOF. However, as described in subsection 1.5.5, as a result of concerns received
25 during the Application Development phase engagement activities, which occurred after the
26 development of the AIR, the proposed Project will no longer involve any waterborne delivery of
27 modular components and bulk construction materials to the proposed Project Site during
28 construction. As a result, no MOF is required to be constructed or used for the proposed Project to
29 accommodate waterborne deliveries. Avoidance of waterborne deliveries is included in the assessment
30 for biophysical VCs as an avoidance mitigation measure and is incorporated into the determination of
31 potential residual effects to VCs (Section 7).
- 32 ▪ The proposed Project Footprint and surrounding areas have been previously cleared of natural forest
33 and are heavily disturbed, with the majority of the proposed Project Area currently used for industrial
34 purposes. Existing habitats supporting ecosystem function on the proposed Project Site are limited to
35 wetlands and patchy, previously disturbed riparian areas on the banks of Tilbury Slough and the Fraser
36 River.
- 37 ▪ As assessed in subsection 7.8, Wildlife and Wildlife Habitat, previously disturbed habitat within the
38 Wildlife and Wildlife Habitat RAA is already limited to small, fragmented patches and is subject to
39 regular sensory disturbance from current, ongoing industrial activity. No key ecological corridors or
40 migration routes are affected by the proposed Project.
- 41 ▪ Subsection 7.7, Vegetation, determines that limited vegetation that is dominated by nonnative and
42 invasive plant species occurs within the existing facility in ditch lines. Implementation of weed and
43 pest management procedures during construction and operation of the proposed Project can reduce
44 the spread of invasive noxious species to existing conditions. In addition, very little structural
45 complexity currently exists at the proposed Project Site, as it is on a previously cleared and highly

1 disturbed industrial site. With the implementation of proposed mitigation measures, negligible
2 ecosystem-level effects to structural complexity are anticipated as a result of the proposed Project.

- 3 ▪ Subsection 7.9 determines that the intertidal zone within the proposed Project Footprint offers some
4 structural complexity for fish, particularly within intertidal marsh and mudflats within the proposed
5 Project Footprint, potentially providing rearing and foraging habitats for several species of fish.
6 However, with the implementation of proposed mitigation measures, and given that the proposed
7 Project will no longer involve any waterborne delivery of modular components and bulk construction
8 materials to the proposed Project Site during construction, the proposed Project will not result in
9 residual effects to fish and fish habitat.
- 10 ▪ Subsection 7.2, Air Quality, determines that proposed Project operation is anticipated to result in
11 negligible-magnitude effects from NO₂ and a low-magnitude residual effect from an increase of SO₂
12 during operation. However, no air quality exceedances of the current established air quality limits are
13 expected during steady-state operations. Combined with no residual effects to surface water quality as
14 a result of the proposed Project (subsection 7.4, Surface Water), both surface water and soil within the
15 Air Quality VC RAA are not susceptible to acidification, nitrogen loading, or eutrophication from
16 proposed Project emissions.

17 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects, and
18 cumulative effects, if applicable for the Air Quality, Surface Water, Groundwater, Vegetation, Wildlife and
19 Wildlife Habitat, and the Fish and Fish Habitat VCs. Where potential interactions were identified, the
20 proposed Project is expected to have negligible adverse effects on biophysical factors that support
21 ecosystem function.

22 **Human and Community Well-being**

23 The Application assesses potential effects from the proposed Project identified in the assessment of
24 socio-economic VCs³ and Indigenous interests to identify ways that the proposed Project may affect
25 Human and Community Well-being. Human and Community Well-being is determined by a range of
26 factors that influence the conditions in which people live, work, and play. At the community level,
27 economic opportunities, adequate public services and infrastructure, access to nature, and social
28 connections are examples of factors that make up the conditions in which people can thrive. At an
29 individual level, demographic factors, such as age, sex, gender, or ethnicity, influence how people
30 experience these factors differently.

31 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
32 on Human and Community Well-being:

- 33 ▪ Potential effects identified for the Economy VC are primarily positive. Subsection 7.10, Employment
34 and Economy, determines that the proposed Project is anticipated to result in increased employment
35 opportunities, contracting and procurement opportunities, income from employment, and workforce
36 enhancement. Economic opportunities from the proposed Project may positively affect workers, their
37 families, and the communities where they live. Improved income security relates to the ability of
38 families and individuals to provide for their needs and thrive in their communities.
- 39 ▪ As assessed in subsection 7.11, Land and Resource Use, use of tenured areas, particularly the Cultural
40 Significance tenure site across the Fraser River from the proposed Project Footprint, that is, the
41 historic Indigenous village site, may be adversely affected by changes to the sensory conditions
42 associated with proposed Project construction and operation. The proposed Project is also expected to
43 have an adverse residual effect on the visual quality of landscape for residential, recreational, and

³ Socio-economic VCs include Employment and Economy, Land and Resource Use, Infrastructure and Services, Culture, and Human Health.

1 Indigenous cultural use areas where it provides a setting for land use activities. The proposed Project is
2 anticipated to result in a minor alteration to the visual quality of daytime views and is considered
3 characteristic of the existing, predominately industrial landscape of the Tilbury Industrial Area.
4 Indigenous Peoples and viewers in proximity to the proposed Project, such as on Tilbury Island, would
5 be disproportionately affected.

- 6 ■ Subsection 7.2, Air Quality, determines that the proposed Project will incrementally contribute NO₂
7 emissions to existing ambient NO₂ levels, which currently exceed both the 1-hour and annual
8 CAAQS-2025; however, the region has been experiencing an ongoing trend of decreasing background
9 levels of CACs. The mitigated proposed Project is anticipated to have a negligible (NO₂) to
10 low-magnitude (SO₂) effect on air quality compared to existing conditions. Sensitive subgroups that
11 may have an elevated risk include nearby users of the area with pre-existing health conditions, onsite
12 workers, and local businesses within or directly adjacent to the proposed Project Footprint. The risk of
13 health effects from cumulative poor air quality increases as the frequency and duration of exposure
14 increases, such that those close to emissions sources (onsite workers, adjacent commercial workers,
15 and visitors) will have greater risk.
- 16 ■ Negative potential health effects associated with those employed in shift work for the proposed
17 Project exist. Shift work causes disruptions in sleep and mood and negatively affects gastrointestinal
18 and mental health. Shift work is also associated with increased risk of substance use and an increased
19 incidence of motor vehicle accidents. These negative health outcomes can be transferred to the family
20 unit or household, and female shift workers, Indigenous shift workers, and workers with lower
21 education levels are expected to be disproportionately affected. The proposed mitigation measures
22 are expected to reduce the potential residual health effects to negligible magnitude and are not
23 expected to be discernable from health effects occurring under existing conditions for the majority of
24 the workforce but may be detectable at a low magnitude for some workers, such as more vulnerable
25 population subgroups. Cumulative effects on the population health in the RAA due to the high shift
26 work demand for multiple projects are predicted. The relative contribution of shift work to the
27 negative health endpoints associated with shift work within the RAA population (such as substance use
28 and mental health concerns) are considered to be low magnitude with confounding factors.
- 29 ■ Indigenous community members and families benefiting from employment associated with the
30 proposed Project may experience higher incomes, contributing to an increased quality of life.
31 However, increased participation in the wage economy may reduce participation in traditional
32 nonwage economies. Employment income, education and skills training, procurement opportunities,
33 and Indigenous Governments revenue are anticipated as positive effects. Indigenous nation members
34 with a trades certificate and experience in the construction sector would be most likely to benefit from
35 direct employment with the proposed Project.

36 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
37 cumulative effects, if applicable) for the socio-economic VCs used to assess the potential effects of the
38 proposed Project on human and community well-being. Potential effects on human and community
39 well-being as a result of the proposed Project include both positive and negative effects. Many effects are
40 interrelated between and across VCs and Indigenous interests.

41 **Effects on Current and Future Generations**

42 The proposed Project has an important role in the well-being of current and future generations. FortisBC
43 has designed the proposed Project to not only reduce potential environmental effects but also to add
44 resilience to FortisBC's gas system to serve the needs of local residents in B.C., both now and for future
45 generations. From an economic perspective, the proposed Project will incorporate sustainable and
46 resilient resource use into its design to minimize waste and inefficiency, reliably delivering increasingly

1 low-carbon energy to its customers in the Lower Mainland. FortisBC will also encourage the use of local
2 and regional human resources in design, planning, construction, restoration, and operation to the extent
3 practical. From a social and cultural perspective, the proposed Project will support community safety and
4 health, through the implementation of FortisBC's Corporate Safety and Environmental Policy. From an
5 environmental perspective, the proposed Project will support the natural environment and its ecosystems
6 through mitigation and the proposed Project's management plans.

7 The Application reviewed the potential positive and negative effects for environmental, economic, social,
8 cultural, and health VCs and Indigenous interests on current and future generations as they relate to the
9 proposed Project. Potential residual effects are described as having immediate-, short-, medium-, long-, or
10 extended-term durations. Three VCs (that is, Air Quality, Acoustic, and Vegetation) had residual effects
11 that were assessed to have immediate- to medium-term durations and therefore determined to affect the
12 current generation, whereas five VCs (that is, Acoustic, Air Quality, Wildlife and Wildlife Habitat, Land and
13 Resource Use, and Human Health) had residual effects with long- or extended-term durations that could
14 impact future generations.

15 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
16 on Current and Future Generations:

- 17 ■ The proposed Project will play a crucial role in enhancing the energy resilience of the Lower Mainland.
18 By providing a low-carbon fuel source, it will support the local and global transition toward a
19 decarbonized energy supply, contributing to a more sustainable and reliable energy future. The Lower
20 Mainland's reliance on various forms of energy continues to grow over time, it is essential to ensure
21 the region's energy system is resilient and capable of meeting increasing demand. The proposed
22 Project addresses this need, strengthening the region's energy security and supporting its long-term
23 sustainability goals.
- 24 ■ As assessed in subsection 7.10, Employment and Economy, the planning, construction, and operation
25 of the proposed Project will provide benefits through employment, government revenue, and
26 economic development and diversification for the region, Indigenous nations, and local communities.
27 The proposed Project will have positive economic effects on the current and future generations in the
28 proposed Project Area by creating direct, indirect, and induced employment for both Indigenous and
29 non-Indigenous residents.
- 30 ■ Potential residual effects during construction that were assessed to have immediate- to medium-term
31 durations affecting the current generation include the following:
 - 32 – Elevated ambient CAC concentrations during construction
 - 33 – Increased noise and vibration levels during construction
 - 34 – Introduction or spread of invasive plant species
- 35 ■ Potential residual effects with long- or extended-term durations anticipated to potentially affect
36 future generations include the following:
 - 37 – Increased noise levels during construction and operation
 - 38 – Increased ambient concentrations of NO₂ and SO₂ during operation⁴
 - 39 – Loss or alteration of wildlife habitat for species at risk
 - 40 – Increased wildlife health and mortality risk for species at risk
 - 41 – Change to use of tenures and licensed resource uses
 - 42 – Change to visual quality of the landscape

⁴ CO, PM₁₀, PM_{2.5}, hydrogen sulphide, and VOCs were not predicted to exceed health guidelines and were determined to be negligible under all cases in the Air Quality assessment (subsection 7.2) and were not carried forward into the residual effects assessment. NO₂ and SO₂ were carried through as nonthreshold CACs in relation to human health.

1 – Effects from shift work

2 Adverse effects on current and future generations of Indigenous Peoples are not anticipated due to the
3 scope of the proposed Project and implementation of proposed mitigation measures
4 (subsection 14.3.4.3):

- 5 ▪ The Application has been prepared in accordance with the AIR (B.C. EAO 2022), in which potential
6 effects were identified from waterborne delivery (that is, barge deliveries) and the use of the MOF
7 associated with the proposed Project. However, as stated previously, as a result of concerns received
8 from engagement activities during the Application Development phase, the proposed Project will no
9 longer involve any waterborne delivery of modular components and bulk construction materials to the
10 proposed Project Site as an avoidance mitigation measure (refer to subsection 1.5.5) to address
11 concerns about effects to the Fraser River, the Salish Sea, and the SRKW population. A MOF will not be
12 required by the proposed Project.
- 13 ▪ Potential adverse effects on harvesting and subsistence activities for current and future generations of
14 Indigenous nations that currently use areas within and surrounding the proposed Project (such as
15 fishing within the lower Fraser River) are not anticipated, as the proposed Project has no in-river work
16 or activities.
- 17 ▪ Access to traditional lands and resources will not be affected during construction, and no effects to
18 current generations are anticipated.
- 19 ▪ A change in access to cultural sites or change in the experience of using cultural sites due to noise, air
20 quality, or changing visual landscapes is not anticipated. Changes in air quality, noise, and the visual
21 landscape from existing conditions are not anticipated to impact intergenerational cultural
22 transmission (future generations).
- 23 ▪ Positive effects from training and employment opportunities and benefits-sharing agreements are
24 anticipated.
- 25 ▪ The proposed Project is not anticipated to affect Indigenous nation members' ability to meet future
26 aspirations or opportunities from harvesting resources for subsistence or income and are anticipated
27 to remain comparable to existing conditions. The proposed Project location is within a current
28 brownfield and industrialized area, and potential effects are not expected to be discernable from
29 existing conditions.
- 30 ▪ Reduced opportunities to transmit cultural information as a result of the proposed Project are not
31 anticipated to be measurable compared to existing conditions and are not anticipated to affect future
32 Indigenous generations.
- 33 ▪ Proposed Project construction activities are not anticipated to limit access to traditionally used areas
34 or affect Indigenous nations' abilities to participate in decision making and determine and develop
35 strategies for use of land and water within their traditional territories (both current and future
36 Indigenous generations).

37 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects (and
38 cumulative effects, if applicable) for the environmental and socio-economic VCs that were used to assess
39 the potential effects of the proposed Project on current and future generations.

40 Contribution to Sustainability

41 In accordance with the AIR (B.C. EAO 2022), the Application characterizes the proposed Project's
42 contribution to sustainability and provides a qualitative assessment of how sustainability principles have
43 been applied throughout the planning, design, implementation, and monitoring phases of the proposed

1 Project. The Application applies four sustainability principles and analyzes how the proposed Project
2 accomplishes the following:

- 3 ▪ Considers the interconnectedness and interdependence of human-ecological systems
- 4 ▪ Considers the well-being of present and future generations
- 5 ▪ Maximizes overall positive benefits and reduces adverse effects of the proposed Project
- 6 ▪ Applies the precautionary principle by considering uncertainty and risks of irreversible harm

7 The assessment of the proposed Project's contribution to sustainability incorporates the key topics and
8 VCs from Sections 11 through 14, including the following:

- 9 ▪ Indigenous nations (Section 11)
- 10 ▪ Biotic and abiotic factors that support ecosystem function (Section 12)
- 11 ▪ Human and community well-being (Section 13)
- 12 ▪ Current and future generations (Section 14)

13 FortisBC considered the following key factors when assessing the potential effects of the proposed
14 Project's contribution to sustainability:

- 15 ▪ The primary objectives of the proposed Project are to enhance energy system resilience for the Lower
16 Mainland B.C. population and support global efforts to transition to lower-carbon energy sources.
17 Switching to a cleaner LNG fuel has added benefits in GHG reductions and air quality reductions within
18 the local and global airsheds.
- 19 ▪ Although there are negative residual effects to the well-being of current and future generations, the
20 magnitude of these effects is considered low in most cases. However, the substantial positive residual
21 effects overshadow these adverse effects, showcasing the proposed Project's potential to contribute
22 substantially to the well-being of both current and future generations.
- 23 ▪ The proposed Project will apply proposed mitigation measures, best practices, and innovative
24 technologies to reduce potential adverse effects on the environment and local communities. The
25 objectives of the proposed Project are directly influenced by the values of FortisBC, stakeholders, and
26 Indigenous nations with the objective to reduce adverse effects on the local environment and
27 maximize socio-economic benefits for the region. Through the application of mitigation and
28 enhancement measures, the proposed Project aims to contribute to sustainability.
- 29 ▪ The socio-economic and community benefits of the proposed Project include increased employment
30 income, skills training, contracting, and procurement. The benefits are anticipated to extend to the
31 entire region, including local Indigenous nations.
- 32 ▪ The proposed Project demonstrates a commitment to sustainability, aligning with the precautionary
33 principle and incorporating adaptive management practices to effectively address uncertainties and
34 potential risks. The proposed Project's adherence to the precautionary principle, comprehensive
35 impact assessment, and the proactive approach to design and mitigation measures demonstrate a
36 high level of commitment to sustainability. The robust engagement with stakeholders and Indigenous
37 nations, consideration of climate change uncertainties, and the respectful integration of Indigenous
38 Knowledge further strengthen the proposed Project's sustainability rating. By incorporating adaptive
39 management practices, FortisBC demonstrates the ability to respond effectively to new information,
40 reinforcing its dedication to responsible and sustainable development.

41 Table ES-3 summarizes the potential effects, proposed mitigation measures, residual effects
42 (and cumulative effects, if applicable) for the environmental and socio-economic VCs. By integrating
43 sustainability into every aspect of the proposed Project, FortisBC aims to serve as a model for sustainable
44 development and contribute positively to the well-being of present and future generations. Results of the

1 analysis indicated a high sustainability rating for each of the sustainability principles, which suggests the
2 proposed Project has an overall positive contribution to sustainability.

3 **Malfunctions and Accidents**

4 Section 9, Malfunctions and Accidents, describes the process for identifying potential malfunctions and
5 accidents, FortisBC's approach to preventing a malfunction or accident from occurring, and the proposed
6 mitigation measures to avoid or minimize the consequences of malfunctions and accidents. The proposed
7 Project will be designed, constructed, and operated to reduce the risk of malfunctions and accidents from
8 occurring by adhering to all regulations and industry BMPs. To minimize the risk of a malfunction or
9 accident, the proposed Project will implement existing safety measures that have contributed to the
10 ongoing safe operation of the existing Tilbury LNG facility. The proposed Project is also an opportunity to
11 upgrade the aging Base Plant facility (that is nearing the end of its design life) with a new facility designed
12 to current standards.

13 As stated previously, the Application has been prepared in accordance with the AIR (B.C. EAO 2022), in
14 which malfunctions and accident scenarios were identified from waterborne delivery associated with the
15 proposed Project. As a result of concerns received from engagement activities during the B.C. EAO
16 Application Development phase, which occurred after the development of the AIR, the proposed Project
17 will no longer involve any waterborne delivery of modular components and bulk construction materials to
18 the proposed Project Site as an avoidance mitigation measure. Implementation of this avoidance
19 mitigation measure means there are no interactions with VCs and Indigenous interests as a result of vessel
20 collision during construction. With the commitment to not having any waterborne delivery of materials to
21 the proposed Project Site during construction, a credible malfunction or accident scenario is no longer
22 associated with vessel traffic.

23 Section 9, Malfunctions and Accidents, provides a risk-based approach for the assessment of malfunctions
24 or accidents that could affect Indigenous interests identified for the proposed Project and assesses the
25 potential interactions between malfunctions and accidents from the proposed Project and VCs.

26 Malfunction and accident scenarios that were considered the most credible and that were therefore
27 assessed for the proposed Project include the following:

- 28 ▪ Loss of containment of LNG resulting in release of cryogenic liquid
- 29 ▪ Loss of containment of flammable material resulting in a fire or explosion
- 30 ▪ Loss of containment of hazardous material (HAZMATs) (not including LNG) resulting in a fire and or
31 environmental contamination
- 32 ▪ Terrestrial vehicle collision resulting in loss of human life, a fire or explosion, or a HAZMAT release
- 33 ▪ Vessel collision during construction resulting in loss of cargo, release of HAZMAT into the Fraser River,
34 or a human fatality
- 35 ▪ A malfunction or accident resulting in emergency shutdown (ESD) and flaring of natural gas (an ESD is
36 the activation of engineered safety systems, such as a totally enclosed ground flare [TEGF], which is
37 designed to safely shut down the facility; an ESD is a response to a malfunction or accident).

38 FortisBC considered the following key factors when assessing the potential effects of the proposed Project
39 on malfunctions and accidents:

- 40 ▪ In the event of an emergency, the proposed Project will activate emergency response procedures in
41 the Emergency Response Plan (ERP) with the objectives of protecting and saving people, followed by

- 1 protecting the environment, and finally maintaining the operability of the facility. Determining
 2 emergency procedures is a requirement of CSA Group (CSA) Z276.
- 3 ▪ In the event of a loss of LNG containment, the primary goal will be protecting the safety of the public
 4 and individuals onsite, then spill response to prevent the loss of any additional volumes and to
 5 prevent the lost LNG from moving offsite. FortisBC would implement their Spill Response and
 6 Emergency Response measures, which are compliant with all applicable legislated requirements.
 7 These plans include a notification list, communication protocol (for internal and external
 8 notifications), reporting requirements, and cleanup procedures, as appropriate.
 - 9 ▪ Advanced safety systems and instrumentation will be used to monitor the conditions within LNG
 10 storage tanks, pipelines, and other containment systems. These systems will provide early warning
 11 alerts and trigger appropriate responses in case of abnormal operating conditions or leaks. The fire
 12 and gas detection system for Phase 2 will include flame detectors, gas detectors, manual call points,
 13 audible alarms and beacons, and low-temperature alarms. These systems will be monitored 24 hours
 14 per day by LNG plant operators in the control room.
 - 15 ▪ If a HAZMAT release occurs, post-release remediation would be required in accordance with the
 16 B.C. *Contaminated Sites Regulation* of the *Environmental Management Act* and would involve the
 17 removal of contaminated soil to be disposed of at an appropriate facility before restoration or
 18 revegetation, as required. Response measures may also include long-term monitoring to establish the
 19 behaviour (location, movement, and attenuation) of the contaminants; the long-term effects on the
 20 receiving environment, including human health; and the contingency management measures
 21 conducted if the objective or goals of remediation measures are not achieved.
 - 22 ▪ Traffic management mitigation measures will be developed and incorporated into the CEMP and EMS.
 23 Contractor personnel will comply with the road use and safety requirements outlined in the CEMP and
 24 EMS, as well as applicable Municipal and Provincial traffic regulations, including heavy truck routes
 25 and approved access routes.

26 Table ES-3 summarizes the potential effects and proposed mitigation measures for Malfunctions and
 27 Accidents. Residual and cumulative effects are not characterized for Malfunctions and Accidents.

28 **Effects of the Environment**

29 Section 10, *Effects of the Environment on the Proposed Project*, describes existing and future conditions,
 30 provides an assessment of potential effects of the environment on the proposed Project by evaluating
 31 environmental factors that pose a potential risk to the proposed Project, and describes the resulting
 32 potential effects (negative and positive) on environmental, economic, social, culture, and health VCs. The
 33 section also details how mitigation measures, when required, will be implemented to promote resilience in
 34 the proposed Project infrastructure, including engineering design solutions.

35 Natural hazards and conditions that have the potential to affect the proposed Project's execution are
 36 identified as follows:

- 37 ▪ Extreme weather, including the following:
 - 38 – Extreme temperatures events
 - 39 – Extreme precipitation events
 - 40 – Extreme wind events
- 41 ▪ Fluvial and tsunami flooding
- 42 ▪ Seismic and tsunami events

Assessment Summary

1 The potential influence of climate change was considered, including how climate change may alter the
2 likelihood or severity of a factor's influence on the proposed Project.

3 The assessment of potential effects of the environment on the proposed Project used the following
4 procedures:

- 5 ▪ Qualitative analysis of the mechanism (or pathway) of the interaction between the environmental
6 factor and proposed Project's infrastructure and operation
- 7 ▪ Identification of mitigation measures to support the proposed Project's resilience to an environmental
8 factor
- 9 ▪ Risk classification of the factor on the proposed Project and the subsequent potential residual effect
10 on environmental, economic, social, culture, and health VCs

11 FortisBC considered the following key factors when assessing the potential effects of the environment on
12 the proposed Project:

- 13 ▪ Extreme temperature events have the potential to create challenging working conditions for proposed
14 Project Site personnel conducting activities outdoors. Specifically, extreme heat has the potential to
15 cause heatstroke, whereas extreme cold can cause frostbite. Extreme temperatures may also result in
16 damage to the proposed Project's infrastructure or processes, causing structural or equipment failure
17 that can subsequently pose a risk to human and environmental VCs.
- 18 ▪ Fluvial flooding⁵ caused by the Fraser River has the potential to cause an adverse effect to the
19 proposed Project Site. A flooding event because of a dike failure or overtopping of the dike could
20 damage infrastructure, halt operation activities, and overwhelm the existing onsite and proposed
21 stormwater management system, causing further flooding on the proposed Project Site and posing a
22 risk to workers. The collection of studies completed on fluvial flooding caused by the Fraser River
23 found that the dike system protected the infrastructure of the existing site during a flood event of
24 greater than 3 m; based on these studies, it is anticipated that future water levels are not expected to
25 affect the proposed Project.
- 26 ▪ The Pacific coast of Canada is home to active faults and tectonic plate movement and interactions,
27 and it has long been identified as an area susceptible to earthquakes and tsunamis (long surface
28 gravity waves). The Metro Vancouver coastline is sheltered from the effects of a tsunami by Vancouver
29 Island, and it is expected that by the time a tsunami wave reaches the Metro Vancouver coastline, the
30 energy and subsequent wave height will have dissipated to between 0.5 m and 1 m in height.
31 No potential effects on the proposed Project are predicted at this wave height or as a result of
32 submarine landslides.
- 33 ▪ Climate change was considered and incorporated into the proposed Project design following guidance
34 from the CCRA. FortisBC's design philosophy for the proposed Project includes designing a facility and
35 associated infrastructure to mitigate and, when feasible, avoid the predicted effects of climate change
36 in the region. Examples of design mitigation measures include hard measures, such as control
37 systems, or soft measures, such as risk assessment frameworks, strategies, and management plans.
38 The mitigation measures are intended to decrease the likelihood and consequence of the negative
39 effects of the environment on the proposed Project.

40 Table ES-3 summarizes the potential effects and proposed mitigation measures for effects of the
41 environment on the proposed Project. Residual and cumulative effects are not characterized for effects of
42 the environment on the proposed Project.

⁵ Fluvial flooding is defined as flooding that occurs when water breaches a river's banks.

1 **Potential Effects, Mitigation, and Residual and Cumulative**
2 **Effects**

3 Table ES-3 summarizes the potential effects, mitigation measures, residual effects, and cumulative effects
4 for the environment and socio-economic VCs.

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
<i>Biophysical VCs</i>			
Air Quality	<ul style="list-style-type: none"> ▪ Increased ambient CAC concentrations ▪ Increased NO₂ concentrations ▪ Increased SO₂ concentrations ▪ Increase in other CAC (CO, PM, and VOC) ambient concentrations ▪ Elevated nitrogen and acid deposition fluxes 	<ul style="list-style-type: none"> ▪ Electrify the proposed Project refrigeration and feed gas compression processes to reduce proposed Project CAC and GHG emissions. ▪ Receive, record, investigate, and follow-up on odour complaints from Indigenous nations, the public, and adjacent businesses. ▪ Implement a documented, regular inspection and maintenance program on fixed equipment. ▪ Establish a refuelling and spill response plan. The measures will be incorporated into the CEMP. ▪ Develop dust control measures to be described in the CEMP to limit PM emission during the construction phase. ▪ Develop and implement a vehicle idle reduction policy that focuses on reducing noise and vibration emissions from construction vehicles. These measures are to be incorporated into the CEMP. ▪ Implement the construction-related air emission mitigations listed in the CEMP. ▪ Incorporate emissions reduction and control technologies in the proposed Project design to ensure compliance with regulatory air quality requirements and industry best practices. 	<p>Adverse residual/cumulative effects:</p> <ul style="list-style-type: none"> ▪ Increased ambient CAC concentrations during construction ▪ Increased ambient NO₂ and SO₂ concentrations during operation
Acoustic	<ul style="list-style-type: none"> ▪ Increased noise levels during site preparation and construction ▪ Increased noise levels during operation ▪ Increased vibration levels during site preparation and construction 	<ul style="list-style-type: none"> ▪ Use of Totally Enclosed Ground Flare technology to reduce noise and light from flaring. ▪ Conceptual engineered noise mitigation measures for proposed Project equipment are based on preliminary proposed Project design and are outlined in the Noise and Vibration TDR (Appendix C of the Application). Final noise mitigation measures for proposed Project equipment will be engineered based on detailed noise specifications and incorporated into the proposed Project. ▪ During construction and operation of the proposed Project, develop mitigation and contingency measures through engagement with a Qualified Professional to manage acoustic disturbance to human and wildlife receptors and incorporate these measures into the CEMP and EMS. ▪ Develop and implement a vehicle idle reduction policy that focuses on reducing noise and vibration emissions from construction vehicles. These measures are to be incorporated into the CEMP. ▪ All compressors will be enclosed to attenuate noise to a level consistent with the BCER noise regulations. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	<p>Adverse residual/cumulative effects:</p> <ul style="list-style-type: none"> ▪ Increased noise levels during construction ▪ Increased vibration levels during construction ▪ Increased noise levels during operation
Surface Water	<ul style="list-style-type: none"> ▪ Change in Tilbury Slough and Fraser River water quality ▪ Erosion at stormwater outlets to Tilbury Slough ▪ Change in Tilbury Slough water level ▪ Decreased pH in the Tilbury Slough within the LAA/RAA ▪ Eutrophication of the Tilbury Slough within the LAA/RAA ▪ Change to Fraser River local currents ▪ Change to Fraser River water quality ▪ Decreased pH in the Fraser River within the LAA/RAA ▪ Change in sedimentation (scour and deposition) upstream and downstream of piles in Fraser River 	<ul style="list-style-type: none"> ▪ Collect contact water with the use of containments and impoundments. Contact water captured in sumps will be measured for field parameters prior to being released to the onsite drainage ditches that flow into the Delta storm sewer. ▪ Develop erosion and sediment control measures to manage surface water in consultation with Indigenous nations and a Qualified Professional and incorporate them into the CEMP to reduce sediment deposition into watercourses or storm sewers. ▪ Design site to promote drainage toward the Delta storm sewer system. Stormwater draining from paved parking areas will be captured and treated in oil-water separators to remove sediments and oil or grease before discharge into the Delta storm sewer. ▪ Conduct testing and treatment of hydrostatic test water prior to discharge to Delta's storm sewer, if required. Discharge procedure requirements of hydrostatic test water will be described in the CEMP. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. ▪ Manage runoff rate to the Delta storm sewer through proposed Project engineering controls. 	None
Groundwater	<ul style="list-style-type: none"> ▪ Contamination of groundwater ▪ Mobilization of contaminated groundwater ▪ Changes to groundwater flow (quantity and direction) from proposed Project Site to Tilbury Slough or Fraser River 	<ul style="list-style-type: none"> ▪ Incorporate BMPs into the CEMP to manage groundwater. ▪ Collect contact water with the use of containments and impoundments. Contact water captured in sumps will be measured for field parameters prior to being released to the onsite drainage ditches that flow into the Delta storm sewer. ▪ Design site to promote drainage toward the Delta storm sewer system. Stormwater draining from paved parking areas will be captured and treated in oil-water separators to remove sediments and oil or grease before discharge into the Delta storm sewer. ▪ Conduct testing and treatment of hydrostatic test water prior to discharge to Delta's storm sewer, if required. Discharge procedure requirements of hydrostatic test water will be described in the CEMP. 	None

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Soil	<ul style="list-style-type: none"> ▪ Changes in terrain due to terrain instability ▪ Changes in terrain due to altered topography ▪ Reduced soil capability due to admixing ▪ Reduced soil capability due to soil compaction and rutting ▪ Reduced soil capability due to dust accumulation in surrounding agricultural lands ▪ Reduced soil capability due to contamination ▪ Reduced soil capability due to soil loss as a result of water or wind erosion 	<ul style="list-style-type: none"> ▪ Establish a refuelling and spill response plan. The measures will be incorporated into the CEMP. ▪ Develop erosion and sediment control measures to manage surface water in consultation with Indigenous nations and a Qualified Professional and incorporate them into the CEMP to reduce sediment deposition into watercourses or storm sewers. ▪ Avoid or manage known areas of contaminated soil by implementing contingency measures outlined in the CEMP in the event that contaminated sediments are discovered during construction. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	None
Vegetation	<ul style="list-style-type: none"> ▪ Loss of plant species of conservation concern ▪ Introduction or spread of invasive plant species ▪ Loss of culturally important traditional use species ▪ Alteration or loss of ecological communities of conservation concern, including wetland ecosystems and their functions ▪ Alteration or loss of riparian ecosystems 	<ul style="list-style-type: none"> ▪ Develop and implement soil management and soil handling practices that are effective at managing the introduction and spread of invasive noxious plant species as required under Provincial regulations and Municipal bylaws. These measures will be incorporated into the CEMP. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	Adverse residual/cumulative effects: <ul style="list-style-type: none"> ▪ Introduction or spread of invasive plant species
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> ▪ Loss or alteration of wildlife habitat ▪ Change in wildlife movement ▪ Increased wildlife health and mortality risk 	<ul style="list-style-type: none"> ▪ Where practical, plan construction activities within wildlife habitat or buffers of identified wildlife habitat features during the least-risk timing windows for applicable species. For any work within the buffer zone during a sensitive timing window, consult with Indigenous nations and a Wildlife QP and the appropriate regulatory agencies to determine whether additional feature-specific mitigation is required to be incorporated into the CEMP. For species protected year-round by the B.C. Wildlife Act, nests will not be removed or disturbed without a permit. ▪ Lighting for the proposed Project will be designed in a manner that is consistent with the BCER's Light Control Best Practices Guideline. ▪ If rodent population control is needed at the proposed Project Site, employ best practices to manage rodent populations onsite during construction and operation and these measures will be included in the CEMP. ▪ Establish a refuelling and spill response plan. The measures will be incorporated into the CEMP. ▪ Develop dust control measures to be described in the CEMP to limit PM emission during the construction phase. ▪ During construction of the proposed Project, develop mitigation and contingency measures through engagement with a Qualified Professional to reduce acoustic disturbance to human and wildlife receptors and incorporate these measures into the CEMP. ▪ Develop mitigation and contingency measures in consultation with Indigenous nations and a Qualified Professional to reduce the potential for adverse interactions with wildlife and wildlife habitat (such as human wildlife conflict, vehicle collisions, and sensory disturbance), and incorporate these measures into the CEMP. ▪ Develop and implement soil management and soil handling practices that are effective at managing the introduction and spread of invasive noxious plant species as required under Provincial regulations and Municipal bylaws. These measures will be incorporated into the CEMP. ▪ Complete wildlife surveys prior to construction to identify habitat features that warrant site-specific mitigation measures to reduce potential proposed Project effects to wildlife and wildlife habitat. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	Adverse residual/cumulative effects: <ul style="list-style-type: none"> ▪ Loss or alteration of wildlife habitat for species at risk ▪ Increased wildlife health and mortality risk for species at risk

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Fish and Fish Habitat	<ul style="list-style-type: none"> ▪ Reduced fish habitat availability ▪ Changes to the quality of fish habitat, either reduced or improved ▪ Increased risk to fish health, injury, and mortality ▪ Changes in fish distribution and abundance 	<ul style="list-style-type: none"> ▪ Collect contact water with the use of containments and impoundments. Contact water captured in sumps will be measured for field parameters prior to being released to the onsite drainage ditches that flow into the Delta storm sewer. ▪ Establish a refuelling and spill response plan. The measures will be incorporated into the CEMP. ▪ Develop erosion and sediment control measures to manage surface water in consultation with Indigenous nations and a Qualified Professional and incorporate them into the CEMP to reduce sediment deposition into watercourses or storm sewers. ▪ Design site to promote drainage toward the Delta storm sewer system. Stormwater draining from paved parking areas will be captured and treated in oil-water separators to remove sediments and oil or grease before discharge into the Delta storm sewer. ▪ Conduct testing and treatment of hydrostatic test water prior to discharge to Delta’s storm sewer, if required. Discharge procedure requirements of hydrostatic test water will be described in the CEMP. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	None
Socio-economic VCs			
Employment and Economy	<ul style="list-style-type: none"> ▪ Increased direct, indirect, and induced employment ▪ Increased income resulting from employment opportunities ▪ Effects on the labour market ▪ Enhancement of workforce ▪ Increased contracting and procurement opportunities ▪ Changes to opportunities for Indigenous traditional economic activities ▪ Increased government revenues ▪ Economic benefits to local, regional, B.C., and Canadian economies ▪ Changes to business revenues ▪ Changes to property values ▪ Changes to the cost of living 	<ul style="list-style-type: none"> ▪ Traffic management mitigation measures will be developed and incorporated into the CEMP and EMS. Contractor personnel will comply with road use and safety requirements outlined in the CEMP and EMS, applicable Municipal and Provincial traffic regulations, including heavy truck routes and approved access routes. ▪ Promote awareness of local and regional business opportunities through the timely dissemination of information regarding proposed Project service and supply requirements. Continue communications with community stakeholders. ▪ Implement FortisBC’s Human Resource Policy to recruit workers for the proposed Project, targeting groups that are traditionally underrepresented in the construction labour force, including women, Indigenous workers, and new immigrants. The Human Resource Policy guides FortisBC in meeting its commitment to identifying and removing discriminatory barriers that could limit qualified people from participating in the workplace. ▪ Implement cultural awareness programs, which may include training, to acknowledge, respect and understand that Indigenous nations, employees, consultants, and contractors have unique histories, cultures, protocols, values, beliefs, and governments. ▪ Hiring policies for construction and operation will aim to promote diversity in hiring consistent with FortisBC’s Statement of Indigenous Principles, and where applicable, specific commitments in confidential agreements with individual Indigenous nations. Develop fair, accessible employment practices that ensure Indigenous Peoples are considered fairly for employment opportunities during construction and operation. ▪ Engage with potentially affected Indigenous nations for the purpose of outlining work packages that are available for Indigenous-affiliated companies to undertake, as well as the skills necessary for the work. These discussions will take place well in advance of when the work needs to be done, to provide Indigenous nations with opportunities to qualify and bid for the work. Encourage Indigenous businesses to prequalify for medium- and high-risk work when businesses can gain experience working on construction or operation of components of the proposed Project, or on other contracting opportunities in advance of the proposed Project. Specific commitments in confidential agreements with individual Indigenous nations may also include information for nation owned or affiliated companies wishing to participate in contracting for the proposed Project. ▪ Encourage the use of local and regional human resources in design, planning, construction, restoration, and operation, to the extent practical. ▪ Continue to work with Indigenous nations to identify economic opportunities, to identify current capacity, and to identify how Indigenous groups and nations may be included in proposed Project construction, operation, and decommissioning. Efforts will be made with advanced notice to allow for the Indigenous nations to address these needs and opportunities. ▪ Communicate proposed Project activities, safety measures, and emergency response measures to Indigenous nations, the public, and stakeholders through different media and forums. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. ▪ Support local training initiatives and opportunities to support development of proposed Project-relevant skills. 	Positive residual effects: <ul style="list-style-type: none"> ▪ Increased direct, indirect, and induced employment ▪ Increased income resulting from employment opportunities ▪ Enhancement of workforce ▪ Increased contracting and procurement opportunities ▪ Increase in government revenues ▪ Economic benefits to the B.C. economy ▪ Positive change to business revenue

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Land and Resource Use	<ul style="list-style-type: none"> ▪ Changes to use and enjoyment of private property ▪ Changes to use of tenures and licensed resource uses ▪ Changes to use and enjoyment of public lands and waters ▪ Changes to agricultural use ▪ Changes to access to parks and protected areas ▪ Changes to visual quality of the landscape ▪ Changes to navigation for marine users 	<ul style="list-style-type: none"> ▪ Use of Totally Enclosed Ground Flare technology to reduce noise and light from flaring. ▪ Traffic management mitigation measures will be developed and incorporated into the CEMP and EMS. Contractor personnel will comply with road use and safety requirements outlined in the CEMP and EMS, applicable Municipal and Provincial traffic regulations, including heavy truck routes and approved access routes. ▪ Receive, record, investigate, and follow-up on odour complaints from Indigenous nations, the public, and adjacent businesses. ▪ Notify Indigenous nations whose traditional territories overlap with the proposed Project before commencement of construction, as well as stakeholders within the proposed Project Area. ▪ Maintain communication with Indigenous nations, stakeholders, and the public throughout construction to collect feedback and address concerns related to the proposed Project activities and potential effects to cultural practices and values. <hr/> <ul style="list-style-type: none"> ▪ Lighting for the proposed Project will be designed in a manner that is consistent with the BCER's Light Control Best Practices Guideline. ▪ Implement a documented, regular inspection and maintenance program on fixed equipment. ▪ Develop dust control measures to be described in the CEMP to limit PM emission during the construction phase. ▪ During operation, refer to the existing EMS, environmental standards, and guidance documents that will be updated, where required, as a result of the Project. ▪ During construction, FortisBC will implement a CEMP to verify environmental compliance requirements are clearly communicated to Contractors and Subcontractors. ▪ Develop and implement a communications process with adjacent businesses. ▪ Communicate proposed Project activities, safety measures, and emergency response measures to Indigenous nations, the public, and stakeholders through different media and forums. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	<p>Residual/cumulative effects:</p> <ul style="list-style-type: none"> ▪ Changes to use of tenure and licensed resource uses due to nighttime lighting ▪ Changes to visual quality of the landscape
Infrastructure and Services	<ul style="list-style-type: none"> ▪ Potential effects to availability and cost of housing and accommodation ▪ Potential effects to availability of health care and social services ▪ Potential effects to availability of recreation facilities and parks ▪ Potential effects to availability of education and childcare services ▪ Potential effects to emergency response services (police, fire, ambulance, and marine services) ▪ Potential for temporary, one-time increased demand for domestic water for hydrostatic testing of the LNG tank ▪ Potential effects to landfills and recycling facilities ▪ Potential effects to traffic and parking facilities ▪ Potential wear and tear on road infrastructure due to increased use ▪ Potential effects to dikes and other flood protection infrastructure 	<ul style="list-style-type: none"> ▪ Waste management mitigation measures will be developed and implemented as part of the CEMP. The CEMP will identify appropriate local waste management, recycling, compost, and segregation measures. Waste management will minimize use of municipal waste facilities, if practical. To the extent that use of local landfills is part of that plan, the proposed Project team will engage with them during development of the plan. Nonhazardous solid wastes will be recycled, re-used, or collected in a central secure area onsite and then disposed of in a licensed waste receiver facility. Hazardous liquid and solid waste will be collected and stored and transported in accordance with applicable regulations or requirements. ▪ Measures to encourage the use of multipassenger vehicles will be developed with the contractors and included in the CEMP, when applicable and appropriate during construction. ▪ Traffic management mitigation measures will be developed and incorporated into the CEMP and EMS. Contractor personnel will comply with road use and safety requirements outlined in the CEMP and EMS, applicable Municipal and Provincial traffic regulations, including heavy truck routes and approved access routes. ▪ Provide onsite emergency health services to meet or exceed WorkSafeBC requirements. ▪ Implement worker health (including mental well-being) and safety educational approaches described in the CEMP to avoid incidents. ▪ Collect contact water with the use of containments and impoundments. Contact water captured in sumps will be measured for field parameters prior to being released to the onsite drainage ditches that flow into the Delta storm sewer. ▪ Encourage the use of local and regional human resources in design, planning, construction, restoration, and operation, to the extent practical. 	None

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Infrastructure and Services (continued)	Refer to previous page	<ul style="list-style-type: none"> ▪ Develop emergency response measures to prevent and manage emergencies, including complete onsite fire control and response systems independent of Delta’s Fire and Emergency Services. Additionally, FortisBC will maintain an ERP with procedures, training and response plans developed alongside the local, fire, police, medical services, and BCER. The ERP will be tested annually as per the requirements of the BCER. These emergency response measures will be incorporated into the CEMP. ▪ Contribute to the maintenance of roads, as required by applicable permits (Delta Development Permit). ▪ Conduct testing and treatment of hydrostatic test water prior to discharge to Delta’s storm sewer, if required. Discharge procedure requirements of hydrostatic test water will be described in the CEMP. ▪ Communicate proposed Project activities, safety measures, and emergency response measures to Indigenous nations, the public, and stakeholders through different media and forums. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. ▪ Support local training initiatives and opportunities to support development of proposed Project-relevant skills. 	Refer to previous page
Archaeological and Heritage Resources	Damage, alteration, or removal of archaeological and heritage resources	<ul style="list-style-type: none"> ▪ Prohibit the collection of heritage resources by proposed Project personnel on the proposed Project Site. ▪ If archaeological and/or heritage resources are identified during construction and decommissioning activities, then the proposed Project archaeologist will develop and implement appropriate mitigation measures through engagement with regulators and Participating Indigenous nations, and in accordance with the site-specific Archaeological Chance Find Management Guide (Golder 2022) (Appendix S of the Application). ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	None
Culture	<ul style="list-style-type: none"> ▪ Changes to the ability of municipalities or Indigenous nations to plan and meet planning objectives for GHG emissions ▪ Changes to land- and water-based cultural practices ▪ Changes to the diversity and use of Indigenous and non-Indigenous languages ▪ Changes to intergenerational knowledge transfer ▪ Changes to religious and spiritual diversity, and related institutions ▪ Changes to cultural cohesion and community continuity 	<ul style="list-style-type: none"> ▪ Receive, record, investigate, and follow-up on odour complaints from Indigenous nations, the public, and adjacent businesses. ▪ Notify Indigenous nations whose traditional territories overlap with the proposed Project before commencement of construction, as well as other stakeholders within the proposed Project Area. ▪ Maintain communication with Indigenous nations, stakeholders, and the public throughout construction to collect feedback and address concerns related to the proposed Project activities and potential effects to cultural practices and values. ▪ Develop and implement a vehicle idle reduction policy that focuses on reducing noise and vibration emissions from construction vehicles. These measures are to be incorporated into the CEMP. ▪ Communicate proposed Project activities, safety measures, and emergency response measures to Indigenous nations, the public, and stakeholders through different media and forums. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. 	None

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Human Health	<ul style="list-style-type: none"> ▪ Increased risk of potential effects on human health and well-being related to reductions in air quality and elevations in dust ▪ Increased risk of effects to health and well-being related to reductions in the quality and quantity of country foods due to nitrogen and acid deposition fluxes over water and soil affecting Wildlife and Wildlife Habitat, Fish and Fish Habitat, and Vegetation ▪ Increased risk of effects to health and well-being related to changes in ambient noise, vibration, or odour levels ▪ Detriments to population health status from decreased air quality, sensory nuisances, decreases in land and water use, shift work, influx of temporary workers, increases in traffic, and employment and income inequity ▪ Benefits to population health status through increased access to employment, improved employment and income inequity, and elevated household income 	<p>Waste management mitigation measures will be developed and implemented as part of the CEMP. The CEMP will identify appropriate local waste management, recycling, compost, and segregation measures. Waste management will minimize use of municipal waste facilities, if practical. To the extent that use of local landfills is part of that plan, the proposed Project team will engage with them during development of the plan. Nonhazardous solid wastes will be recycled, re-used, or collected in a central secure area onsite and then disposed of in a licensed waste receiver facility. Hazardous liquid and solid waste will be collected and stored and transported in accordance with applicable regulations or requirements.</p> <ul style="list-style-type: none"> ▪ Measures to encourage the use of multipassenger vehicles will be developed with the contractors and included in the CEMP, when applicable and appropriate during construction. ▪ Electrify the proposed Project refrigeration and feed gas compression processes to reduce proposed Project CAC and GHG emissions. ▪ Restrict locations where smoking is permitted and prohibit smoking in company vehicles. ▪ Require contractors and subcontractors to implement a fit for duty policy consistent with FortisBC's corporate guidelines. ▪ Receive, record, investigate, and follow-up on odour complaints from Indigenous nations, the public, and adjacent businesses. ▪ Conceptual engineered noise mitigation measures for proposed Project equipment are based on preliminary proposed Project design and are outlined in the Noise and Vibration TDR (Appendix C of the Application). Final noise mitigation measures for proposed Project equipment will be engineered based on detailed noise specifications and incorporated into the proposed Project. ▪ Promote awareness of local and regional business opportunities through the timely dissemination of information regarding proposed Project service and supply requirements. Continue communications with community stakeholders. ▪ Offer support for FortisBC employees suffering from substance use. ▪ Implement shift schedules that take into consideration the health and safety implications of shift work and provide educational resources for the workforce to understand the health and safety implications. ▪ Implement FortisBC's Human Resource Policy to recruit workers for the proposed Project, targeting groups that are traditionally underrepresented in the construction labour force, including women, Indigenous workers, and new immigrants. The Human Resource Policy guides FortisBC in meeting its commitment to identifying and removing discriminatory barriers that could limit qualified people from participating in the workplace. ▪ Implement a documented, regular inspection and maintenance program on fixed equipment. ▪ Develop dust control measures to be described in the CEMP to limit PM emission during the construction phase. <hr/> <ul style="list-style-type: none"> ▪ During construction of the proposed Project, develop mitigation and contingency measures through engagement with a Qualified Professional to reduce acoustic disturbance to human and wildlife receptors and incorporate these measures into the CEMP. ▪ Develop erosion and sediment control measures to manage surface water in consultation with Indigenous nations and a Qualified Professional and incorporate them into the CEMP to reduce sediment deposition into watercourses or storm sewers. ▪ Develop emergency response measures to prevent and manage emergencies, including complete onsite fire control and response systems independent of Delta's Fire and Emergency Services. Additionally, FortisBC will maintain an ERP with procedures, training and response plans developed alongside the local, fire, police, medical services, and BCER. The ERP will be tested annually as per the requirements of the BCER. These emergency response measures will be incorporated into the CEMP. ▪ Develop and implement a vehicle idle reduction policy that focuses on reducing noise and vibration emissions from construction vehicles. These measures are to be incorporated into the CEMP. ▪ Communicate proposed Project activities, safety measures, and emergency response measures to Indigenous nations, the public, and stakeholders through different media and forums. ▪ All compressors will be enclosed to attenuate noise to a level consistent with the BCER noise regulations. ▪ There will be no waterborne deliveries of modular components or construction materials to the proposed Project Site, and no MOF will be required. ▪ Incorporate emissions reduction and control technologies in the proposed Project design to ensure compliance with regulatory air quality requirements and industry best practices. 	<p>Residual/cumulative effects:</p> <ul style="list-style-type: none"> ▪ Health and well-being residual effects from elevated ambient CAC concentrations during construction ▪ Health and well-being residual effects from elevated ambient NO₂ and SO₂ concentrations during operation ▪ Health and well-being residual effects from shift work during construction and operation ▪ Cumulative increase in ambient concentrations of CO, PM, and VOCs during operation ▪ Cumulative increase in ambient concentrations of NO₂ during operation ▪ Cumulative increase in ambient concentrations of SO₂ during operation

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Climate Change and GHG Emissions	<ul style="list-style-type: none"> ▪ Potential effects of the proposed Project on carbon sinks ▪ Potential effects of the proposed Project on emissions reduction efforts and on global GHG emissions 	<ul style="list-style-type: none"> ▪ Electrify the proposed Project refrigeration and feed gas compression processes to reduce proposed Project CAC and GHG emissions. ▪ Carbon offsets through technological or market acquired offsets once regulatory and technical clarity are achieved. ▪ Implement fugitive emissions management through design and engineering control considerations and effective operational controls. ▪ FortisBC will develop and implement a Net-zero Plan that will utilize inputs like the BAT and BEP to ensure the proposed Project's direct operational GHG emissions follow government policies and regulations upon commencement of operation. ▪ The proposed Project will explore the use of renewable, low-carbon "drop-in" fuels and other technology solutions. The other technology solutions may include waste heat recovery, carbon removal and utilization, developing technologies, and other offset measures. 	Residual and cumulative effects are not characterized for Climate Change and GHG Emissions as part of the SACC
Malfunctions and Accidents	<ul style="list-style-type: none"> ▪ Loss of containment of LNG resulting in release of cryogenic liquid ▪ Loss of containment of flammable material resulting in a fire or explosion ▪ Loss of containment of HAZMAT (not including LNG) resulting in a fire and/or environmental contamination ▪ Terrestrial vehicle collision resulting in loss of human life, a fire or explosion, or a HAZMAT release ▪ Vessel collision during construction resulting in loss of cargo, release of HAZMAT into the Fraser River, or a human fatality ▪ A malfunction or accident resulting in ESD and flaring of natural gas 	<ul style="list-style-type: none"> ▪ Use of Totally Enclosed Ground Flare technology to reduce noise and light from flaring. ▪ Coordinate with first responders to verify response plans are effective and ready throughout the life of the proposed Project. The proposed Project will make the opportunity available for emergency responders to participate in emergency exercises throughout the life of the proposed Project. ▪ Traffic management mitigation measures will be developed and incorporated into the CEMP and EMS. Contractor personnel will comply with road use and safety requirements outlined in the CEMP and EMS, applicable Municipal and Provincial traffic regulations, including heavy truck routes and approved access routes. ▪ The Quantitative Risk Assessment for the proposed Project will be updated to meet BCER permitting requirements once detailed engineering has been completed. ▪ When practical, the proposed Project will select appropriately licensed transportation providers in good standing, appropriately maintained equipment, and licensed operators. ▪ The proposed Project will be designed with containments that halt potential HAZMAT spills from leaving the proposed Project Site and will have an emergency generator to provide electric supply for critical loads in the event of a site-wide power failure. ▪ The proposed Project will follow comprehensive equipment maintenance schedules consistent with the Provincial regulation for testing the LNG tank and piping. LNG facility operators will be trained in operational procedures and environmental emergency response and compliant with industry standards. ▪ The proposed Project will be designed to the Provincial regulations and applicable standards for LNG production, storage, and handling. ▪ The proposed Project will be designed in a manner that reduces the potential for a vehicle to collide with key infrastructure. ▪ The proposed Project Site will have onsite emergency fire control and suppression systems independent of the municipal fire department. ▪ The proposed Project stormwater management will be connected to the Delta storm water sewer system. ▪ The proposed Project will be designed to meet the applicable seismic design standards in CSA Z276. ▪ Mitigation measures described in the CEMP during loss of containment of LNG will be implemented. ▪ The ERP will include prescribed responses during loss of containment of LNG. ▪ Collect contact water with the use of containments and impoundments. Contact water captured in sumps will be measured for field parameters prior to being released to the onsite drainage ditches that flow into the Delta storm sewer. ▪ The proposed Project will be designed and built in compliance with applicable fire prevention codes and standards. The proposed Project Site will have onsite emergency fire control and suppression systems independent of the municipal fire department. ▪ Establish a refuelling and spill response plan. The measures will be incorporated into the CEMP. 	Residual and cumulative effects are not characterized for Malfunctions and Accidents

Table ES-3. Summary of Potential Effects, Mitigation and Design Considerations, and Residual Effects

VC	Potential Effect(s)	Proposed Mitigation or Enhancement Measures	Residual Effects/Cumulative Effects
Malfunctions and Accidents (continued)	Refer to previous page	<ul style="list-style-type: none"> ▪ Develop emergency response measures to prevent and manage emergencies, including complete onsite fire control and response systems independent of Delta's Fire and Emergency Services. Additionally, FortisBC will maintain an ERP with procedures, training and response plans developed alongside the local, fire, police, medical services, and BCER. The ERP will be tested annually as per the requirements of the BCER. These emergency response measures will be incorporated into the CEMP. ▪ Design site to promote drainage toward the Delta storm sewer system. Stormwater draining from paved parking areas will be captured and treated in oil-water separators to remove sediments and oil or grease before discharge into the Delta storm sewer. 	Refer to previous page
Effects of the Environment on the Proposed Project	<ul style="list-style-type: none"> ▪ Extreme weather, including the following: <ul style="list-style-type: none"> – Extreme temperatures events – Extreme precipitation events – Extreme wind events ▪ Fluvial and tsunami flooding ▪ Seismic and tsunami events 	<ul style="list-style-type: none"> ▪ Utilize programmable logic controllers with an appropriate design standard to withstand higher temperatures (that is, up to 70°C). ▪ The proposed Project will be equipped with an automated safety system to facilitate safe shutdown and isolation of hydrocarbon-containing equipment during extreme adverse conditions. ▪ The proposed Project will be designed to meet the applicable seismic design standards in CSA Z276. ▪ All critical infrastructure will be located above the 1:100 year flood event highest high-water level to avoid flooding. ▪ Implement the existing FortisBC work safety policy which will be modified or updated to account for the anticipated increase in frequency of extreme weather events as a result of climate change. ▪ Develop standard health and safety measures at the proposed Project Site (for example, halt working at height during extreme wind events). ▪ Engineering controls will be put in place to maintain operation of the emergency generator during extreme weather events. ▪ Ditches or culverts will be sized for the peak flow of a 1 in 25 year return period storm event. ▪ Design weather conditions (for example, wind and precipitation) for onshore structures considering a 1 in 50- year return period in accordance with the B.C. Building Code. ▪ Design the proposed Project to meet CSA Z276. The standard outlines three design levels: <ul style="list-style-type: none"> – OBE with a mean return interval of 475 years – Safe Shutdown Earthquake with a mean return interval of 2,475 years – Low Probability Hazards that correspond to mean return intervals of 5,000 and 10,000 years 	Residual and cumulative effects are not characterized for effects of the environment on the proposed Project

Note:
QP = Qualified Professional

1 Indigenous Interests

2 Section 11 of the Application assesses potential effects of the proposed Project on Indigenous interests.

3 The Indigenous nations and organizations identified as potentially being affected by the proposed Project
4 and engaged with as part of the Application include the following:

- 5 ▪ Chawathil First Nation
- 6 ▪ Cheam First Nation
- 7 ▪ Katzie First Nation
- 8 ▪ Kwantlen First Nation
- 9 ▪ Kw̓ikwə́łəm (Kwkwetlem First Nation)
- 10 ▪ Musqueam Indian Band
- 11 ▪ Quw'utsun Nation: Semiahmoo First Nation
- 12 ▪ S'ólh Téméxw Stewardship Alliance: Snuneymuxw First Nation
- 13 ▪ Skwxwú7mesh Úxwumixw (Squamish Nation)
- 14 ▪ Stó:lō Nations:
 - 15 – Leq'á:mel First Nation
 - 16 – Popkum First Nation
 - 17 – Matsqui First Nation
- 18 ▪ Ts'uubaa-asatx
- 19 ▪ Tsawwassen First Nation
- 20 ▪ Tsleil-Waututh Nation
- 21 ▪ W̱SÁNEĆ Nations:
 - 22 – Malahat First Nation
 - 23 – Pauquachin First Nation
 - 24 – Tsartlip First Nation
 - 25 – Tsawout First Nation
 - 26 – Tseycum First Nation

27 Refer to the previous Indigenous Interests Assessment Methodology subsection for a description of the
28 inclusion of Métis Nation British Columbia.

29 FortisBC assessed the proposed Project effects on Indigenous interests for the Indigenous nations listed.
30 FortisBC will continue to engage with Indigenous nations through the Application phase to understand
31 and manage proposed Project effects.

32 The following is a summary of the Indigenous interests assessed by FortisBC, as outlined in Table 6 of the
33 AIR (B.C. EAO 2022). Some Indigenous nations may have additional or alternate interests, as provided in
34 each of the Indigenous nation sections.

35 Harvesting and Subsistence Activities

36 Potential proposed Project-related effects include the following:

- 37 ▪ Effects on Indigenous rights to fish, harvest, and hunt for FSC purposes:
 - 38 – Changes to harvesting methods and practices (such as timing and seasonality)
 - 39 – Changes to the current use of lands and resources for traditional purposes
 - 40 – Alteration of harvesting-based livelihoods

- 1 ▪ Changes to the experience and preferences around the practice of harvesting rights and effects on the
- 2 quality, quantity, and availability of resources:
- 3 – Loss or alteration of habitat supporting harvested wildlife, fish, bird, or plant species, including
- 4 species of cultural and medicinal importance
- 5 – Change in surface water quality or quantity (turbidity and hydraulic changes)
- 6 – Change in sensory disturbances (such as noise, odour, dust, and visual landscape)
- 7 ▪ Effects to the accessibility and availability of traditional lands and resources:
- 8 – Changes in the ability to travel to or through current use areas

9 **Cultural Use Sites and Areas**

10 Potential proposed Project-related effects include the following:

- 11 ▪ Effects on cultural heritage and structures, sites, or things of historical, archaeological,
- 12 paleontological, or architectural significance:
- 13 – Effects to cultural sites, including storied places, habitation sites, place names, and archaeological
- 14 sites along the south arm of the Fraser River, Tilbury Island, and Lulu Island
- 15 – Effects of proposed Project activities on cultural or archaeological resources
- 16 – Changes to the experience of using cultural sites and areas
- 17 ▪ Loss of access to and disenfranchisement from cultural sites:
- 18 – Changes to physical and cultural or spiritual sites or areas
- 19 – Disruption or alteration of trails, travelways, navigable waterways, and water bodies
- 20 – Change in sensory disturbance (such as noise, odour, dust, and visual landscape)
- 21 ▪ Effects to cultural and spiritual practices caused by changes to or loss of access to cultural sites and
- 22 areas

23 **Social and Economic Conditions**

24 Potential proposed Project-related effects include the following:

- 25 ▪ Changes to employment opportunities, Indigenous businesses, procurement opportunities, and
- 26 Indigenous Government revenue
- 27 ▪ Effects on Indigenous nations' future aspirations for sites or area surrounding the proposed Project
- 28 ▪ Effects on Indigenous nations' ability to improve social and economic conditions
- 29 ▪ Effects on commercial and noncommercial fishing, hunting, trapping, and gathering and cultural or
- 30 ceremonial activities and practices
- 31 ▪ Effects on intercommunity relations and trade
- 32 ▪ Effects on infrastructure and services

33 **Indigenous Health and Well-being**

34 Potential proposed Project-related effects include the following:

- 35 ▪ Effects on the quality, quantity, and availability of harvested country foods
- 36 ▪ Effects on the value and perceived quality of country foods

- 1 ▪ Effects on air quality, noise, and water quality
- 2 ▪ Effects on health and well-being from the effects to traditional ways of life and to cultural sites

3 **Cultural Continuation**

4 Potential proposed Project-related effects include the following:

- 5 ▪ Effects on the ability to revitalize, develop, and participate in intergenerational cultural transmission
6 due to experiences of being on the land (such as changes in air quality, noise exposure, or effects of
7 vibrations from blasting or other activities)
- 8 ▪ Effects on the ability to revitalize, develop, and participate in intergenerational cultural transmission
9 due to current and future availability and quality of country foods (traditional foods)
- 10 ▪ Disconnection from cultural heritage due to changes to sense of place and identity due to changes in
11 accessibility and real and perceived disturbance of the environment
- 12 ▪ Disconnection from cultural heritage due to interruption of the use of travel ways, navigable
13 waterways, and water bodies

14 **Indigenous Governance Systems**

15 Potential proposed Project-related effects include the following:

- 16 ▪ Change to an Indigenous nation's cultural traditions, laws, and governance systems that inform how
17 they exercise their Aboriginal Rights
- 18 ▪ Effects on the ability to use, develop, and control traditional land, territories, and resources
- 19 ▪ Effects on the ability to implement Indigenous laws, customs, and protocols
- 20 ▪ Changes to participation in decision-making in matters that affect Indigenous rights in the proposed
21 Project Site
- 22 ▪ Changes to ongoing conservation efforts to restore important fish species and habitat
- 23 ▪ Changes in the ability to engage in stewardship of lands and resources.

24 **Discussion**

25 The Indigenous interests were identified through input from Indigenous nations, feedback from the
26 B.C. EAO, and other regulatory agencies and local governments. The indicators and potential effect
27 pathways are applied within each Indigenous nation's assessment when there is available information. The
28 spatial and temporal boundaries for each linked VC where potential adverse residual proposed Project
29 effects have been identified were analyzed to predict the potential overlap with known Indigenous
30 interests.

31 During FortisBC's engagement and an additional round of B.C. EAO-led consensus seeking with Indigenous
32 nations during the Application Development phase to discuss the Construction Logistics Update and
33 Alternative Means Memo (FortisBC 2023), concerns were raised about potential negative effects to
34 Indigenous rights to fish, as well as negative cumulative effects on the Fraser River resulting from the
35 proposed barge traffic. FortisBC has considered feedback from all participants and decided not to have
36 waterborne delivery of modules or bulk construction materials as described in the DPD (FortisBC 2022).
37 To address concerns about potential effects to the Fraser River, FortisBC has committed to removing
38 construction of the MOF and barge deliveries to the proposed Project Site during construction as an
39 avoidance mitigation measure. Construction materials, equipment, and any other deliveries to the

1 proposed Project Site during construction will be by road freight on existing roads and highways. As a
2 result of the avoidance of waterborne activities during construction, the MOF and associated barge
3 deliveries will no longer be required for the proposed Project.

4 Based on information shared by Indigenous nations related to current use of the proposed Project Area
5 and the residual effects of the proposed Project on related VCs, FortisBC anticipates that there will be
6 either no interactions or negligible interaction between the proposed Project activities and Indigenous
7 interests compared to existing conditions. As a result, a residual effects assessment was not conducted.

8 Specific measures have also been proposed by FortisBC to mitigate potential effects on Indigenous
9 interests. The identification of Indigenous interest-specific mitigation measures included measures
10 recommended by Indigenous nations for the proposed Project or for other projects where similar effects
11 were predicted.

12 The following potential positive residual effect is created through proposed enhancement measures in
13 order to maximize the positive outcomes of the proposed Project:

- 14 ▪ Social and Economic Conditions: Increased employment and economic opportunity
- 15 ▪ Indigenous Health and Well-being: Improvement of social conditions due to increased employment
16 and economic opportunity

17 A positive residual effect is predicted for Indigenous nations through enhanced opportunity, employment
18 and employment income, education and skills for Indigenous Peoples, access to economic opportunities
19 and economic equity, tax revenues, GDP contributions, business revenue, and cost of living.

1 **Follow-up and Monitoring**

2 FortisBC will develop detailed mitigation and monitoring in the CEMP before construction through
3 engagement with applicable regulators and Indigenous nations. FortisBC will conduct monitoring during
4 and after construction to determine whether the mitigation measures are effective. If a mitigation measure
5 is found to be ineffective at reducing potential effects, FortisBC will take corrective measures through
6 adaptive management.

1 Conclusion

2 The assessment scope considered concerns and issues raised through FortisBC's engagement with
3 regulatory agencies, Indigenous nations, stakeholders, and the public. To address concerns about
4 potential effects to the Fraser River during engagement, FortisBC has committed to removing construction
5 of the MOF and barge deliveries to the proposed Project Site during construction as an avoidance
6 mitigation measure. FortisBC completed the Application consistent with the AIR (B.C. EAO 2022), which
7 the B.C. EAO sought consensus on and published on June 13, 2022. In accordance with the AIR, potential
8 effects from construction of the MOF and barge delivery vessels to the MOF are assessed in each VC
9 assessment subsection. In the assessment, avoidance mitigation measures (that is, no waterborne
10 deliveries or MOF construction) are presented and considered in the determination of potential residual
11 effects.

12 As a result of ongoing feedback during engagement, FortisBC has also committed to design measures to
13 reduce potential air and GHG emissions, including electrifying proposed Project refrigeration and feed gas
14 compression processes and incorporating emissions reduction or control technology in the plant to meet
15 air emissions performance standards and ambient air concentrations standards. FortisBC has committed
16 to the proposed Project being net zero by 2030. This commitment is contributing to B.C.'s and Canada's
17 GHG objectives and sustainable development in the region and nationally.

18 The Application has assessed the effects of the proposed Project on VCs and the interests of Indigenous
19 nations. No potential residual effects were characterized greater than a low magnitude during the
20 assessment. The proposed Project is not anticipated to adversely affect ecosystem function, human and
21 community well-being, or current or future generations. Effects of the environment are also not
22 anticipated to result in adverse effects to the proposed Project. The risk of malfunctions and accidents
23 from the proposed Project is not considered greater than that of existing conditions.

24 Socio-economic and community benefits of the proposed Project include increased employment,
25 contracting, and other training programs. Local employment opportunities during the proposed Project
26 will have positive effects on health and well-being by increasing access to employment, improving
27 employment and income inequity, and elevating household income.

28 FortisBC has proposed mitigation measures for the proposed Project to reduce or avoid adverse residual
29 effects on the biophysical and socio-economic environment for each VC (Appendix A of the Application).
30 FortisBC will develop a CEMP and EMS after approval of the proposed Project to describe how mitigation
31 measures identified in the Application will be implemented during construction and operation. By
32 implementing the proposed mitigation measures (summarized in Appendix A), adverse residual
33 biophysical and socio-economic effects related to construction, operation, and decommissioning are
34 anticipated to result in negligible to low-magnitude effects for all VCs and no residual negative effects to
35 Indigenous interests.

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