

# **Application to Amend Environmental Assessment Certificate(E15-02), the Sḱwxwú7mesh Úxwumixw Environmental Assessment Agreement and Notification to Impact Assessment Agency for the Woodfibre LNG Project**

June 11, 2025

Prepared by:  
Woodfibre LNG General Partner Inc.

123222939EN-RPT0062



**APPLICATION TO AMEND ENVIRONMENTAL ASSESSMENT CERTIFICATE(E15-02), THE  
SKW̱W̱Ú7MESH ÚXWUMIXW ENVIRONMENTAL ASSESSMENT AGREEMENT AND  
NOTIFICATION TO IMPACT ASSESSMENT AGENCY FOR THE WOODFIBRE LNG PROJECT**

## Preamble

The Woodfibre Liquefied Natural Gas Project (the Project) is a liquefied natural gas export facility being constructed on the former Woodfibre Pulp and Paper Mill site (the Project) in Átl'ka7tsem (Howe Sound), approximately seven kilometres south of Sḵw̱w̱Ú7mesh (Squamish). The Project is on the historical location of a Sḵw̱w̱Ú7mesh Úxwumixw (Squamish Nation) village known as Swiyát. Swiyát and Átl'ka7tsem (Howe Sound) are tied to the cultural well-being of Sḵw̱w̱Ú7mesh Úxwumixw (Squamish Nation) members, their ancestors, and their descendants, and to other Indigenous groups as defined in the Project's Environmental Assessment Certificates. Woodfibre LNG General Partner Inc. recognizes the importance of these areas to the Sḵw̱w̱Ú7mesh stélmexw (Squamish People), and other Indigenous groups. Woodfibre LNG General Partner Inc. seeks to construct and operate the Project in a manner that is respectful of Indigenous values.

Temíxwiýikw chet wa naantem chet ti temíxw Swiyát  
Chet wa sménhemswit kwis ns7éyx̱nitas chet ti temíxw  
We7ú chet kwis t'íchimwit iy íwas chet ek' I tti.

Our ancient ancestors named this place Swiyát  
We, as their descendants safeguard these lands  
We will continue to swim and fish in these clear waters.

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## Executive Summary

Woodfibre LNG General Partner Inc. (Woodfibre LNG), as General Partner on behalf of the Woodfibre LNG Limited Partnership will construct and operate the Woodfibre Liquefied Natural Gas Project (the Project), which is located on the former Woodfibre Pulp Mill site approximately 7 kilometres (km) southwest of Sk̓w̓x̓w̓7̓mesh (Squamish), British Columbia (BC).

As holders of Environmental Assessment Certificate (EAC) #15-02, Woodfibre LNG is requesting an amendment for the installation and operation of a second floating worker accommodation (Floatel #2) pursuant to Section 32 of the *Environmental Assessment Act* (2018). Specifically, Woodfibre LNG is requesting an amendment of the Certified Project Description (CPD) in Schedule A of EAC #15-02, the Sk̓w̓x̓w̓7̓mesh Ú̓X̓W̓M̓IX̓W Environmental Assessment Agreement, and a recommendation regarding the federal Decision Statement to allow for additional temporary floating worker accommodation and associated facilities.

Floatel #2 is proposed within the Certified Project Area (CPA). As compared to other sites considered, it would reduce ferry traffic transporting workers to and from site. The CPA is outside of marine areas used for recreation. Primarily shore power is expected to be used instead of relying on generators, therefore there would be lower air and noise emissions compared to other options. Finally, there is a significant body of knowledge related to the preferred location given the environmental assessment and amendment process for Floatel #1 (including input from parties and studies undertaken), and a general depth of understanding of the site due to the level of ongoing data collection and monitoring.

Floatel #2 will be managed by the same third-party operator as Floatel #1, in accordance with the conditions and management plans developed for Floatel #1. Key management plans that have been developed and implemented effectively for Floatel #1 that are applicable to and will be updated to reflect the plans for Floatel #2 are:

- Community Services and Infrastructure Management Plan (CSIMP)
- Gender and Cultural Safety Plan (GCSP)
- Construction Marine Transportation Management Plan and Monitoring Plan (MTMMP-C)
- Floatel Air Quality Monitoring and Mitigation Plan (FAQMMP)
- Floatel Noise Monitoring and Mitigation Plan (FNMMP)

The operating controls and mitigation measures listed in these plans will be applicable to Floatel #2. Potential effects associated with Floatel #2 are expected to be consistent with those for Floatel #1. The mitigation measures in place for Floatel #1 are demonstrated to be effective and are anticipated to address potential effects for Floatel #2 (Section 2.4).

Based on the assessments presented within this amendment application, it is Woodfibre LNG's conclusion that the proposed changes do not alter the findings or conclusions of the EAO's Assessment Report for the Project.

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The amendment has not identified additional mitigation measures and no additional effects to Indigenous Interests are anticipated. Woodfibre LNG has engaged and will continue to engage with Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh Nation, Musqueam First Nation, Cowichan Tribes First Nation, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, Stzuminus First Nation, Lake Cowichan First Nation, and Métis Nation of British Columbia.

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## Limitations

The conclusions in the Report titled Application to Amend Environmental Assessment Certificate (E15-02), the Skw̱WÚ7mesh Úxwumixw Environmental Assessment Agreement and Notification to Impact Assessment Agency for the Woodfibre LNG Project are Stantec's professional opinion, as of the time of the Report, and concerning the scope described in the Report. The opinions in the document are based on conditions and information existing at the time the scope of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated purpose for which the Report was prepared. The Report is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from Woodfibre General Partner Inc. LNG (the "Client") and third parties in the preparation of the Report to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This Report is intended solely for use by the Client in accordance with Stantec's contract with the Client. While the Report may be provided to applicable authorities having jurisdiction and others for whom the Client is responsible, Stantec does not warrant the services to any third party. The report may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

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## Abbreviations

AQMS	air quality monitoring station
BC	British Columbia
CAAQS	Canadian Ambient Air Quality Standards
CCME	Canadian Council of Ministers of the Environment
CD	chart datum
CEAA	<i>Canadian Environmental Assessment Act</i>
CEMP	Construction Environmental Management Plan
COPC	contaminants of potential concern
CPA	Certified Project Area
CPD	Certified Project Description
CSIMP	Community Services and Infrastructure Management Plan
DFO	Fisheries and Oceans Canada
EAA	Environmental Assessment Approvals
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
EPCPEC	Environmental Protection Conservation and Protection Environment Canada
ERP	Emergency Response Plan
FAQMMP	Floatel Air Quality Monitoring and Mitigation Plan
FDS	Federal Decision Statement
GCSP	Gender and Cultural Safety Plan
FNMMP	Floatel Noise Monitoring and Mitigation Plan
HADD	harmful alteration, disruption, or destruction
HHRA	human health risk assessment
IAAC	Impact Assessment Agency of Canada
IC	intermediate component
km	kilometre

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LAA	Local Assessment Area
LNG	liquefied natural gas
m	metres
m <sup>3</sup>	cubic metres
MOTT	Ministry of Transportation and Transit
MTMMP-C	Construction Marine Transportation Management Plan and Monitoring Plan
MWQMMP	Marine Water Quality Management and Monitoring Plan
NHC	Northwest Hydraulic Consultants Ltd.
NO	Nitrogen Oxide
NO <sub>2</sub>	Nitrogen Dioxide
NPP	Navigation Protection Program
PAHs	polycyclic aromatic hydrocarbons
PM <sub>2.5</sub>	Fine Particulate Matter
PM <sub>10</sub>	Coarse Particulate Matter
RAA	Regional Assessment Area
SLRD	Squamish-Lillooet Regional District
SNEAA	Squamish Nation Environmental Assessment Agreement
SO <sub>2</sub>	Sulphur Dioxide
TSP	Total Suspended Particulate
TUP	Temporary Use Permit
VC	Valued Component
VOC	Volatile Organic Compounds
Woodfibre LNG	Woodfibre LNG General Partner Inc., as General Partner on behalf of the Woodfibre LNG Limited Partnership
WQG-MAL	Water Quality Guideline for the Protection of Marine Life

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## Glossary

Assessment Report	The assessment report prepared by the EAO for the EAC Application (EAO 2015) that describes EAO's assessment of and conclusions regarding the potential adverse effects of the Project, to inform the Ministers' decision on the Project
EAC Application	The application for an Environmental Assessment Certificate (Woodfibre LNG 2015)
floatel	Floating hotel, temporary worker accommodation (e.g., Floatel #1)
the Project	Woodfibre Liquefied Natural Gas Project

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## 1.0 INTRODUCTION

Woodfibre LNG General Partner Inc. (Woodfibre LNG), as General Partner on behalf of the Woodfibre LNG Limited Partnership will construct and operate the Woodfibre Liquefied Natural Gas Project (the Project), which is located on the former Woodfibre Pulp Mill site approximately 7 kilometres (km) southwest of Skw̱wÚ7mesh (Squamish), British Columbia (BC; Figure 1).

As holders of Environmental Assessment Certificate (EAC) #15-02, Woodfibre LNG is requesting an amendment for the installation and operation of a second floating worker accommodation (Floatel #2) pursuant to Section 32 of the *Environmental Assessment Act* (2018). Specifically, Woodfibre LNG is requesting an amendment of the Certified Project Description (CPD) in Schedule A of EAC #15-02 to allow for additional temporary floating worker accommodation and associated facilities. It is Woodfibre LNG's opinion that the amendment falls within the 'typical amendment' category as the proposed changes to the Project will be material but limited in nature as described herein.

Prior to selecting a second floatel as the preferred accommodation, Woodfibre LNG conducted an alternatives assessment that considered three alternative accommodation options: (a) use of the Port Mellon camp, (b) a hotel proximate to Vancouver International Airport, and (c) use of North Vancouver hotels (Section 8.1). A second floatel was deemed to be the preferred option based on regulatory and permitting needs, socio-economic factors, and the number of rooms required to house the additional workforce. Woodfibre LNG also conducted a feasibility and constraints analysis to determine the preferred site for Floatel #2. Based on the results of this analysis, the preferred site for Floatel #2 is within the Certified Project Area (CPA) south of Floatel #1 (Figure 2). The site is within the District of Squamish boundaries. Further information regarding the feasibility and constraints review process in assessing alternative sites is provided in Section 8.1. An anchorage offshore of Britannia Beach was identified as a second viable alternative location during the feasibility and constraints analysis. This location is outside of the CPA boundaries and the District of Squamish and within the Squamish-Lillooet Regional District (SLRD). Although this location is viable, Woodfibre LNG has decided not to carry it forward as an option in the amendment assessment process.

It is proposed that Floatel #2 would be temporarily moored within the CPA and provide accommodation for approximately 630 workers to commence in December 2025. Two floatels are needed until the workforce decreases to a point that a single floatel is adequate to accommodate the workforce.

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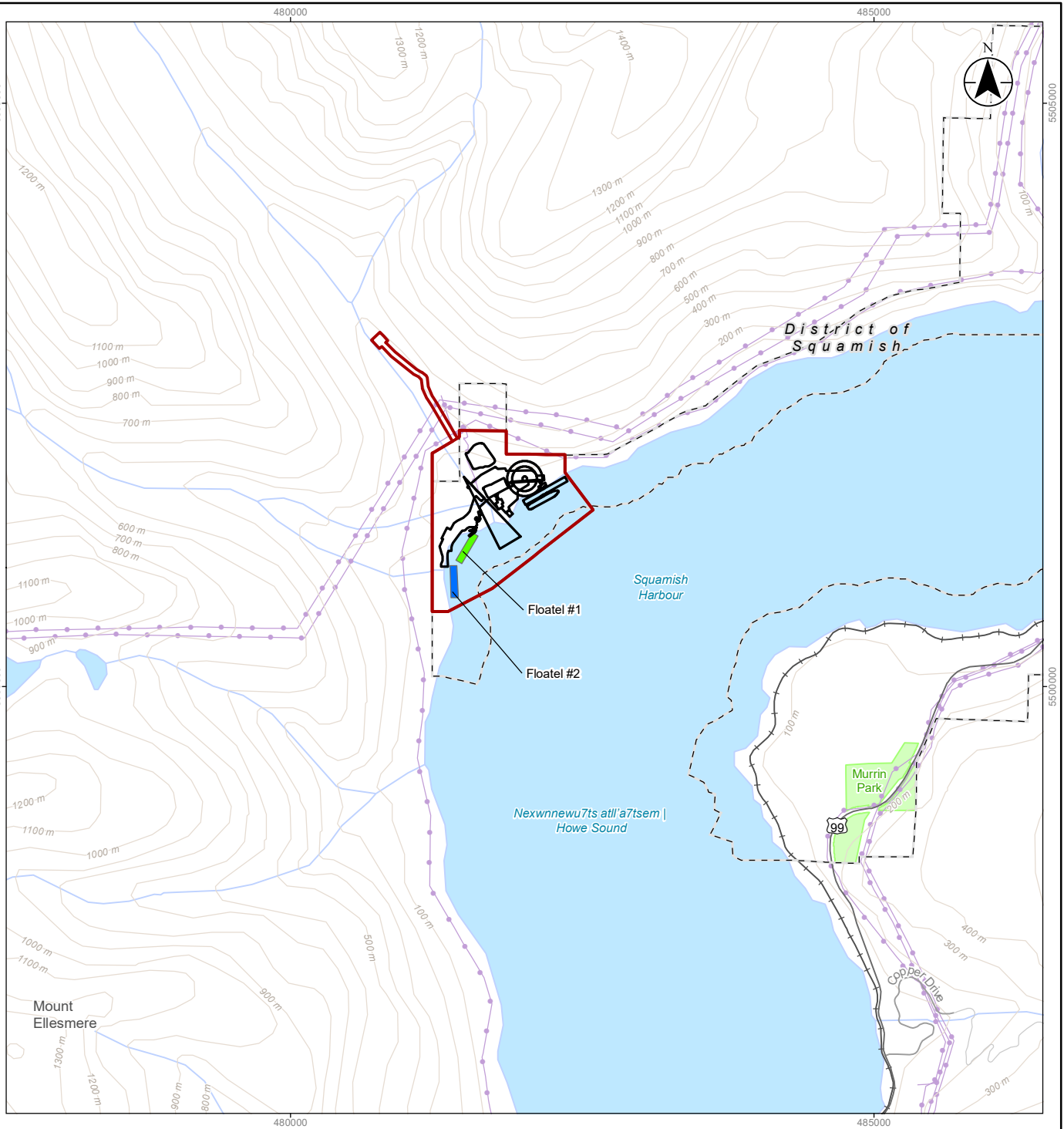
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Floatel #2 will be managed by the same third-party operator as Floatel #1, in accordance with the conditions and management plans developed for Floatel #1. Key management plans that have been developed for Floatel #1 that are applicable to Floatel #2 are listed below and described further in Section 2.3:

- Community Services and Infrastructure Management Plan (CSIMP)
- Gender and Cultural Safety Plan (GCSP)
- Construction Marine Transportation Management Plan and Monitoring Plan (MTMMP-C)
- Floatel Air Quality Monitoring and Mitigation Plan (FAQMMP)
- Floatel Noise Monitoring and Mitigation Plan (FNMMP)

Appendix A provides a table that outlines how mitigation measures and commitments developed to meet conditions relevant to Floatel #1 will be applicable to Floatel #2 and where adjustments need to be made to accommodate Floatel #2.

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**Notes**  
1. Coordinate System: NAD 1983 UTM Zone 10N  
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada  
3. Imagery: ESRI World Imagery

- Highway
  - Road
  - Local Street
  - Railway
  - Transmission Line
  - Topographic Contour
  - Watercourse
  - Waterbody
  - Provincial Park, Ecological Reserve, or Protected Area
  - Municipal Boundary
- Woodfire LNG Certified Project Area
  - Project Footprint
  - Existing Floatel #1 Site
  - Preferred Floatel #2 Site

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Project Location: Swlyat  
Project Number: 123221624  
Prepared by SPARKER on 20250422  
Requested by AAU on 20250422

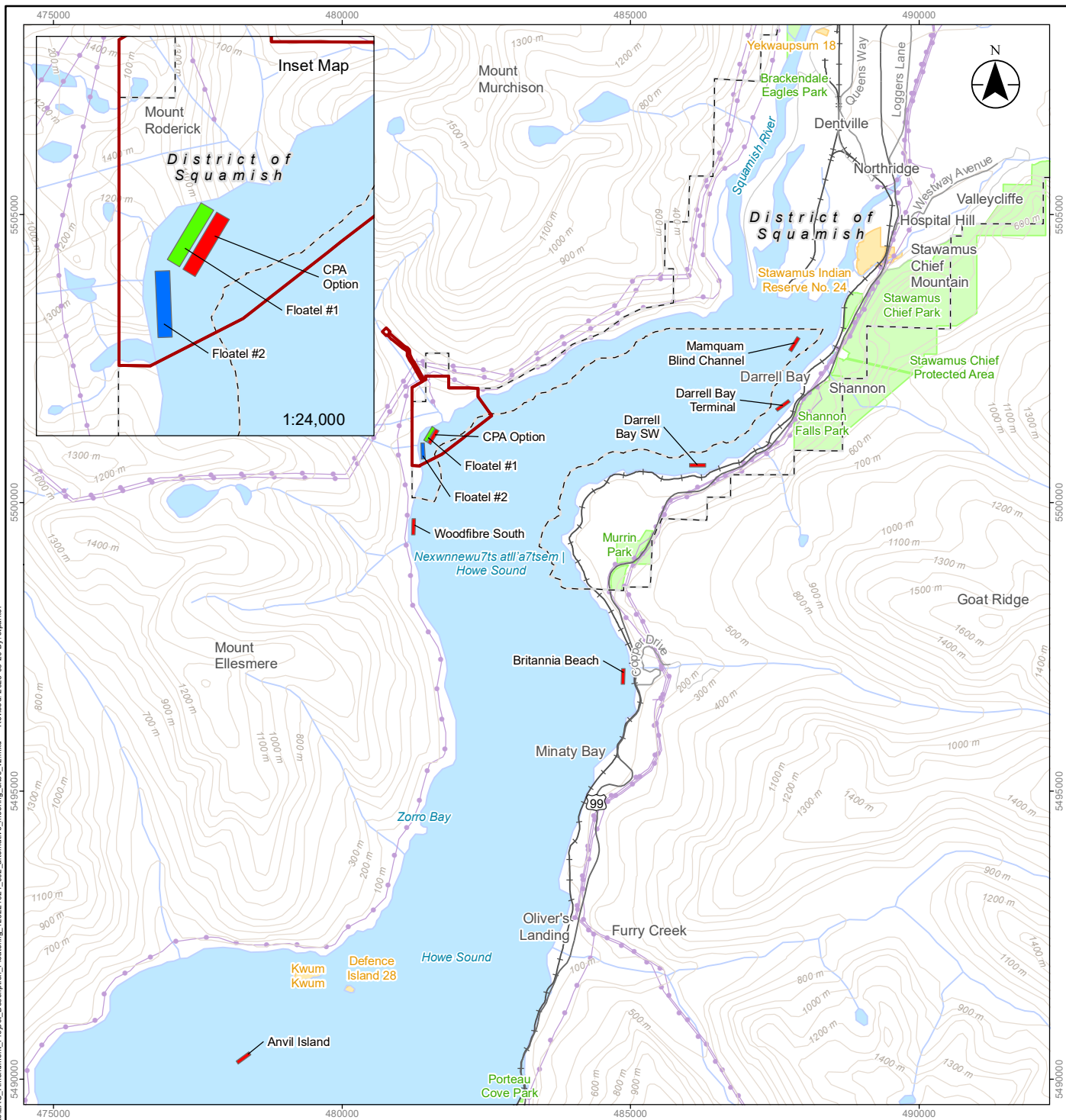
Client/Project/Report  
Woodfire LNG Limited  
Woodfire LNG Project  
EAC Amendment – Floatel #2

Figure No. 1  
Doc No.

Title  
**Floatel #2 Site Location**

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**Notes**  
1. Coordinate System: NAD 1983 UTM Zone 10N  
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada  
3. Imagery: ESRI World Imagery

- Highway
- Road
- Local Street
- Railway
- Transmission Line
- Topographic Contour
- Watercourse
- Waterbody
- First Nations Reserve
- Provincial Park, Ecological Reserve, or Protected Area
- Municipal Boundary

- Woodfibre LNG Certified Project Area
- Existing Floatel #1 Site
- Preferred Floatel #2 Site
- Previously Considered Floatel Site

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Project Location: Swiyat  
Project Number: 123221624  
Prepared by SPARKER on 20250421  
Requested by AAU on 20250421

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Woodfibre LNG Project  
EAC Amendment – Floatel #2

Figure No. 2  
Doc No.

Title  
**Alternative Mooring Sites for Floatel #2**

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## 2.0 WOODFIBRE LNG PROJECT OVERVIEW

The Project will have the capacity to liquefy up to 2.1 million tonnes per year of natural gas, have a storage capacity of 250,000 cubic metres (m<sup>3</sup>), and export the liquefied natural gas (LNG) via carriers. The supporting infrastructure includes buildings (e.g., administration offices, control rooms, maintenance, warehouse for dry storage and chemical storage, emergency response building, first aid, safety and guardhouse), site fencing, material storage and laydown areas, utility and loading lines, passenger dock, material offloading facility, offloading platform, and boil off gas vapour lines.

Most of the Project site is on fee simple, industrially zoned, brownfield lands with more than 100 years of industrial use. There is no road access to the CPA, and all personnel, equipment, and supplies for the Project are brought in by vessel via Átl'ka7tsem (Howe Sound). The Project will use electrical power from BC Hydro, and FortisBC will supply gas to the facility.

Key Project components are listed below:

- land-based natural gas processing and liquefaction facilities
- a floating LNG storage and offloading unit
- supporting permanent infrastructure
- temporary construction infrastructure, including:
  - concrete batch plant(s)
  - temporary buildings to house administration offices, temporary medical facilities, employee canteens and services, field offices, sanitary facilities, and a shipping and receiving warehouse
  - temporary utilities for construction, including water, power, gas, sanitary wastewater collection and removal systems, and solid waste disposal
  - temporary stormwater collection and treatment systems
  - temporary laydown areas and stockpile sites
  - one temporary floating worker accommodation (Floatel) and associated mooring and access infrastructure
  - temporary housing accommodation for workers
  - onshore drinking water treatment to supply Floatel



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The Project underwent a comprehensive environmental assessment process from 2013 to 2015, and Woodfibre LNG received:

- An EAC under the provincial *Environmental Assessment Act* (EAC #E15-02) issued by the Environmental Assessment Office (EAO) in 2015;
- An environmental assessment approval from Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) through the Squamish Nation Environmental Assessment Agreement (SNEAA) in 2015, and;
- A positive federal Decision Statement (FDS) under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) in 2016.

The provincial, Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation), and federal environmental assessment processes each yielded conditions of approval that Woodfibre LNG must address prior to and during construction and operations of the Project. Collectively, the EAC #E15-02, environmental assessment approval from Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation), and the FDS are referred to herein as the Environmental Assessment Approvals (EAAs).

## 2.1 REGULATORY CONTEXT

Since the EAC was issued, three EAC amendments have been issued for the Project to date:

- EAC Amendment (#1) — issued by the EAO on July 12, 2017, for changes to the Project, including changes to the process cooling technology from seawater cooling to air cooling, use of the existing Mill Creek water intake, and withdrawal of water from Woodfibre Creek for short-term needs during construction.
- EAC Amendment (#2) — issued by the EAO on July 19, 2019, to clarify the definition of construction in the Schedule B (Table of Conditions).
- EAC Amendment (#3) — issued by the EAO on November 1, 2023, to allow for a temporary floating worker accommodation, or “Floatel #1”, as well as its associated mooring, access infrastructure, and onshore drinking-water treatment facility.

The EAO issued Assessment Reports relating to the decisions on Amendment #1 (EAO 2017) and Amendment #3 (EAO 2023), these reports summarize new information, the potential effects, changes to the characterization of effects and additional mitigation measures if any related to these two amendments.

The Canadian Environmental Assessment Agency, now the Impact Assessment Agency of Canada (IAAC), issued a FDS as part of the substituted process under the *Canadian Environmental Assessment Act, 2012* (SC 2012, c. 19, s. 52) on March 17, 2016. Similarly, the FDS for the designated Project was re-issued on March 7, 2018, to accommodate the same material change to the Project as accounted for by the first amendment to the EAC. On June 7, 2022, Woodfibre LNG applied to IAAC to amend two conditions of the FDS relating to the marine mammal exclusion zones and marine water and sediment quality (conditions 3.8 and 6.4). The amendment was approved, and the amended FDS was issued on August 4, 2023. On July 26, 2024, the FDS was amended under transition provisions in the *Budget Implementation Act, 2024*.

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Skw̱xwú7mesh Úxwumixw (Squamish Nation) conducted an independent review of the application for an EAC under its own assessment process and on October 14, 2015, entered into the SNEAA with Woodfibre LNG upon approval of the application. On December 4, 2024, following issuance of EAC Amendment #3, Skw̱xwú7mesh Úxwumixw (Squamish Nation) Council approved an amendment to the SNEAA and outlined related conditions for the operation of Floatel #1.

Woodfibre LNG has prepared this application for a fourth request to amend EAC #E15-02 (Amendment #4) and the SNEAA and to comply with the notification conditions (2.10 and 2.11) within the FDS. The proposed amendment to the CPD is being submitted to the EAO, the IAAC, and Skw̱xwú7mesh Úxwumixw (Squamish Nation) as a combined application. Floatel #2 is planned to be consistent with the existing EAC conditions (including developed management plans), and Woodfibre LNG is committed to managing and mitigating Floatel #2 as comprehensively as Floatel #1. A description of each of the management plans key to managing and mitigating Floatel #2 is provided in Section 2.3 below.

## 2.2 AMENDMENT TIMELINE

It is Woodfibre LNG's opinion that the amendment falls within the 'typical amendment' category as the proposed changes to the Project will be material but limited in nature. Additionally, the depth of history from reviewing Floatel #1, the understanding of the issues raised in that review, and the resultant conditions, management plans and mitigations are directly applicable to Floatel #2, all contribute to having a body of understanding that should support an efficient environmental assessment amendment process. The amendment process timeline depends on the complexity of the application and can be influenced by the proponents' timely responses to comments, prior consultation with First Nations, and the amendment application quality (EAO 2024). Woodfibre LNG is committed to providing a quality submission and timely responses to questions and comments, to promote an efficient amendment process and meet the Project requirement for additional worker accommodation. Woodfibre LNG is seeking an amendment decision in November 2025 to accommodate vessel commissioning by December 2025, should the amendment request be approved.

## 2.3 KEY MANAGEMENT PLANS RELEVANT TO FLOATEL OPERATION

A summary of key management plans developed to meet EAAs and commitments relevant to Floatel #1 is provided below. The operating controls and mitigation measures listed in these plans will be applied to Floatel #2. Potential effects associated with Floatel #2 are expected to be consistent with those for Floatel #1. The mitigation measures in place for Floatel #1 are demonstrated to be effective (see Section 2.4 for a description of mitigation monitoring and reporting activities) and are anticipated to address potential effects for Floatel #2.

### 2.3.1 Community Services and Infrastructure Management Plan

The Community Services and Infrastructure Management Plan CSIMP (Woodfibre LNG 2023a) was developed during the pre-construction phase of the Project to meet the EAC condition 14 which states

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"The Holder must develop, in consultation with Aboriginal Groups, local governments, provincial government infrastructure and services providers, a plan to adaptively manage and monitor effects on services an infrastructure delivered by provincial agencies and local governments." The CSIMP was approved by the EAO in fall 2023, prior to start of construction, and went through a first annual update in fall 2024. The first annual report was issued to the EAO in June 2025. The plan is currently being updated to include Floatel #2.

The CSIMP addresses community infrastructure and service provider interactions with the Project from the start of construction until two years following completion of construction. It describes the measures that are being implemented and managed to avoid or minimize anticipated impacts on community services and infrastructure in the communities near the Project.

The CSIMP was developed to address concerns raised during years of consultation and engagement related to the Project and potential impacts to the below listed community infrastructure and service areas:

- Quality of Life and Sustainable Development
- Housing and Accommodations
- Municipal Utilities and Waste Management
- Education and Recreational Services
- Health Services and Wellbeing
- Policing and Security
- Land Transportation
- Marine Transportation
- Emergency Services

The CSIMP also identifies actions for maximizing local benefits of the Project, such as employment and procurement opportunities, positive environmental impacts and net zero initiatives, social investment opportunities, transparent information-sharing, and meaningful consultation with community members.

In addition, some of the potential impacts on applicable infrastructure and services are addressed through other management plans or strategies, such as the Construction Emergency Response Plan (ERP), MTMMP-C, and Waste Management Strategy and Plan.

The CSIMP was developed through extensive consultation and engagement with First Nations impacted by the Project, local governments, community stakeholders, and provincial ministries and agencies. This includes First Nations and stakeholders that comprise the CSIMP Quarterly Meeting (Appendix B), which is an ongoing forum to review and discuss quarterly reporting metrics and mitigation effectiveness with Woodfibre LNG. EAC Amendment #3 also included a requirement to establish a committee to review metrics and discuss cumulative issues, arising from the Woodfibre LNG and FortisBC projects, that may impact workforce housing, safety and community services. This committee (known as the Joint Woodfibre LNG/FortisBC Cumulative Impacts Committee) has been established and meets quarterly with the District of Squamish and other stakeholders (Appendix B).

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To date, reporting metrics demonstrate that mitigations are effective, and as such, no mitigations have been adjusted. See Section 2.4 for more information.

Woodfibre LNG will continue communication and engagement with First Nations, and the local community to support the implementation of the CSIMP, and implementation of an adaptive management approach to evaluate and adjust mitigations as needed.

### 2.3.2 Gender and Cultural Safety Plan

The Gender and Cultural Safety Plan (GCSP) (Woodfibre 2024) was developed with the objectives of preventing and deterring gender and cultural-based violence and harassment that could be experienced by the Woodfibre LNG workforce and the community. The GCSP fulfills requirements of EAC condition 26, which requires Woodfibre LNG "...to develop a gender and cultural safety plan which would apply to all Workers of the Project." It also addresses several related requirements of EAC conditions 27 (Worker Health and Wellness) and 28 (Floatel and Workplace Culture Committee). The plan reflects Woodfibre LNG's mitigations for potential impacts related to gender and cultural-based violence at the Woodfibre LNG Project, including the workforce accommodations. All mitigations described in the GCSP will be applied to Floatel #2. This includes the Indigenous Floatel Cultural Management program. See Appendix A for a description of how GCSP related conditions will be applied to Floatel #2.

The GCSP was developed iteratively through extensive dialogue and sharing of drafts with First Nations, governments, stakeholders and the Gender Safety Advisory Committee (see list of members in Appendix B), established to advise the company on programming, policies and procedures related to gender and cultural safety. The GCSP was approved by the EAO in May 2024, prior to Floatel #1 becoming occupied. The first annual update and report is under development. The plan is currently being updated to include Floatel #2.

The plan will continue to be updated based on ongoing engagement with and input from the Gender Safety Advisory Committee. To date, reporting metrics demonstrate that the mitigations are effective, and as such, no mitigations have been adjusted. See Section 2.4 for more information.

### 2.3.3 Construction Marine Transportation Management Plan and Monitoring Plan

The Construction Marine Transportation Management and Monitoring Plan (MTMMP-C) was developed to satisfy EAC condition 16, FDS condition 7.1, and SNEAA condition 12, as well as relevant mitigation commitments provided in Table 22-1 of the EAC Application. The plan describes mitigations that are being implemented to limit potential disruption to other Átl'ka7tsem (Howe Sound) marine users from Project construction marine transportation activities in the Squamish Harbour and Átl'ka7tsem (Howe Sound). An operations MTMMP will be prepared for the operations phase of the Project, which will include specific mitigation measures developed for the operation of LNG carriers and other vessels.

The MTMMP-C includes a Marine Communication Protocol to communicate Project marine construction activities to First Nations and other Átl'ka7tsem (Howe Sound) marine users. The protocol includes mechanisms that First Nations and other marine users can use to provide feedback regarding potential

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interactions with the Project's marine construction transportation with other Átl'ka7tsem (Howe Sound) marine users. A Marine Users Group has also been established (see Appendix B for a list of participants), which meets biannually, as another mechanism for marine users to provide feedback regarding potential interactions with the Project's marine transportation.

Woodfibre LNG is monitoring marine transportation interactions with other Átl'ka7tsem (Howe Sound) marine users in Squamish Harbour and Átl'ka7tsem (Howe Sound). Concerns identified through the feedback mechanism are recorded, reviewed, and addressed (see Section 2.4 for more information).

### 2.3.4 Floatel Air Quality Monitoring and Mitigation Plan

The Floatel Air Quality Monitoring and Mitigation Plan (FAQMMP) has been prepared to address condition 30 issued as part of Amendment #3 (EAO 2023). To support Amendment #3, a human health risk assessment (HHRA; Stantec 2023) was conducted that evaluated the potential human health risks for off-duty workers housed on Floatel #1 associated with inhalation exposure to contaminants of potential concern (COPC). The overall conclusion was that the human health risks for off-duty workers housed at Floatel #1 from exposure to COPC are minimal; however, there is uncertainty related to the mixture of COPC. The development of a monitoring plan to mitigate exposure of workers to COPC emissions was recommended.

The FAQMMP identifies the following:

- The COPC to be monitored, which include:
  - Particulate Matter including:
    - o Fine Particulate Matter (PM<sub>2.5</sub>) – PM that is less than 2.5 µm in aerodynamic diameter.
    - o Coarse Particulate Matter (PM<sub>10</sub>) – PM that is less than 10 µm in aerodynamic diameter (includes PM<sub>2.5</sub>).
    - o Total Suspended Particulate (TSP) – PM that is less than 100 µm in aerodynamic diameter (includes PM<sub>10.5</sub> and PM<sub>10</sub>).
  - Nitrogen Oxides including Nitrogen Oxide (NO) and Nitrogen Dioxide (NO<sub>2</sub>)
  - Sulphur Dioxide (SO<sub>2</sub>)
  - Total Volatile Organic Compounds (VOC)
- A summary of relevant ambient air quality objectives and standards and project-specific trigger and alert limits.
- The air quality monitoring station (AQMS) siting and design requirements.
- Monitoring, data management and quality assurance and control requirements.
- Recommended mitigation measures.
- Reporting requirements.
- Adaptive management approach, communication protocols, complaints response procedure and review requirements.

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The FAQMMP has been implemented following the deployment of Floatel #1. The AQMS was installed and began operation on September 3, 2024, and data has been collected since then. See Section 2.4 for more information. Overall, the ambient air quality monitoring program successfully supported regulatory compliance and demonstrated that the air quality remained within acceptable ambient air quality regulatory standards throughout the 2024 monitoring period (Stantec 2025). A total of nine exceedances of the 24-hour British Columbia Ambient Air Quality Objectives for PM<sub>10</sub> and TSP have been recorded since the commissioning of the AQMS. The AQMS is located on shore, north of Floatel #1. Investigations into the exceedances indicate that they are primarily attributable to the construction activities occurring during those temporary exceedances. Project-related sources are attributed to dust-generating construction activities, such as rock crushing, hauling of material, excavation, and backfilling of materials in proximity to the AQMS. Predominant winds from the northwest quadrant were also a contributing factor to the increased PM<sub>10</sub> and TSP concentrations observed by the AQMS. To date, no complaints have been received from Floatel #1 residents during these exceedances, indicating that air quality was not a concern (Stantec 2025).

The FAQMMP will be applied for the operation of Floatel #2.

### 2.3.5 Floatel Noise Monitoring and Mitigation Plan

The Floatel Noise Monitoring and Mitigation Plan (FNMMP) was prepared to address condition 30 issued as part of Amendment #3 (EAO 2023). In accordance with the requirements of condition 30, the FNMMP describes noise monitoring programs, mitigation measures, and adaptive management. The objectives of the Plan are to provide methods to monitor noise and assess compliance with Health Canada's sleep disturbance thresholds at the Floatel #1; establish the procedures for reporting noise data gathered; identify noise mitigation measures to implement when the thresholds are exceeded; and present an adaptive management plan to address noise effects.

Quarterly noise monitoring commenced following the commissioning of Floatel #1. A total of four monitoring events have been completed to date (Woodfibre LNG 2025). Measured noise data were analyzed and compared with the Health Canada sleep disturbance thresholds, as well as ANSI S12.2 room sound level criteria. Interviews with occupants for noise concerns were also performed. The results to date have noted noise levels above the Health Canada thresholds but below the ANSI S12.2 room sound level criteria for hotel and motel rooms at all cabins (Woodfibre LNG 2025). No sleep disturbance issues, noise concerns, or complaints associated with construction noise were received from the Floatel #1 occupants. Some occupants provided feedback that noise related to the use of onboard gym created noise. In response to that feedback, thicker floor mats have been installed and additional signage regarding dropping weights have been posted and further feedback about the gym noise was not received in the most recent monitoring event (Woodfibre LNG 2025). Based on these results, it was concluded that noise from the Project construction activities does not affect the Floatel #1 interior acoustic environment (Woodfibre LNG 2025). See Section 2.4 for more information.

The FNMMP will be implemented for the operation of Floatel #2.



## 2.4 MANAGEMENT PLAN MITIGATIONS, MONITORING, AND REPORTING

### 2.4.1 Adaptive Management Approach

Woodfibre LNG is committed to minimizing adverse environmental, socioeconomic, and cultural impacts of the Project on First Nations and neighbouring communities. Woodfibre LNG has developed and is implementing specific mitigation measures, as defined in its management plans. Development of these plans involved consultation with First Nations and stakeholders and were approved, where required, by regulators prior to occupancy of Floatel #1. Woodfibre LNG is committed to applying relevant, effective mitigations, as defined in management plans and other regulatory conditions, to Floatel #2. Monitoring and reporting activities are described in Section 2.4.2 and effectiveness of mitigations is described in Section 2.4.3.

Woodfibre LNG takes an adaptive management approach to all management plans to evaluate the effectiveness of mitigations. This is an iterative process that includes mitigation development, implementation, monitoring, reporting, and evaluation, with the cycle repeating until adverse impacts are sufficiently reduced.

### 2.4.2 Monitoring and Reporting Activities

Regular data collection and reporting enables Woodfibre LNG to evaluate mitigation effectiveness and adjust the mitigations where and when required, including those related to Floatel #1. To date, Woodfibre LNG has made minor adjustments to mitigations as a result of following the adaptive management approach. For example, passenger ferry speeds were reduced and mufflers installed as a result of noise complaints received related to the passenger ferry.

Data is collected by contractors and reported to Woodfibre LNG on a monthly basis. Data is also collected by way of inquiries, concerns, complaints, and suggestions made to:

- Woodfibre LNG's community feedback mechanism<sup>1</sup>
- A third-party managed ConfidenceLine
- Surveys conducted by Woodfibre LNG and the Floatel #1 operator
- The app established and managed by the Floatel #1 operator
- Designated Project personnel, including Indigenous Floatel Cultural Managers

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<sup>1</sup> <https://woodfibrelng.ca/contact-us/>

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The various committees established by Woodfibre LNG – comprised of First Nations, government agencies and local stakeholders – also play a key role in monitoring mitigation effectiveness and providing feedback and recommendations to the company on potential adjustments and improvements, particularly those related to Floatel #1. This includes the following:

- CSIMP Quarterly Meeting
- Joint Woodfibre LNG/FortisBC Cumulative Impacts Committee
- Gender Safety Advisory Committee
- Marine User Group
- Floatel and Workplace Cultural Committee<sup>2</sup>

See Appendix B for a list of organizations that are represented on each committee.

The same monitoring and reporting activities will occur for Floatel #2, and similarly, the committees will continue to play a key monitoring role, Woodfibre LNG will adaptively address issues if and when they arise.

### 2.4.3 Effectiveness of Mitigations

This section aims to demonstrate the effectiveness of mitigations currently in place for Floatel #1 and that will extend to Floatel #2. The below tables outline key mitigations, monitoring efforts, and reporting metrics<sup>3</sup> for five key potential effect areas that emerged through consultation and engagement on Floatel #1:

1. Effects on community services and infrastructure, such as housing, health services, and municipal services
2. Effects on marine transportation
3. Effects related to gender, cultural and community safety
4. Effects on worker health, safety and wellbeing
5. Effects related to noise and air quality

A summary of the key mitigations, monitoring efforts, and reporting metrics for each of these areas are provided in Table 2.1.

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<sup>2</sup> This is an internal committee that is comprised of representatives from Woodfibre LNG, including Indigenous Floatel Cultural Managers, and its contractors. Its purpose is to promote a respectful and inclusive environment and contribute to programming that enhances workplace culture, builds engagement, reinforces safety and camaraderie and elevates overall worker satisfaction on the Project.

<sup>3</sup> Metrics reported in this application are extracted from the CSIMP Annual Report submitted to the BC EAO in June 2025, for the time period from September 15, 2023, when the Project began construction and the CSIMP was approved by regulators, until December 31, 2024.



**Table 2.1: Effectiveness of Mitigations by Key Potential Effect Areas**

Effect Area	Key Mitigations	Monitoring Efforts	Reporting Metrics
Effects on community services and infrastructure	<ul style="list-style-type: none"> <li>All non-local workers must reside in company-designated housing for the duration of the construction period.</li> <li>Use of hotels in Squamish is not permitted, other than for short-term, not regularly recurring stays of no more than five nights.</li> <li>Recreational services and medical services are provided on Floatel #1 and will also be available to workers on Floatel #2.</li> <li>Waste is managed and water supply is provided on Floatel #1, with no dependence on municipal utilities. The same will occur for Floatel #2.</li> <li>Workers are not provided with living-out-allowances or access to the community, except in the case of an emergency that requires medical care at the local hospital.</li> </ul>	<p>Woodfibre LNG collects monthly data from its contractors on the metrics identified in the CSIMP.</p> <p>The CSIMP Quarterly Meeting and Joint Woodfibre LNG/FortisBC Cumulative Issues Committee also play a key role in monitoring effectiveness of mitigations.</p>	<ul style="list-style-type: none"> <li># workers on the Floatel: 652</li> <li># complaints received related to housing: 0</li> <li># RCMP visits to site: 0</li> <li># visits to Squamish Hospital: 11 (for diagnostics not available on site)</li> </ul>
Impacts on marine transportation	<ul style="list-style-type: none"> <li>Workers are transported directly from the Lower Mainland to Floatel #1 for their shifts, by boat, and food and other materials are also transported to site using cargo vessels and barges. The same will occur for Floatel #2.</li> <li>Floatel #1 provides all services required by workers so that they do not need to access medical, recreational, leisure, or educational services in Squamish. The same will be the case for Floatel #2.</li> <li>Passenger ferry speed reduction and installation of mufflers to reduce vessel noise.</li> <li>The Project will limit potential unsafe interactions and conflicts associated with cumulative vessel traffic through the Marine Communication Protocol described in the MTMMP-C.</li> </ul>	<p>Data is collected on a monthly basis and reported out quarterly to the CSIMP Quarterly Meeting and Marine User Group, which is a venue to discuss marine-related updates and potential issues that arise during the Project's construction phase</p>	<ul style="list-style-type: none"> <li># marine traffic accidents or near-misses: 16</li> <li># workforce ferry trips: 4,791</li> <li># marine transportation deliveries: 588</li> <li># complaints received related to marine transportation: 4</li> </ul>
Impacts related to gender, cultural and community safety	<ul style="list-style-type: none"> <li>All workers including those on Floatel #1 are required to sign and abide by a common Project Worker Code of Conduct and must complete mandatory gender and cultural safety, bullying and harassment, violence and sexual harassment prevention and addictions awareness trainings. The same will apply to workers on Floatel #2.</li> <li>There is various gender and cultural safety programming provided, as outlined in the Gender and Cultural Safety Management Plan, to deter and prevent gender and cultural-based violence both on the Project and in the community.</li> <li>Workers are not provided access to the community, except in the case of an emergency that requires medical care at the local hospital.</li> </ul>	<p>Data is collected on a monthly basis and reported out quarterly to the CSIMP Quarterly Meeting and Gender Safety Advisory Committee.</p>	<ul style="list-style-type: none"> <li>% workers who signed Code of Conduct: 100%</li> <li># Code of Conduct violations: 64 (59 of which were related to drugs and alcohol)</li> <li>Complaints received related to gender and cultural safety: 0</li> </ul>
Impacts on worker health, safety and wellbeing	<ul style="list-style-type: none"> <li>Floatel #1 is a dry facility (no alcohol/drugs are permitted) and the same will be the case for Floatel #2.</li> <li>Various trainings and workshops including those related to healthy living are offered to workers on Floatel #1 and these will also be provided to workers on Floatel #2.</li> <li>There are numerous reporting mechanisms in place for reporting incidents, including a third-party managed ConfidenceLine.</li> <li>Medical services including mental health referrals are available to workers on Floatel #1 and will also be available to workers on Floatel #2.</li> <li>There is a comprehensive Worker Feedback Program in place for workers to provide feedback on their Floatel and Project experience, which includes regular surveys conducted by Woodfibre LNG and Floatel #1 operator. The same will occur for Floatel #2.</li> </ul>	<p>Data is collected on a monthly basis and reported quarterly to the CSIMP Quarterly Meeting and Gender Safety Advisory Committee.</p> <p>The Floatel and Workplace Culture Committee plays a key role in monitoring effectiveness of mitigations to promote worker safety, wellbeing and overall inclusivity.</p>	<ul style="list-style-type: none"> <li>% workers who signed Code of Conduct: 100%</li> <li># Code of Conduct violations: 64</li> <li># complaints received related to worker health, safety and wellbeing: 0</li> <li># occupational medical incidents: 54</li> <li># non-occupational medical incidents: 778</li> <li># visits to Floatel on-board medical clinic: 835</li> </ul>

Effect Area	Key Mitigations	Monitoring Efforts	Reporting Metrics
Concerns about impacts on noise and air quality	<p><b>Noise</b></p> <ul style="list-style-type: none"><li>• Installation of enclosures on noisy equipment and limiting material drop heights</li><li>• Regular maintenance and inspection of equipment and installation of noise abatement including muffling devices</li><li>• Restriction of idling to the minimum necessary to perform safe work</li><li>• Maintenance of regular shipping schedule to reduce number trips and manage marine traffic noise</li></ul> <p><b>Air Quality</b></p> <ul style="list-style-type: none"><li>• Implement the air quality and dust control mitigations outlined in the Construction Environmental Management Plan (CEMP) (Woodfibre LNG 2023d) including managing dust by applying water to roads and dusty work areas</li><li>• Maintain windows and doors of Floatel #1 closed during active construction to limit exposure to COPC. The same will apply to Floatel #2.</li><li>• Secure materials stored on the decks</li><li>• Monitoring air emissions locally and from regional events and notifying residents of air quality issues or concerns</li></ul>	<p><b>Noise</b></p> <p>Noise data is collected on a quarterly basis, in response to complaints or following a change in construction activities that have the potential to exceed the prescribed noise threshold (i.e., new activity with high noise intensity). Monitoring is completed by a Qualified Professional and includes 24 -hour acoustic monitoring in unoccupied cabins on every floor with accommodation suites of Floatel #1. During monitoring events interviews with Floatel #1 occupants on sound level are conducted. An anonymous complaint protocol is also maintained.</p> <p>Results are reported to Woodfibre LNG, and reports are distributed to required agencies, First Nations and posted to the Woodfibre website.</p> <p><b>Air Quality</b></p> <p>Continuous air quality and meteorological data are collected from an onsite air quality monitoring station and adjacent meteorological station located between Floatel #1 and primary construction areas.</p> <p>The station actively monitors nitrogen oxides (NO and NO<sub>2</sub>), and particulate matter including PM<sub>2.5</sub>, PM<sub>10</sub> and TSP. Passive monitoring for SO<sub>2</sub> and VOC is also conducted. Data is monitored and reported on a monthly and annual basis. Results are reported to Woodfibre LNG, and reports are distributed to required agencies, First Nations and posted to the Woodfibre website. An anonymous complaint protocol is also maintained.</p> <p>The AQMS is programmed with triggers and alarms to notify the Qualified Professional of exceedances of air quality objectives and each exceedance trigger investigation into root cause and potential source from construction.</p>	<ul style="list-style-type: none"><li>• Exceedance of ANSI S12.2 Room Sound Criteria for Hotel/Motel: 2 of 24 cabins monitored to date.</li><li>• Exceedances of Air Quality Objectives: 9 exceedances (TSP and PM10), associated with dust generating project activities.</li><li>• Complaints received from Floatel #1 residents related to noise or air quality: No air quality or noise complaints related to construction activities have been received to date. During interviews with Floatel #1 residents as part of the noise monitoring program some noted that noise from the gym was detectable in some rooms. Concerns were addressed by deployment of thicker mats in the gym and signage.</li></ul>

## 3.0 PROPOSED CHANGES AND RATIONALE

On October 26, 2015, Woodfibre LNG received an EAC (#E15-02) for the Project; however, the approved CPD did not include worker accommodation as it was anticipated that enough accommodation would be available in the surrounding communities to house workers during the Project construction phase. During the detailed design and procurement phase, it became apparent that not enough temporary accommodation was available and there would be a need for additional worker accommodation. At this time, concerns and challenges were also identified in housing a temporary construction workforce in the District of Squamish.

To understand the feasibility and constraints of different options, Woodfibre LNG conducted an alternatives analysis. This included evaluating several options for providing temporary worker accommodation, including a land-based worker camp operated by a third-party outside of the CPA, a land-based camp inside of the CPA, community housing in local communities (including the District of Squamish and Metro Vancouver) and a floating camp. The floating camp alternative was determined to be the preferred option as it would lead to the lowest potential socio-economic impacts to local communities, traffic and lowest overall footprint (Stantec 2021a). This option would also minimize pressure on Squamish, including housing availability and affordability, and promote community safety, including the safety of Indigenous women and girls.

An amendment application was submitted to the EAO in 2019 for temporary floating worker accommodation (Floatel #1) and associated mooring and access infrastructure to house approximately 650 workers during the construction phase of the Project. During the application review, concerns were raised by the District of Squamish, Skw̱xwú7mesh Úxwumixw (Squamish Nation), and local stakeholders relating to an influx of population within the surrounding area of the Squamish community, including Skw̱xwú7mesh Úxwumixw (Squamish Nation). In addition, concerns were raised about potential impacts on the following:

- Community services and infrastructure, such as housing, health services, and municipal services
- Marine transportation and traffic
- Gender, cultural and community safety
- Worker health, safety and wellbeing
- Noise and air quality

See Section 2.4 for information about relevant mitigations and monitoring and reporting activities to adaptively manage effectiveness. From 2021 to 2023, Woodfibre LNG made further refinements to the worker accommodation design and provided additional information to support the amendment process, and an EAC amendment (Amendment #3) was granted from the EAO on November 1, 2023.

Construction of the Project commenced in 2023 and Floatel #1 became operational on June 21, 2024. Floatel #1 has been fully occupied during several periods since June 2024 but the number of workers on-site to date is significantly lower than the number of workers needed for the peak of construction

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activity, which is scheduled to begin in December 2025. Therefore, Woodfibre LNG requires additional accommodation.

It is anticipated that the Project will require approximately 1,400-1,500 workers at peak construction, compared to an initial projection of 800 workers. The additional capacity is required to maintain the Project schedule and achieve the start of commercial operation as planned.

Woodfibre LNG is proposing changes to the CPD of the EAC (#E15-02) to accommodate the installation and operation of Floatel #2 and associated facilities dedicated to accommodate approximately 630 additional workers, plus the necessary crew to manage the vessel beginning in late 2025. Two floatels are needed until the workforce decreases to a point that a single floatel is adequate to accommodate.

Floatel #2 will be operated in the same manner as Floatel #1 and, as such, will work within the existing conditions. Floatel #2 will be managed by the same third-party operator as Floatel #1, in accordance with management plans developed for Floatel #1 as described in Section 2.3. The applicable management plans will be revised as necessary to incorporate Floatel #2.

### 3.1 SUMMARY OF PHYSICAL WORKS AND ACTIVITIES

The Floatel #2 vessel has similar dimensions and characteristics to Floatel #1. Floatel #2 will require nine 15-ton external anchors, and six 3-inch chains to moor the vessel with a spud barge located at the stern of the vessel with gangways to shore for worker egress. Details of the Floatel #2 mooring are subject to revisions prior to implementation; however, the summary of works provided here is expected to be representative for consideration of potential effects.

Floatel #2 will be operated consistent with Floatel #1, which includes accommodation arrangements, on-board amenities, and vessel servicing. Floatel #2 will be placed in the selected mooring site by a third-party service provider.

Floatel #2 specifications and facilities:

- Floatel #2 will be approximately 167 metres (m) long, 29 m wide, and 22 m high, with a gross tonnage of 33,967 DWT and a draft of 6.8 m.
- Floatel #2 will have approximately 630 cabins with private ensuite, and approximately 85 cabins for Floatel crew.
- Onboard amenities will include restaurants, gym, games area, outdoor sports court, onboard medical services, meeting rooms, offices and a 200-seat auditorium.
- Power will be supplied via a shore connection, with interim power provided by onboard diesel generators (further details below).
- Freshwater will be sourced from Woodfibre Creek and treated via an onshore treatment system (as further described below).

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Floatel #2 would be operated in the same way as Floatel #1, including the following:

- No discharge of wastewater or sewage to Átl'ka7tsem (Howe Sound). Sewage and wastewater will be transferred to a tanker barge and transported via the primary Southern Átl'ka7tsem (Howe Sound) Route to an approved offsite receiving facility for disposal.
- Workers, crew, and cargo will be transferred from the transfer platform at the stern of the vessel.
- Ferrying of workers during shift changes directly from the Lower Mainland using the primary Southern Howe Sound Route (Woodfibre LNG 2023b).
- Food and other materials will be transported to the site using cargo vessels and barges from the Lower Mainland, avoiding traffic impacts through the Squamish/Sea-to-Sky corridor.
- Domestic waste will be managed in accordance with the vessel providers' Waste Management Plan (Bridgemans 2024), which takes into account the District of Squamish Zero Waste Action Plan 2022-2027, and transported from Floatel #2 by service vessel as per the plan.
- No shore access to Squamish will be permitted from the vessel unless an exception is granted, per Condition 29.

Marine traffic associated with servicing the vessel and worker transport includes one passenger vessel to and from the site, six days a week, and one cargo/servicing vessel to and from the site, six days a week. These vessels will service both Floatel #1 and #2. This represents a slight increase in marine traffic volumes provided in Amendment #3, for Floatel #1, although still lower than what was considered in the original EAC Application.

Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of available power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However, it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months of Floatel #2 operation for connection to shorepower. In the interim, onboard diesel-powered generators will be used.

Potable water will be sourced from Woodfibre Creek and supplied to the vessel using a shore-based, self-contained water treatment system in a shipping container situated in close proximity the vessel, similar to Floatel #1. Woodfibre LNG has an existing water license that allows for withdrawal of 0.07 m<sup>3</sup>/s from Woodfibre Creek (approved in EAC Amendment #1). This withdrawal is expected to be sufficient to accommodate the volume of water needed to supply Floatel #2 in addition to Floatel #1. Water treatment includes filtration and chlorination in accordance with applicable drinking water standards. Treated drinking water will be piped overland to Floatel #2. No additional land disturbance is required for the treatment system or overland piping.

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## 3.2 LOCATION AND SETTING

Floatel #2 is proposed to be located south of the existing Floatel #1 within the CPA, near the mouth of Woodfibre Creek and within the municipal boundaries of the District of Squamish. The approximate coordinates of the proposed site are 49° 39' 37.234" N 123° 15' 27.786" W. The subtidal habitat at the mouth of Woodfibre Creek is generally characterized as having fine wood debris and soft substrates (e.g., sand and silt). The CPA is outside of marine areas used for recreation.

During the feasibility and constraints analysis, after the selection of the site within the CPA, Britannia Beach was considered to be the preferred alternative for the location of Floatel #2 (see Section 8.1). This alternative site is located next to the historic Britannia Mine site and within the SLRD. Woodfibre LNG will collect additional information and undertake analysis of this alternative location in the event that, for any reason, there is a need to pursue it.



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In addition to the amendment to EAC #E15-02 and SNEAA and the analysis relating to the FDS, key permits and approvals that may be required for the proposed Floatel #2 are outlined in Table 4.1. Floatel #1 is not part of the LNG Facility (facility permit) under the proposed *Energy Resources Activities Act* (previously the *Oil and Gas Activities Act*) and Liquefied Natural Gas Facility Regulation, and it is not anticipated that the proposed EAC amendment would require any additional permits or approvals from BCER. Woodfibre LNG will work closely with the EAO, Skwxwú7mesh Úxwumixw (Squamish Nation) and other agencies to support a coordinated review of the amendment.

### Table 4.1: Regulatory Approvals

Approval	Description	Applicability
<b>Federal Approvals</b>		
<i>Fisheries Act</i> Request for Review / Authorization	<p>The <i>Fisheries Act</i> includes three key prohibitions that affect development activities. Subsection 34.4 (1) prohibits the killing of fish, and section 35(1) prohibits the harmful alteration, disruption, or destruction (HADD) of fish habitat. It is possible to obtain an authorization for both sections from the Minister of Fisheries and Oceans Canada (DFO) under paragraph 35(2)(b) of the Act. The information to be provided in the authorization application is identified in the Authorizations Concerning Fish and Fish Habitat Protection Regulations. Section 36 (3) prohibits the deposition of deleterious substances in water frequented by fish or in any place where deleterious substances may enter such water.</p> <p>DFO has a request for review process that allows proponents to obtain a formal opinion on the need for an Authorization. Through that process, DFO will either determine that a <i>Fisheries Act</i> authorization is required, or that certain works can proceed under a Letter of Avoidance and Mitigation that includes details on the avoidance and mitigation measures to be implemented.</p>	<p>A request for review will be required for Floatel #2. Based on this review, DFO may issue a Letter of Avoidance and Mitigation or require an amendment to the existing <i>Fisheries Act</i> Authorization.</p> <p>Accidental spills during installation and operation of Floatel #2 may introduce deleterious substances into the marine environment. Applicable mitigation measures are discussed further in Section 8.2.</p>
<i>Canadian Navigable Waters Act</i> Approval	<p>Approval is required for any major work that may interfere with navigation on any navigable water, including Scheduled and non-scheduled waters. The <i>Canadian Navigable Waters Act</i> allows for designated specific work in the Minor Works Order.</p>	<p>Due to the vessel size and anticipated mooring requirements, the Project does not fall under the Minor Works Order. The Navigation Protection Program (NPP) Application for Approval will be required along with public notice on the NPP external submission site and depositing information on the NPP registry.</p>

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Approval	Description	Applicability
<b>Provincial Approvals</b>		
<i>Public Health Act</i>	Division 2 of the Act regulates activities that may cause health hazards. Currently regulated activities include sewage systems, swimming pools, personal services establishments, tanning facilities, and industrial camps. Licenses and permits for regulated activities may be cancelled or varied by a health officer if the operator is causing a health hazard or contravening the Act. Vancouver Coastal Health will administer this for the Project.	As an industrial camp, operation of Floatel #2 would require approvals/permits for services including the potable water system, sewage holding tanks and food services.
<b>Municipal Approvals</b>		
<i>Local Government Act</i> District of Squamish Temporary Use Permit (Zoning Bylaw)	Temporary Use Permit (TUP) provisions in the Official Community Plan allow use on a temporary basis not otherwise permitted in the Zoning Bylaw. Applications are evaluated on temporary nature, existing land uses, surrounding uses, potential conflict with residential uses, impact on environmentally sensitive areas, provision of health requirements, duration, other relevant municipal policies.	A TUP would be required to moor Floatel #2. Woodfibre has applied for a TUP for both Floatel #1 and Floatel #2.



## 5.0 SUMMARY OF CONSULTATION AND ENGAGEMENT

This section summarizes consultation and engagement activities undertaken with all Aboriginal Groups identified in the original EA government representatives, stakeholder groups, and the public, during development of the Floatel #2 amendment application. This section also describes feedback, where it was provided, and responses from Woodfibre LNG to the feedback.

Woodfibre LNG is continuing to engage with Aboriginal Groups, government representatives, stakeholder groups, and the public as the amendment process advances. Woodfibre LNG is also maintaining a detailed Record of Engagement to record feedback from all parties and the company's responses. The record will be kept up to date and all consulted parties will be provided a copy.

### 5.1 ABORIGINAL GROUP CONSULTATION

Woodfibre LNG acknowledges that consultation with Aboriginal Groups is critical to ensuring that Floatel #2 will serve its intended purpose and will not have adverse cultural, environmental and socioeconomic implications. Woodfibre LNG aims to ensure that Aboriginal Groups are provided suitable opportunities to provide input on the Floatel #2 amendment process, and to receive timely and complete responses from the company. Woodfibre LNG is consulting the Sk̓w̓X̓W̓Ú7mesh ÚXWUMIXW (Squamish Nation) on Floatel #2 in their capacity as an environmental regulator, by way of the Woodfibre LNG/Sk̓w̓X̓W̓Ú7mesh ÚXWUMIXW (Squamish Nation) Environmental Working Group. Other nations whose territories are impacted by the Project are being consulted bilaterally.

Woodfibre LNG began consultation with the Sk̓w̓X̓W̓Ú7mesh ÚXWUMIXW (Squamish Nation) in early 2025 to introduce the possibility of Floatel #2 and to initiate discussions on potential mooring locations. The Sk̓w̓X̓W̓Ú7mesh ÚXWUMIXW (Squamish Nation) indicated that if a second Floatel were to be added, a site within the CPA is preferred compared to other candidate sites identified by Woodfibre LNG. The Sk̓w̓X̓W̓Ú7mesh ÚXWUMIXW (Squamish Nation) also provided specific comments to Woodfibre LNG on May 15, 2025, based on a review of the Project Description that was shared with them on April 24, 2025. Table 5.1 provides a summary of their comments and Woodfibre LNG's responses. Woodfibre LNG has endeavoured to reflect responses in this application for issues that are applicable to Floatel #2.

On April 24, 2025, Woodfibre LNG also informed all the Aboriginal Groups, as identified on Schedules C and D of the Section 11 Order for the initial Environmental Assessment, of the intent to submit an amendment application for Floatel #2 and provided a copy of the amendment Project Description and offered to provide more information or meet to discuss if and as requested. These groups are:

- Tsleil-Waututh Nation
- Musqueam First Nation
- Cowichan Tribes First Nation
- Halalt First Nation

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- Lake Cowichan First Nation
- Lyackson First Nation
- Penelakut Tribe
- Stzuminus First Nation
- Métis Nation of British Columbia
- Lake Cowichan First Nation

On May 27, 2025, Woodfibre LNG followed up with the above listed nations to inquire about questions or feedback related to the previously shared documents and also sent detailed information about the proposed Floatel #2, including information about the process, rationale, design, key issues, mitigations and next steps.

On May 1, and June 9, 2025, Woodfibre LNG met with Tsleil-Waututh Nation to discuss Floatel #2, processes and timelines. Tsleil-Waututh Nation indicated that they are planning to provide more detailed feedback over the coming weeks.

Feedback received from each group to date has been addressed in the amendment application and is summarized in Table 5.1 below<sup>4</sup>. Woodfibre LNG will continue to seek input from Aboriginal Groups as the amendment process continues.

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<sup>4</sup> The table provides a summary of key findings only. It is not intended to list every comment made or issue raised. The Record of Engagement provides a detailed record of every comment received and Woodfibre LNG's response.

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**Table 5.1: Summary of First Nations' Feedback on the Amendment Application and Woodfibre LNG's Responses**

First Nation	Summary of Feedback to Date	Summary of WLNG Responses
Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation)	<ul style="list-style-type: none"> <li>Would like to understand and see evidence of (through metrics and reporting obligations) the extent to which mitigations related to Floatel #1 are working well and/or could be improved for Floatel #2 as a result of doubling the workforce. This includes the effectiveness of the Indigenous Floatel Cultural Managers and data/mitigations related to marine transportation (to reflect increased number of trips for Floatel #2).</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG committed to provide Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) with additional information about the mitigations for Floatel #1 and how they will be applied to Floatel #2, including metrics to demonstrate effectiveness. See Section 2.4.</li> <li>Woodfibre LNG provided Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) with additional information regarding effectiveness of Indigenous Floatel Cultural Managers and data for increased marine transportation.</li> <li>Woodfibre LNG offered to discuss, with the Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation), ways to enhance metrics and reporting obligations for Floatel #2.</li> </ul>
	<ul style="list-style-type: none"> <li>Requested additional information about elements such as: plans for connecting Floatel #2 to shore power; level of medical services for Floatel #2 (and metrics for use of medical services on current Floatel); mooring design; water supply for Floatel #2; risks and constraints related to the Alternatives; assessment of air quality.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG provided additional information to the Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) regarding its plans for connecting Floatel #2 to shore power by 2026 Q1, the potable water supply being Woodfibre Creek, details of the mooring design, and the provision of medical services for Floatel #2 (see Section 3.1).</li> <li>Information about the risks and constraints related to the Alternatives (Section 8.1) and an assessment of air quality is contained in this application (Appendix C).</li> </ul>
	<ul style="list-style-type: none"> <li>Expects Woodfibre LNG to consult with all relevant committees in advance of the application submission and throughout the amendment process.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG committed to consulting with all relevant committees as requested by Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) (see Section 9.1.1).</li> </ul>
	<ul style="list-style-type: none"> <li>Requested updated content for the gender and cultural safety training and list of Indigenous trainers.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG provided Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) with copies of the current content for gender and cultural safety training and list of current trainers (cultural awareness, gender safety and archaeology).</li> </ul>

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First Nation	Summary of Feedback to Date	Summary of WLNG Responses
	<ul style="list-style-type: none"> <li>Requested how issues relating to poor/limited wifi connection at Floatel #1 will be resolved and improved for Floatel #2.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG provided Skw̱xwú7mesh Úxwumixw (Squamish Nation) with detail about reasons for wifi issues and how they are being resolved, which includes repairing hardware, updating routers and other equipment, and having a full time IT person working on wifi issues. Floatel #2 will have all the updated software from the beginning.</li> </ul>
	<ul style="list-style-type: none"> <li>Requested information about cost comparison of housing workers on a Floatel compared to housing workers in the community (with daily per diems).</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG responded that it has always been a Project priority to minimize/avoid community impacts all together, with a floatel being the more expensive option vs. housing workers locally.</li> </ul>
	<ul style="list-style-type: none"> <li>Requested workforce data on number of Indigenous workers, women, total workers on Floatel #1 and total workers on the Project.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG provided Skw̱xwú7mesh Úxwumixw (Squamish Nation) with 2025 Q1 data (peak).</li> </ul>
Tsleil-Waututh Nation	<ul style="list-style-type: none"> <li>Concerns about cumulative impacts of vessel traffic, potential accidents/spills, herring and other marine life as a result of doubling the workforce, in addition to Fortis' workforce.</li> </ul>	<ul style="list-style-type: none"> <li>As part of the detailed presentation about Floatel #2 shared with all nations and stakeholders, and as demonstrated by the amendment application, Woodfibre LNG aims to demonstrate how cumulative impacts will be appropriately mitigated (see cumulative effects assessment subsections under each VC carried forward in Section 7.0)</li> <li>Mitigations will also be reflected in updated Management Plans.</li> </ul>
	<ul style="list-style-type: none"> <li>Confirmed their commitments to environmental stewardship regardless of any potential momentum or expediency related to the Project.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfibre LNG acknowledges and appreciates the nation's interests related to environmental stewardship.</li> </ul>
Musqueam First Nation	None provided	n/a
Cowichan Tribes First Nation	None provided	n/a
Halalt First Nation	None provided	n/a
Lake Cowichan First Nation	None provided	n/a
Lyackson First Nation	None provided	n/a

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First Nation	Summary of Feedback to Date	Summary of WLNG Responses
Penelakut Tribe	None provided	n/a
Stzuminus First Nation	None provided	n/a
Métis Nation of British Columbia	None provided	n/a
Lake Cowichan First Nation	None provided	n/a

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## 5.2 GOVERNMENT ENGAGEMENT

Woodfibre LNG has engaged federal, provincial, and local government agencies regarding the proposed amendment and will continue to engage as part of the application process. Woodfibre LNG has engaged the following agencies that have a direct role in issuing authorizations or permits for Floatel #2:

**Table 5.2: Summary of Government Engagement on the Amendment Application**

Agency	Topic of discussions
Impact Assessment Agency of Canada	Timelines and processes related to notification and information to support the Agency in its recommendation regarding the FDS
Fisheries and Oceans Canada	Submission of a Request for Review for Floatel #2
Transport Canada	<i>Canadian Navigable Waters Act</i> authorization
District of Squamish	Temporary Use Permit information requirements, process and timelines
Vancouver Coastal Health	Permits related to potable water, sewage holding tanks, food services and permit to operate.

Woodfibre LNG has also engaged the following agencies to date that do not have a permitting role to inform them about Floatel #2 and keep them apprised of processes and timelines:

- BC Energy Regulator
- BC Ministry of Energy and Climate Solutions
- BC Ministry of Environment and Parks
- BC Ministry of Health
- BC Ministry of Water, Land and Resource Stewardship
- Squamish-Lillooet Regional District

Woodfibre LNG will continue to engage other agencies as required. None of the organizations engaged sought to review a draft application.

## 5.3 STAKEHOLDER COMMITTEE ENGAGEMENT

Woodfibre LNG has established several stakeholder committees—with representation from First Nations, all levels of government, service providers, community groups, and FortisBC—to provide input and feedback to the company on mitigations, to review quarterly metrics, and to discuss and participate in issues resolution so that the Project does not adversely impact the community. Woodfibre LNG has cursorily engaged these committees as part of the Floatel #2 amendment process and will have comprehensive discussions with committees at their June 2025 meetings.

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The topic was first introduced to the Gender Safety Advisory Committee at a meeting on April 29, 2025. Initial feedback included the following:

- Concerns about perceived additional cumulative impacts. Woodfibre LNG confirmed that all Management Plans and mitigations will extend to Floatel #2.
- Concerns about environmental issues such as shading issues on Woodfibre Creek and impacts on herring. Woodfibre LNG indicated that discussions with Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) are underway to address these concerns.
- Questions about the provision of medical services on Floatel #2. Woodfibre LNG indicated that it is determining the need for an additional medical clinic.

Woodfibre LNG committed to providing more detailed information to members at the next meeting.

The below named committees were provided details about the proposed Floatel #2 amendment (same information shared with all First Nations and Métis Nation of British Columbia) on May 27, 2025, noting that this item would be discussed at the next committee meeting, which are:

- Woodfibre LNG Marine User Group – June 16, 2025
- Community Services and Infrastructure Management Plan (CSIMP) Quarterly Roundtable – June 19, 2025
- Cumulative Issues Committee – June 26, 2025
- Gender Safety Advisory Committee – next meeting to be scheduled

Discussions will continue with stakeholder committees throughout the amendment process, and Woodfibre LNG expects that the Gender and Safety Advisory Committee, in particular, will provide recommendations regarding the implementation of gender and cultural safety policies, programming and other initiatives for Floatel #2. Woodfibre LNG will offer ad hoc meetings with committees, as necessary, to support the engagement process.

See Appendix B for a listing of groups that are represented on each committee.

As noted in Section 2.4, the Floatel and Workplace Culture Committee plays a key role in advising on mitigations for Floatel #1 to ensure it is an inclusive and welcoming environment for workers. However, because this committee is internal to Woodfibre LNG, it is not formally consulted on the amendment application.

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## 5.4 PUBLIC ENGAGEMENT

In support of its commitment to providing open and transparent communication about the Project, on May 1, 2025, Woodfibre LNG issued a public statement regarding the amendment application for Floatel #2<sup>5</sup>. To date, Woodfibre LNG has not received any public inquiries to the Project information line about Floatel #2 but inquiries will continue to be monitored.

Woodfibre LNG is hosting an open house in Squamish on June 18, 2025, to provide information about Floatel #2 to the general public and media. Woodfibre LNG staff will be available to answer any questions, and feedback received will be recorded in the Record of Engagement. Woodfibre LNG will promote the open house through radio, social media, and print advertising.

Woodfibre LNG will issue a summary on its website following the open house (targeted for late June) to summarize frequently asked questions and answers regarding Floatel #2. In addition, Woodfibre LNG will also issue a print advertorial in local media that provides facts and other information about Floatel #2.

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<sup>5</sup> <https://woodfibrelng.ca/news/2025/05/01/woodfibre-lng-submitting-application-for-regulatory-review-for-second-floatel/>



## 6.0 AMENDMENT PROCESS

### 6.1 ENVIRONMENTAL ASSESSMENT ACT

An amendment is any modification to an existing Certificate or Exemption Order, including to the CPD or Table of Conditions, or equivalent documents (EAO 2024). Amending the EAC requires the assessment of potential changes to effects of a project on Indigenous Nations and their constitutional rights and interests, and the consideration of the assessment matters presented in section 25 of the *Environmental Assessment Act*. Based on the *Environmental Assessment Certificate and the Amendments to Environmental Assessment Certificates and Exemption Orders – Guidance for Holders* (EAO 2024), it is Woodfibre LNG's opinion the amendment falls within the "typical amendment" category as the proposed changes to the Project will be material but limited in nature.

Upon submission of the amendment application, the EAO will review the application, and if it is considered complete, EAO will accept the amendment application by issuing a confirmation letter to Woodfibre LNG. Once the amendment application is deemed complete and accepted by the EAO, the EAO will work collaboratively with participating Indigenous Nations and Technical Advisory Committee (TAC) members to identify information requirements and develop a work plan, as appropriate, and provide estimates of the time to complete the technical review of the amendment application (EAO 2020a).

During the technical review of the amendment application, Woodfibre LNG will track and provide responses to issues and concerns raised by TAC members regarding the amendment application. If required, Woodfibre LNG will also provide supplemental materials and complete supplementary information requirements for the EAO's and TAC's review. The EAO will then prepare a draft amendment application report that will include revised or new conditions as necessary, which would be reviewed by EAO Compliance, members of the TAC, and Woodfibre LNG. The EAO may also conduct a public comment period on the draft Amendment Assessment Report and will address comments received before the referral to the decision-maker. Upon completion of the review, the amendment assessment report and the conditions will be finalized and referred to the EAO's Executive Director for a decision on whether to issue the amendment (EAO 2024).

### 6.2 IMPACT ASSESSMENT ACT

Pursuant to conditions 2.10 and 2.11 of the FDS, Woodfibre LNG is required to notify the IAAC if it is proposing changes to the Project and to provide additional information as set out in the conditions. The IAAC will conduct an analysis of the information submitted pursuant to the notification requirements to determine which changes, if any, to the FDS it recommends to the Minister of Environmental and Climate Change Canada. Following the IAAC's assessment, and pursuant to Section 68 of the *Impact Assessment Act*, the Minister of Environment and Climate Change Canada may amend a FDS, including to add or remove a condition, to amend any condition or to modify the designated project's

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description. The information requirements set out for the provincial amendment process is followed here to comply with the requirements of conditions 2.10 and 2.11 of the FDS.

Preliminary discussions with federal and provincial agencies indicated an interest in seeking to align timelines where feasible.

### **6.3 SK̓W̓X̓WÚ7MESH ÚXWUMIXW ENVIRONMENTAL ASSESSMENT AGREEMENT**

The SNEAA includes legally binding conditions applicable to Woodfibre LNG, FortisBC, and the Province of BC. Woodfibre LNG is responsible for 13 of the conditions identified in the SNEAA.

Woodfibre LNG and Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) established an Environmental Working Group to ensure the Nation's environmental conditions are met and that WLNG is in compliance with regulated management plans.

Woodfibre LNG has been providing the Environmental Working Group with regular updates and has engaged Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) in a parallel review process on Floatel #2, to ensure alignment with the SNEAA. Feedback, based on comments received to date, has been incorporated into this application.

Woodfibre LNG will continue to work closely with Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) to address any issues and concerns from the Nation. In addition, trilateral discussions to ensure consultation satisfies the EAO requirements can be arranged.

## 7.0 VALUED COMPONENTS ASSESSMENT

### 7.1 VALUED COMPONENT ASSESSMENT METHODS

The amendment application identifies VCs previously assessed in the Assessment Report that have the potential to interact with the proposed changes to the Project. The original application considered intermediate components (IC) as part of the pathway between the proposed Project and ultimate receptor (i.e., VC), however in the EAO's Assessment Report (EAO 2015), potential effects of the changes to ICs were considered through the assessment of VCs. For simplicity in this amendment application, a distinction in assessment methods is not made between VCs and ICs and are referred to as VCs herein. Table 7.1 identifies VCs, their potential interactions with the Project and rationale for their inclusion or exclusion as VCs in the amendment application. Where there is the potential for proposed changes to interact with a VC, these interactions are carried forward in the assessment. The assessment will evaluate whether the proposed changes will change the residual or cumulative effects and conclusions presented in the Assessment Report. The effects assessment follows the approach outlined in the EAO's Effects Assessment Policy (EAO 2020b).

The effects assessment evaluates the following:

- Mechanism: a description of how the proposed changes could result in interactions with the valued components.
- Mitigation: identification of mitigation measures to reduce or eliminate potential negative effects of the proposed changes.
- Characterization of Effects: a description of if and how the proposed changes alter the characterization of effects set out in the Assessment Report.
- Risks and uncertainties: a description of risks and uncertainties, including the likelihood of positive or adverse residual effects, and results of any interaction between effects will be provided. The level of confidence and potential need for additional risk analysis in case of uncertainty is stated.

For cumulative effects to occur, there must be residual adverse environmental effects and a spatial and temporal overlap of adverse effects from past, present, and reasonably foreseeable projects and activities. For each VC carried forward in the amendment application, a cumulative effects assessment will be conducted if the proposed changes adversely alter the characterization of residual effects from the Assessment Report (e.g., a residual effect changes from being low magnitude to moderate magnitude or from being reversible to being irreversible). Reasonably foreseeable projects and activities are those that: (a) have been publicly announced with a defined project execution period and with sufficient project details that they can be included in the assessment; (b) are currently undergoing an environmental assessment; or (c) are in a permitting process.

## 7.2 INTERACTION OF PROPOSED PROJECT CHANGES WITH VALUED COMPONENTS

Table 7.1 outlines the potential interactions between VCs previously assessed in the EAO Assessment Report, and the proposed physical changes as a result of this amendment application. Potential interactions have been rated using the following criteria:

- 0 = No effect expected, excluded from further consideration, and not carried forward in the amendment assessment.
- 1= Negligible change in potential effects. Potential effects can be appropriately managed via existing mitigation measures and commitments.
- 2 = Potential for change to the previously assessed effects or requires implementation of new mitigation measures. Warrants further consideration and carried forward in the amendment application.

For each VC, rationale for inclusion/exclusion for further assessment is provided. Where an identified interaction could result in a material change to an adverse residual effect then the VC is carried forward in the effects assessment. Material change is defined as a change to the characterization of residual effects on a VC as presented in the Assessment Report prepared by the EAO (EAO 2015, EAO 2017, EAO 2023).

**Table 7.1: Valued Components to be included/excluded in the Amendment Application**

Valued Component <sup>1</sup>	Interaction Rating	Carried Forward in Assessment	Rationale for Inclusion or Exclusion
Air Quality	1	No	Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of available power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However, it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. In the interim, onboard diesel-fired generators will be used. The use of diesel-fired generators may affect air quality near the location of Floatel #1 and Floatel #2, where off-duty workers are housed. Outcomes of implementation of the FAQMMP are presented in Table 2.1. A review of emissions from Project construction activities and the diesel-fired generators is described in the Memorandum, Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generator (Stantec 2025; Appendix C). As the timeframes for generated power are expected to be relatively short, any related air quality impacts are expected to be equally short lived and managed through the FAQMMP (Woodfibre LNG 2024).  With the addition of the temporary diesel-fired generator on Floatel #2 effects to air quality in the LAA or RAA are negligible; therefore, there is no change to the characterization of effects on air quality presented in the Assessment Report (EAO 2015).
Greenhouse Gas Management	n/a	n/a	Greenhouse gas management is not addressed as a VC under the 2018 <i>Environmental Assessment Act</i> , it is however considered under section 25 matters (see Section 8.0). Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of available power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However, it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. In the interim, onboard diesel-powered generators will be used. The use of diesel-powered generators will emit greenhouse gases during operation of Floatel #2. Because the timeframes for generated power are expected to be relatively short, any related changes to greenhouse gas emissions are expected to be relatively limited, relative to the construction emissions considered in the Assessment Report (EAO 2015).
Noise	1	No	The FNMMP has been developed and is being implemented for Floatel #1 to meet EAC condition 30. As indicated in Section 2.3.5 and Table 2.1 results from noise monitoring to date on Floatel #1 have noted noise levels above the Health Canada thresholds but generally below the ANSI S12.2 room sound level criteria for hotel and motel rooms (Woodfibre LNG 2025). No sleep disturbances issues, noise concern, or complaints associated with construction noise were received from the Floatel #1 occupants. Floatel #2 will be operated consistently with Floatel #1, and noise from Floatel #2 is expected to be effectively managed with implementation of the FNMMP. As such potential effects can be appropriately managed and therefore noise is not considered further.
Freshwater Fish and Fish Habitat	0	No	There will be no freshwater crossings required for Floatel #2. Woodfibre LNG's existing water license has sufficient capacity to supply water for Floatel #2 in addition to Floatel #1. Therefore, water withdrawal from Woodfibre Creek will remain within the currently approved limits. No additional riparian disturbance is anticipated for the shore-based, self-contained water treatment system or piping. <sup>5</sup>
Marine Water Quality and Benthic Habitat	2	Yes	The mooring lines, anchors and spuds associated with Floatel #2 will interact with seabed and therefore marine benthic habitat for the period it is present. Disturbance of sediment during installation and movement of chains with tidal and wave action has the potential to suspend sediments and affect local marine water quality. The addition of Floatel #2 will increase shading effects to subtidal areas in the areas of seafloor beneath Floatel #2 and associated barges and gangways. The anchors and spuds will result in temporary disturbance to the seabed. <sup>5</sup>
Marine Fish and Marine Mammals <sup>2</sup>	2	Yes	Lighting required for use and safety during operation of Floatel #2 may disrupt normal behaviour and increase the risk of injury or mortality of marine fish and marine mammals. This lighting also has the potential to attract forage fish, which may, in turn, attract marine mammals that prey on these fish.
Vegetation Communities	0	No	There will be no additional onshore disturbance and no additional riparian vegetation clearing required for Floatel #2. <sup>5</sup>
Terrestrial Wildlife and Marine Birds <sup>3</sup>	1	No	There will be no additional onshore disturbance outside of previously disturbed areas and no additional terrestrial wildlife habitat clearing required.  The proposed amendment has the potential to have indirect effects (i.e., disruption of normal behaviour) on terrestrial wildlife and marine birds from changes in lighting. Wildlife management and monitoring has been included in Appendix H of the CEMP to meet EAC condition 11. Potential effects can be appropriately managed via existing mitigation measures and commitments. As outlined in Section 5.5 of the EAC Application, lighting fixtures will be fully shielded (to minimize uplight to the atmosphere) and designed to minimize luminous flux, as suitable in accordance with safety requirements. The mitigation measures outlined in the EAC Application and CEMP are anticipated to be sufficient to manage the adverse potential effects of artificial lighting on terrestrial wildlife and marine birds. Current monitoring at Floatel #1 for lighting mitigation implementation is conducted bi-annually to confirm compliance with mitigations for lighting in the Appendix H of the CEMP.
Labour Market and Sustainable Economy	1	No	Installation, maintenance, and operation of Floatel #2 may interact with sustainable economy if the Project utilizes local contractors, potentially contributing to local goods and service revenues. Workers on Floatel #2 are unlikely to engage with local businesses or contribute to expenditure on goods and services provided by local businesses as workers are not allowed access to Squamish except in the case of an emergency requiring healthcare services not provided on site, or specific business requirements.  Potential effects can be appropriately managed via existing mitigation and enhancement measures, such as the CSIMP, which outlines how the Project will prioritize economic development opportunities for local businesses through the Nch'kay Business Register and employment and training opportunities for local residents to reduce requirements for external support and promote sustainable development for local First Nations, District of Squamish, and the local region.  A CSIMP has been developed and is being implemented to meet EAC condition 14 (see section 2.3 and 2.4).

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Valued Component <sup>1</sup>	Interaction Rating	Carried Forward in Assessment	Rationale for Inclusion or Exclusion
Infrastructure and Community	1	No	The presence of workers on Floatel #2 has the potential for interactions with local infrastructure and community services in emergent situations (e.g., emergency response services, healthcare infrastructure). Potential effects can be appropriately managed via existing mitigation measures, such as the CSIMP, which outlines Woodfibre LNG's strategy to manage and monitor effects directly attributable to the Project on services and infrastructure delivered by provincial government agencies, First Nations, local governments, and service providers. Floatel #2 may also reduce interactions between the workforce and local infrastructure and community services (e.g., housing, highway transportation) on a daily basis as worker transport via marine vessels will be directly from the Lower Mainland. To meet EAC condition 14, a committee has been established to review impacts and the effectiveness of mitigations and the committee will be extended to include Floatel #2, see Section 2.4.
Land and Resource Use	1	No	The installation and operation of Floatel #2 has limited potential to interact with recreational fishing and marine recreational activities within Howe Sound. Recreational users are actively discouraged from accessing the Marine Safety Zone that aligns with the CPA, and this is unchanged with Floatel #2. The change in vessel traffic associated with Floatel #2 is captured in the marine transport VC below. There are no interactions with terrestrial land and resource use. Land and resource use is not carried forward in the assessment.
Marine Transport	1	No	The operation of Floatel #2 has the potential to interact with marine transport in Howe Sound (e.g., increased personnel transfers/ferry trips to Floatel #2, additional service vessels). There will be an increase in ferry trips required for worker transport and servicing of Floatel #2 compared to what is currently needed to service Floatel #1, however the number of ferry trips will be less than what was originally assessed in the Assessment Report (EAO 2015). Current marine traffic to service Floatel #1 is one passenger ferry three times a week and one service vessel three to four times a week. It is anticipated that there will be one passenger vessel and one service vessel six days a week and these will service both Floatel #1 and Floatel #2. Access through Howe Sound will remain open, and the increase in marine traffic associated with Floatel #2 is minor relative to existing vessel activity. The MTMMP-C has been developed and is being implemented to meet EAC condition 16, see Section 2.4.
Visual Quality <sup>4</sup>	1	No	Floatel #2 will be an additional temporary component of construction infrastructure inside the CPA, which may be visible from locations in and around the area, similarly to Floatel #1 and the facility site. Changes to visual quality are expected to be limited given the current use activities at the existing Floatel #1 and Woodfibre LNG facility construction. Changes in light effects, including change in sky glow and light trespass, will be appropriately managed via existing mitigation measures and commitments. As outlined in Section 5.5 of the EAC Application, lighting fixtures will be fully shielded (to minimize uplight to the atmosphere) and designed to minimize luminous flux, as suitable in accordance with safety requirements. The mitigation measures outlined in the EAC Application and CEMP are anticipated to be sufficient to manage the adverse potential effects of artificial lighting on visual quality. Current monitoring at Floatel #1 for lighting mitigation implementation is conducted bi-annually to confirm compliance with mitigations for lighting in Appendix H of the CEMP. Visual Quality is not considered further in the assessment.
Current Use of Lands and Resources for Traditional Purposes	1	No	Floatel #2 is not predicted to affect access to the environment and resources for traditional purposes as there are existing protocols to allow Nations access to resources for traditional purposes within the CPA. The proposed changes will not interact with known harvesting sites, heritage sites, and place names that were previously identified (WLNG 2019). There may be potential to affect the amount and quality of resources (sensory conditions), however these changes are not anticipated to be materially different from those associated with general project construction and operation of Floatel #1. Floatel #2 will be operated similarly to Floatel #1; there will be no new activities. With the implementation of existing mitigation measures described in the CEMP, Construction ERP, Construction Environmental Monitoring Plan, Marine Mammal Management and Monitoring Plan, MTMMP-C, Marine Fish and Fish Habitat Management and Monitoring Plan, and Marine Water Quality Management and Monitoring Plan (MWQMMP), no material changes to sensory conditions for current use are anticipated and this is not assessed further.
Community Health and Well-Being	1	No	WLNG's use of floatels is a mitigation measure to avoid adverse effects on the Community Health and Well-Being of Squamish residents. Potential effects to community health and well-being can be appropriately managed via existing mitigation measures and commitments to deter and prevent gender and cultural-based violence among the workforce, on the floatels, and in the community, such as those described in the CSIMP and the GCSP, workplace policies for worker health and wellness, a Floatel and Workplace Culture Committee, and access restrictions to Squamish for workers residing on the floatels (as per EAC conditions 26 to 29). The CSIMP and GCSP have been developed and are being effectively implemented to meet EAC condition 26, see section 2.4. Community Health and Well-being is not assessed further.
Heritage Resources	1	No	All areas within the CPA are considered to have the potential for heritage resources and have been assessed in an Archaeological Impact Assessment. The potential effects of marine disturbance will be effectively avoided or reduced by applying the same mitigation measures presented in the EAC Application (section 13.2.2.11) and the CEMP (section 5.3.15), and the chance find procedure as part of the Archaeological and Heritage Resources Management Plan.
Human Health	2	Yes	Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of available power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However, it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. In the interim, onboard diesel-powered generators will be used. The use of diesel-powered generators may affect air quality for workers residing on Floatel #2. Air quality as it relates to human health was carried forward into the assessment. Floatel air quality and noise monitoring will be implemented as per EAC condition 30 and FDS condition 6.1; see section 2.3 and 2.4 for information on these management plans and mitigation effectiveness for Floatel #1.

Valued Component <sup>1</sup>	Interaction Rating	Carried Forward in Assessment	Rationale for Inclusion or Exclusion
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Notes:

- <sup>1</sup> VC assessed in the Assessment Report (EAO 2015). The Assessment Report considered the potential effects of the changes to ICs through the assessment of VCs.
- <sup>2</sup> The EAC Application assessed Forage Fish and Other Fish (Marine) and Marine Mammals as separate VCs. These were grouped under Marine Fish and Marine Mammals in the Assessment Report (EAO 2015).
- <sup>3</sup> The EAC Application assessed Avifauna, At-risk Bat Species, Amphibians, and Marine Birds as separate VCs. These were grouped under Terrestrial Wildlife and Marine Birds in the Assessment Report (EAO 2015).
- <sup>4</sup> The EAC Application assessed Light as an IC, Light was grouped under Visual Quality in the Assessment Report (EAO 2015).
- <sup>5</sup> At this time it is anticipated that no additional disturbance to riparian vegetation is required for Floatel #2. While finalizing vessel mooring design Woodfibre LNG will seek to avoid disturbance to riparian areas. If it is determined that disturbance is required, it is expected to be limited, and potential effects can be appropriately managed via existing mitigation measures and commitments and would not change the interaction rating such that further assessment would be required. If it is determined disturbance will occur, Woodfibre LNG will engage with the appropriate authorities.



## 7.3 MARINE WATER QUALITY AND BENTHIC HABITAT

Marine Water Quality and Benthic Habitat was identified as a VC in the EAC Application because of the ecological importance to marine ecosystems and the predicted interactions between the Project and marine mammals, fish, birds and water quality. Marine benthic organisms such as crab and prawn are also economically, culturally, and ecologically important to First Nations, local fisheries, and local communities. This section describes potential residual and cumulative effects of installation and operation of Floatel #2 on the Marine Water Quality and Benthic Habitat VC. Information presented in this section is consistent with the EAC Application and updated where necessary and relevant. The definition of the marine water quality and benthic Local Assessment Area (LAA) and Regional Assessment Area (RAA) is the same as presented in the EAC Application: LAA includes the marine portion of the Project area, and the RAA includes Howe Sound.

### 7.3.1 Existing Conditions

Floatel #2 is proposed to be located south of the existing Floatel #1 within the CPA and near the mouth of Woodfibre Creek (Figure 1). This is within the LAA and RAA assessed in the EAC Application and Assessment Report. The existing conditions within the LAA and RAA are described in detail in Section 5.10.3.2 and Section 5.16.2.4 of the EAC Application, and additional surveys have been completed in 2014, 2015, 2019, 2020, and 2023 (Golder 2014; Hemmera 2015a; Keystone 2021a; Keystone 2022; Keystone 2024a). A high-level summary of these conditions is provided below.

The Project is located within Howe Sound and is adjacent to the Strait of Georgia. The marine waters and benthic habitats within Howe Sound have been influenced by a variety of natural factors (e.g., freshwater inputs, currents, salinity) and anthropogenic activities. Historical industrial activities include the former Woodfibre Pulp and Paper Mill, Britannia Mine, and the Nexen chloro-alkali site, all of which historically discharged wastewater into Howe Sound but have ceased operations and the sites have been remediated. The Port Mellon Pulp Mill is an industrial site still operating in Howe Sound. Pulp mills discharge effluent which can contain a variety of contaminants, including suspended solids, chlorine, nutrients, and organic material (EPCPEC 1990), and discharges are regulated by the Pulp and Paper Effluent Regulations (SOR/92-269) under the *Fisheries Act*.

Water quality sampling conducted within the LAA and RAA in 2013-2014 found exceedances of the Canadian Council of Ministers of the Environment (CCME) and BC Water Quality Guideline for the Protection of Marine Life (WQG-MAL) for copper, boron, and zinc in 2014 (EAO 2015). In 2020 and 2021, boron, cadmium, chromium, copper, mercury, zinc, nitrate, and benzo(a)pyrene also exceeded the BC and CCME WQG-MAL (Keystone 2024b). Pre-construction (baseline) water quality collected from May 2020 to September 2023 indicate dissolved oxygen, pH, boron, nitrate, cadmium, chromium, copper, mercury, lead, selenium, zinc and benzo(a)pyrene exceeded the BC, CCME and Environment and Climate Change Canada (ECCC) WQG-MAL (Keystone 2024b; Lorax 2023a, 2023b, 2025a). Construction phase monitoring results in samples collected from pre-construction baseline stations from October 2023 through July 2024 are in the range of the baseline concentrations with no indication of Project influence through this period (Lorax 2025b).



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Marine sediment composition within the LAA is primarily soft sediments with patches of cobble and boulder as well as large amounts of woody debris (Woodfibre LNG 2015). Generally, sediments have concentrations of metals (arsenic, cadmium, chromium, copper, lead, mercury, and zinc), polycyclic aromatic hydrocarbons (PAHs), dioxins and furans and polychlorinated biphenyls exceeding the CCME Interim Sediment Quality Guidelines (Woodfibre LNG 2015; Keystone 2021b, 2024b; Lorax 2023b, 2025c). Copper, lead, mercury, dioxins and furans, and PAHs for acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, 2-methylnaphthalene, naphthalene, phenanthrene and pyrene also exceeded the CCME Probable Effect Level (Woodfibre LNG 2015; Keystone 2021b, 2024b; Lorax 2023b, 2025c).

The physical and chemical composition of marine sediments can affect marine benthic invertebrates through direct uptake from physical contact or through ingestion of food which have been exposed to sediments. High concentrations of dioxins and furans have also been historically documented in shellfish in Howe Sound (Hatfield Consultants 2004). Due to these high concentrations, the bivalve molluscs (e.g., clams, oysters, mussels) fisheries harvest is closed in Howe Sound. However, other benthic invertebrate species (e.g. crab and prawn) fisheries have remained open or have re-opened with some restrictions in place. Since 1989, it has been reported that a marked decline in dioxins and furans has been observed in marine sediment and crab tissue samples collected (Hatfield Consultants 2004) and these levels have continued to decline since closure of the Woodfibre Pulp and Paper mill in 2006.

The intertidal zone within the CPA is dominated by coarse substrates (e.g., cobble, boulder, riprap, sheet piles, and bedrock) with areas of some sand and cobble within the low intertidal and shallow subtidal. In areas near Mill Creek where the previous pulp mill marine infrastructure was located the intertidal substrates are comprised of gravel and cobble with few boulders (Hemmera 2015; Keystone 2021a). Marine biota in the intertidal zone contains relatively low benthic invertebrate diversity but greater abundance of macroalgae compared to the subtidal zone (Golder 2014; Hemmera 2015; Keystone 2021a; Keystone 2022; Keystone 2024a). Marine vegetation includes rockweed (*Fucus distichus*), green string lettuce (*Ulva intestinalis*), sea lettuce (*Ulva lactuca*), brown filamentous algae, rusty rock (*Hildenbrandia* sp.), green tuft (*Cladophora* sp.), and sparse laminarian kelps (*Saccharina latissima*). No eelgrass is present. Sessile and motile invertebrates observed include acorn barnacles (*Balanus glandula*), blue mussel (*Mytilus trossulus*), thatched barnacles (*Semibalanus cariosus*), limpet (*Lottia* spp.), beach hoppers (family amphipoda), red velvet mites (*Neomolgus littoralis*), shore crabs (*Hemigrapsus oregonensis*), and mottled seastars (*Evasterias troschelii*) (Keystone 2024b).

Substrates in the subtidal zone are dominated by soft substrates (e.g., silt, clay and sand) with contributions of shell and woody debris (Keystone 2021a). The subtidal area has low abundance and diversity of macroalgae, with sparse observations of red filamentous algae up to -7.6 m CD and trace amounts of kelp (*Laminaria* spp.) due to limited availability of hard substrates to provide attachment sites (Keystone 2021a). No patches of bull kelp are present. Benthic epifauna observed within the upper subtidal areas where hard substrates are present during Project surveys included Dungeness crabs (*Metacarcinus magister*), tanner crabs (*Chionoecetes bairdi*), red rock crab (*Cancer productus*), squat lobsters (*Galathea squamifera*), as well as various shrimps, urchins, anemones, sea cucumbers, cockle clams and seastars (Golder 2014; Hemmera 2015; Keystone 2021a, Keystone 2021c, Keystone 2021e). Subtidal areas contained evidence of infaunal community through observations of

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invertebrate holes, siphons, mounds, fecal casins and bivalve shells (Keystone 2021a). Northern abalone (*Haliotis kamtschatkana*) was not documented within the LAA during the Project surveys (Woodfibre LNG 2015; Keystone 2024b).

### 7.3.2 Indigenous Knowledge

To date, no concerns related to marine water quality and benthic habitat have been identified through consultation with Sk̓w̓X̓WÚ7mesh ÚXWUMIXW (Squamish Nation), Tsleil-Waututh Nation or other engaged Schedule D Nations for the amendment. Woodfibre remains available to discuss concerns and consider further mitigation measures, as applicable and as appropriate.

### 7.3.3 Potential Effects and Mitigation Measures

The EAC Application and the Assessment Reports (EAO 2015, EAO 2023) considered four potential effects on marine benthic habitat: 1) change in marine water quality, 2) change in marine sediment quality, 3) harm to marine benthic communities, and 4) direct loss or change in marine benthic habitat. No new potential effects to marine water quality and benthic habitat as a result of Floatel #2 have been identified in this amendment.

The addition of Floatel #2 has the potential to result in the following changes to marine water quality and benthic habitat through direct and indirect effects:

- Installation and operation of the mooring system through the use of external anchors, chains, and a spud barge has the potential to cause seabed disturbance and mobilization of sediments and possible contaminants into the water column.
- Operation of the Floatel #2 may result in the temporary shading of subtidal vegetation beneath the vessel.

For the purpose of the assessment, the following impacts have been assumed; these may change with further advancement of the design and Woodfibre LNG will review the final plans with DFO before starting in-water works. It is anticipated that Floatel #2 will require nine 15-ton external anchors, and six 3-inch chains to moor the vessel with a spud barge located at the stern of the vessel with gangways to shore for worker egress. There will be seven spud legs (approximate diameter of 762 mm) to secure the main spud barge, four internal and three external. An additional optional spud barge, that might be required for Transport Canada access requirements, with two spud legs of similar diameter to the main barge. Five of the drag anchors and three of the chains will be positioned off the bow of Floatel #2, two of the anchors will be placed above the high-water mark, one in the intertidal (approximate depth of -8 m CD) and two in the subtidal (approximate depth of -120 m and -65 m CD). The remaining four drag anchors and three chains, including the gangway, are positioned off the stern, two above the high-water mark and two in the subtidal (approximately -110 m and -105 m CD). The chains range from approximately 69 m to 167 m in length and will extend through the intertidal and the subtidal zone..

Floatel #2 will be moored in an area that is characterized as having soft substrates (e.g., sand and silt), shells and shell fragments, and fine wood debris in the subtidal zone (Keystone 2021b). The spud barge

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legs will cause a disturbance of approximately 5.3 m<sup>2</sup> (6.9 m<sup>2</sup> with the optional barge) during its installation, resulting in the mobilization of sediment and changes in benthic habitat. During installation of the anchors and chains there is potential for seabed disturbance and potential for mobilization of contaminants into the water column. During operations the chains have potential to move along the seafloor during the approximately 5 m tidal cycle tides. Movement of 3-inch chains will be slow and is not anticipated to result in changes in benthic habitat. It is estimated that the movement would occur across a small area footprint of approximately 93.3 m<sup>2</sup> of seafloor (McDermott 2025). The combined footprint of seabed interaction from spuds, chains and anchors is estimated to be 98.6 m<sup>2</sup>. The exposed portions of chains also have the potential to provide hard surfaces available for colonization by benthic invertebrates.

Floatel #2 will have similar dimensions and characteristics to Floatel #1, with approximate dimensions of 167 m long, 29 m wide, and 22 m high. The main spud barge dimensions will be 48.8 m long, 19.5 m wide, and 2.44 m deep; the optional spud barge approximate dimensions are 48.8 m long, 4.9 m wide, and 1.2 m deep. The vessel and main spud barge will shade a maximum area of approximately 7,163 m<sup>2</sup> of the subtidal habitat (approximately 7,453 m<sup>2</sup> with the optional barge), potentially affecting benthic habitat through reduction in marine vegetation. The degree of shading experienced by benthic habitats within this area is anticipated to vary seasonally as a result of changes in the day length and the angle of the sun. In addition, the subtidal area beneath Floatel #2 is primarily soft sediments including silt, sand, and clay with shell and wood debris. This area was found to have limited marine vegetation and no high value marine vegetations (e.g., bull kelp, eelgrass) due to a lack of hard substrates to provide attachment sites. The marine community in these areas consisting of infaunal invertebrates with observations of holes, mounds, siphones, tubes, casings and shells present (Keystone 2021a). As such we don't anticipate effects on marine habitat-forming vegetation as a result of shading.

Potential effects and mitigation measures for Floatel #2 will be consistent with those of Floatel #1, such as placement of structures (anchors and spuds) in areas of low habitat quality. Installation and operation of Floatel #2 will adhere to existing mitigation measures, as described in 5.16.3.2.4 of the EAC Application and Condition 6 of the EAC ( MTMMP-C, MWQMMP), which will reduce the effects on marine benthic communities from mobilization of contaminants into the water column, habitat alteration, and shading. A summary of changes to potential effects and mitigation measures for marine water quality and benthic habitat as assessed in the Assessment Report is provided in Table 7.2.

**Table 7.2: Summary of Potential Effects and Mitigation Measures – Marine Water Quality and Benthic Habitat**

Proposed Amendment Component	Project Phase	Change in Proposed Works or Activities	Change in Potential Effects	Change in Mitigation or Enhancement Measures	Change in Mitigation or Enhancement Measures Success Rating
Floatel #2	Construction (Installation)	Yes	No change	No change	No change
	Operations	Yes	No change	No change	No change

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### 7.3.4 Changes to Characterization of Residual Effects

The Assessment Report (EAO 2015) concluded that Woodfibre LNG would result in the following residual adverse effects to marine water quality and benthic habitat:

- Direct loss or change of benthic habitat
- Harm to benthic communities
- Changes in marine water quality from localized sediment disturbances and remobilization of historical contaminants

No changes to the Assessment Report's residual effects characterization are anticipated based on the changes within this amendment. This conclusion is based on a review of baseline information from the Assessment Report(s), updated information included in Section 7.3.1, and existing mitigation measures as described in 5.16.3.2.4 of the EAC Application and Condition 6 and 16 of the EAC (construction MWQMMP, MTMMP-C). A detailed comparison of the Assessment Report conclusions (presented in italics) and the Floatel #2 residual effects is presented in Table 7.3.

Table 7.3: Changes to Assessment Report Characterization of Residual Effects – Marine Water Quality and Benthic Habitat

Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Context	<p><b>Benthic Habitat:</b> Low Resilience</p> <p><b>Harm to Benthic Communities:</b> Moderate to high resilience</p> <p><b>Marine Water Quality:</b> High resilience</p>	<p><b>Benthic Habitat:</b> Benthic habitat quality has been impacted from discharges of pulp mill effluent and wood debris on the seafloor from previous operations at the Woodfibre Pulp Mill. Due to the disturbed nature, the resilience to future changes would be considered low. There are no high density areas of eelgrass, kelp beds or other sensitive habitat features.</p> <p><b>Harm to Benthic Communities:</b> Benthic communities have a high resilience and are expected to re-colonize disturbed areas following construction. Benthic invertebrate communities are also highly resilient to stresses that affect larval mortality.</p> <p><b>Marine Water Quality:</b> Marine water quality is considered highly resilient because infrequent and short-term disturbance of marine sediments during construction would be expected to result only in temporary changes in marine water quality.</p>	<p><b>Benthic Habitat:</b> No change</p> <p><b>Harm to Benthic Communities:</b> No change</p> <p><b>Marine Water Quality:</b> No change</p>
Magnitude	<p><b>Benthic Habitat:</b> Low</p> <p><b>Harm to Benthic Communities:</b> Low</p> <p><b>Marine Water Quality:</b> Low</p>	<p><b>Benthic Habitat:</b> Marine construction would result in temporary and permanent alteration of marine habitat (3,856 m<sup>2</sup>). Marine vegetation in the areas where the marine facilities would be constructed is sparse, and installation of gangways and ramps above high-water mark, and increase in height of pile-supported structures, would decrease shaded areas. The benthic habitat in this area is of relatively low quality. With the implementation of proposed mitigation, residual effects to benthic habitat would be of low magnitude.</p> <p><b>Harm to Benthic Communities:</b> Pile driving and dredging can potentially kill or injure benthic species. Entrainment or impingement at the seawater cooling system intake may result in mortality to benthic fish and invertebrates, however siting of the intake and design criteria to limit screen size and flow-through velocity of the intake would minimize the number of organisms that may become entrained. Considering the small proportion of invertebrate adults and larvae that may be affected, and the proposed mitigation measures, residual effects would be of low magnitude.</p> <p><b>Marine Water Quality:</b> Sediment disturbance and the mobilization of legacy contaminants into the water column would be minimized with mitigation and would result in low magnitude effects to marine water quality. In consideration of remediation work, including removal of wood waste debris, historically contaminated marine sediment, and creosote-piles, an overall positive effect and long-term improvement in marine benthic habitat quality is anticipated.</p>	<p><b>Benthic Habitat:</b> The addition of Floatel #2 will result in a minor increase of shading of subtidal habitat (7,163 m<sup>2</sup>) during morning hours temporarily, there will also be an increase in direct disturbance of the seabed from spuds, anchors and chains (98.6 m<sup>2</sup>). However, the benthic habitat is low quality and largely absent of marine vegetation. Therefore, no change anticipated to magnitude of effects.</p> <p><b>Harm to Benthic Communities:</b> No change. This amendment application does not involve any cooling system intakes or discharges. Magnitude of impacts due to chains, spudding and shading on benthic communities are consistent with those outlined in the EAC Application and Floatel #1 amendment.</p> <p><b>Marine Water Quality:</b> During the installation of the drag anchors, localized mobilization of sediment into the water column. While chains located along the seafloor will move during tidal cycles, this movement will occur over a small footprint. Therefore, no change is anticipated to magnitude of effects.</p>
Extent	Local	All effects would be localized to specific marine areas where demolition, upgrading and installation of marine infrastructure would occur (i.e., woodchip removal, removal of existing creosote-treated piles, new pile driving and installation of marine infrastructure). Total area of direct seafloor disturbance would be 3,856 m <sup>2</sup> .	No change
Duration	<p><b>Benthic Habitat:</b> Short term to long term</p> <p><b>Harm to Benthic Communities:</b> Short term to long term</p> <p><b>Marine Water Quality:</b> Short term</p>	<p><b>Benthic Habitat:</b> Temporary alteration of habitat is expected to recover in 2 years. Loss of habitat within the footprint of marine infrastructure is expected to be long-term, although may result in positive effects over time once structures are colonized by invertebrates.</p> <p><b>Harm to Benthic Communities:</b> Potential risk of increased harm to benthic communities would be considered to be short term in duration during marine construction. Potential risk of increased harm to benthic communities would be considered long term during operations due to potential mortality of benthic species from entrainment or impingement at the seawater cooling system intake.</p> <p><b>Marine Water Quality:</b> The potential temporary effects to marine water quality would be considered short term during pocket dredging, removal of creosote piles and installation of marine infrastructure.</p>	<p><b>Benthic Habitat:</b> No change</p> <p><b>Harm to Benthic Communities:</b> No change. Duration of impacts is expected to be temporary short-term during construction.</p> <p><b>Marine Water Quality:</b> No change. Potential changes due to this amendment application from chain drag are expected to be similar or less than those characterized in the original EAC Application.</p>
Reversibility	Reversible	<p><b>Benthic Habitat:</b> Direct effects would be reversible after marine construction is complete and indirect effects from shading would be reversible after the facility is decommissioned.</p> <p><b>Harm to Benthic Communities:</b> Reversible after marine construction is complete and reversible after facility and vessel operation ceases.</p> <p><b>Marine Water Quality:</b> Reversible after marine construction is complete.</p>	<p><b>Benthic Habitat:</b> No change</p> <p><b>Harm to Benthic Communities:</b> No change</p> <p><b>Marine Water Quality:</b> No change</p>

Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Frequency	<b>Benthic Habitat:</b> Multiple infrequent events during construction; Continuous during operations. <b>Harm to Benthic Communities:</b> Multiple infrequent events during construction; Continuous during operations. <b>Marine Water Quality:</b> Multiple infrequent events during construction.	<b>Benthic Habitat:</b> Loss and alteration of benthic habitat would occur at multiple times throughout the construction phase. Impacts to benthic habitat from shading effects would occur continuously during the operations phase. <b>Harm to Benthic Communities:</b> Potential direct and indirect harm to benthic communities would occur during multiple events during construction of marine infrastructure. Potential harm to benthic communities from the seawater cooling system marine water intake would occur continuously during facility operations. <b>Marine Water Quality:</b> Changes to marine water quality during construction of marine infrastructure would occur at multiple times throughout the construction phase.	<b>Benthic Habitat:</b> No change <b>Harm to Benthic Communities:</b> No change. Frequency of impacts due to this amendment application are anticipated to be infrequent during construction. <b>Marine Water Quality:</b> No change
Likelihood	There is a high likelihood of residual effects from loss and alteration of marine benthic habitat and changes in marine water quality, however there would be a low likelihood of mortality or injury of benthic communities.		No change
Significance	Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EA Certificate), EAO is satisfied that the proposed Project would not have significant adverse residual effects on marine water quality and benthic habitat.		No change
Confidence	There is a moderate to high level of confidence in the likelihood and significance determinations based on the effectiveness of mitigation measures, existing federal and provincial regulatory requirements, and compliance with the proposed EA Certificate conditions.		No change
Note: The text in italics is from the Assessment Report (EAO 2015). EAC Amendment #1 issued by the EAO on July 12, 2017 included changes to the process cooling technology from seawater cooling to air cooling, use of the existing Mill Creek water intake, and withdrawal of water from Woodfibre Creek for short-term needs during construction. While this aspect of the Project has been withdrawn, it is still reflected in the EAO’s characterization of residual effects and therefore reflects a highly precautionary characterization.			



### 7.3.5 Cumulative Effects Assessment

The proposed changes included in this amendment do not change the characterization of residual effects described in the Assessment Report. The proposed changes are therefore anticipated to have the same interaction with past, present, and reasonably foreseeable projects and activities compared to the EAC Application. As such cumulative effects on marine water quality and benthic habitat because of installation and operation of Floatel #2 are predicted to be consistent with the Assessment Report and the characterization presented in the Assessment Report (EAO 2015) is anticipated to remain valid.

### 7.3.6 Risks and Uncertainties

There is a high likelihood of adverse residual effects on marine water quality and benthic habitat associated with the proposed changes. Confidence in the predictions of residual effects are moderate to high, given the existing conditions were completed in 2014 and have been updated with the results of field studies completed since that time. The potential effect mechanisms and pathways are well understood, the mitigation measures are effective at reducing residual effects on marine resources and are the same as those identified and assessed in the Assessment Report.

Woodfibre LNG will also submit a Request for Review to DFO to obtain a decision regarding whether the installation and operation of Floatel #2 is likely to constitute a harmful alteration, disruption, or destruction of fish habitat and requires a paragraph 35(2)(b) *Fisheries Act* authorization. Confirmatory marine habitat surveys are underway to support this review.

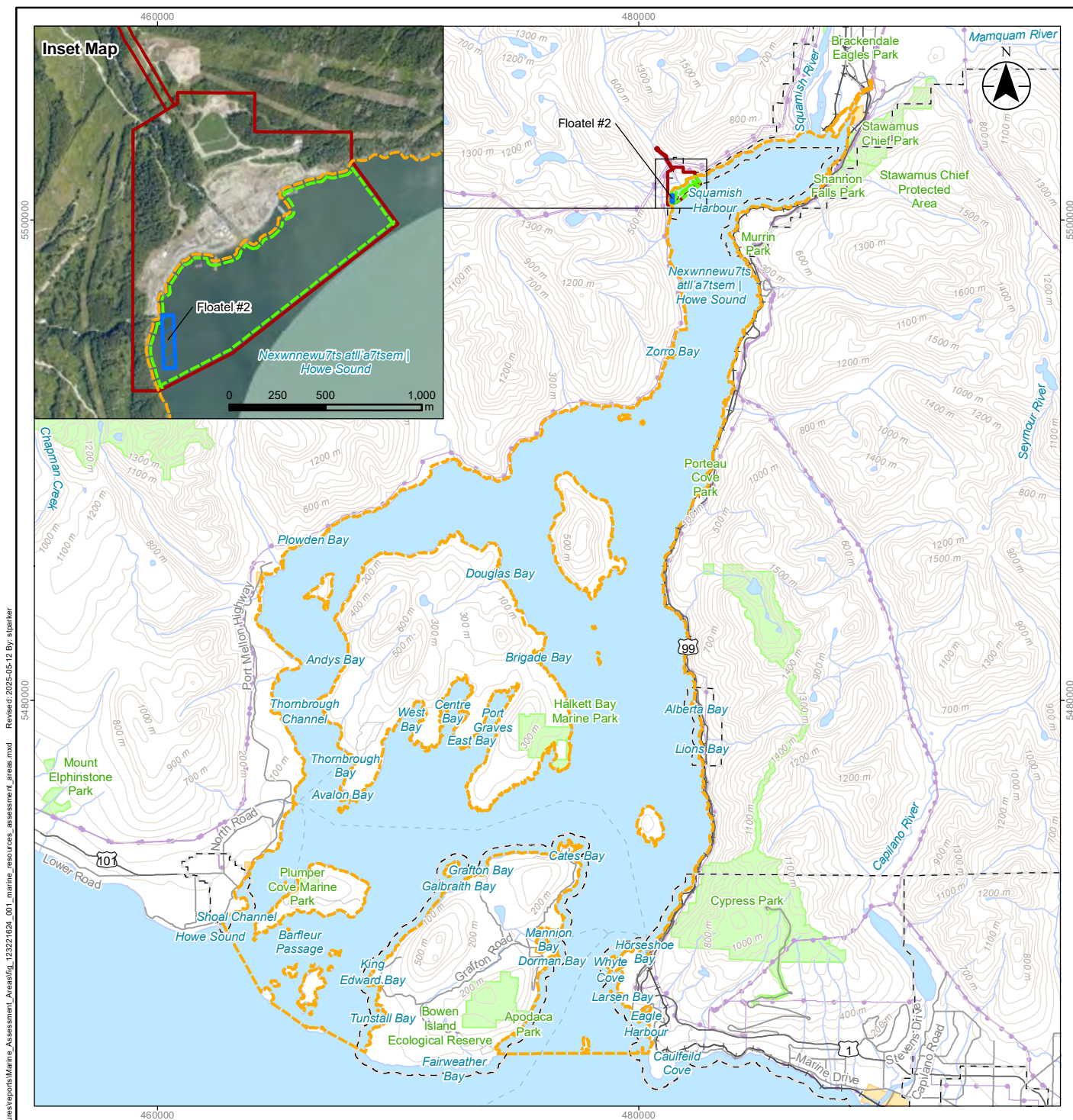
### 7.3.7 Adaptive Management and Monitoring Measures

No new pathways of effects need to be considered for marine water quality and benthic habitat as a result of the proposed changes. Therefore, no new adaptive management or monitoring measures are proposed. Woodfibre LNG will continue to apply its management and monitoring plans, which are subject to review as to their effectiveness and are an integral process for adaptive management in Project monitoring and avoidance of adverse effects on marine water quality and benthic habitat.

## 7.4 MARINE FISH AND MARINE MAMMALS

The Marine Fish and Marine Mammals VCs were selected for assessment in this amendment application due to the ecological, cultural, and economic importance of these species, as well as the potential for amended project interactions with them. The EAC Application assessed Forage Fish and Other (marine) Fish and Marine Mammals as separate VCs. However, they are combined within this amendment application for consistency with the Assessment Report. An assessment of potential effects on fish habitat is included in Section 7.3 Marine Water Quality and Benthic Habitat.

The spatial assessment boundaries for the Marine Fish and Marine Mammals VC are divided into an LAA and an RAA, which are unchanged from the EAC Application as outlined in Figure 3 and Table 7.4 below.



**Notes**

1. Coordinate System: NAD 1983 UTM Zone 10N
2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada
3. Imagery: ESRI World Imagery

- Highway
- Road
- Local Street
- - - Ferry Route
- + - - Railway
- - - Transmission Line
- - - Topographic Contour
- - - Watercourse
- Waterbody
- First Nations Reserve
- Provincial Park, Ecological Reserve, or Protected Area
- Municipal Boundary

- Woodfibre LNG Certified Project Area
- Marine Resources Regional Assessment Area
- Marine Resources Local Assessment Area
- Floatel #2 Location

0 2 4 6 8 km

1:240,000 (at original document size of 8.5x11)



Project Location: Swlyat

Project Number: 123222939

Prepared by SPARKER on 20250512

Requested by NBENEDICTUS on 20250512

Client/Project/Report

Woodfibre LNG Limited

Woodfibre LNG Project

Marine Resources Assessment Areas

Figure No. 3

Doc No.

**Floatel #2 Location and Marine Resources Assessment Areas**

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**Table 7.4: Marine Fish and Marine Mammals Assessment Spatial Boundaries**

Spatial Boundary	Description of Assessment Area
Local Assessment Area	The marine portion of the Project area within the CPA
Regional Assessment Area	Howe Sound

This Marine Fish and Marine Mammals VC section includes an updated characterization of existing conditions, a description of newly available Indigenous knowledge, and an updated effects assessment related to amended Project interactions with the VC.

### 7.4.1 Existing Conditions

The footprint of Floatel #2 is within the LAA and RAA assessed in the EAC Application, Assessment Report (EAO 2015) and subsequent EAC Amendment #3 (Floatel #1) (Hemmera 2019b). Existing conditions for marine fish and marine mammals within the LAA and RAA are described in detail in 5.18.2 and 5.19.2 of the EAC Application, with additional surveys completed in 2014, 2015, 2016, 2019, 2020, 2021, 2022, and 2023 (Golder 2014, Hemmera 2015b, Hemmera 2016, Hemmera 2019a, Keystone 2020, Keystone 2021b, Keystone 2021c, Keystone 2021d, Keystone 2023a, Keystone 2023b, Keystone 2023c). A high-level summary is included below.

The marine environment within Howe Sound has a history of industrial activities which have impacted the quality and quantity of available habitat for marine fish and marine mammals (Ocean Wise 2020). However, many of these industrial facilities have ceased operation and sites have been remediated. Since 2009, there has been an increase in marine mammal sightings and returning prey fish numbers as ecosystems recuperate and become more resilient (Woodfibre LNG 2015; Ocean Wise 2020). Within Howe Sound, there are 696 documented marine species, nine rockfish conservation areas and several glass sponge reef marine refuges (DFO 2015; DFO 2023; Woodfibre LNG 2015). These areas were characterized in the EAC Application and are unchanged from the description therein.

An initial marine baseline study was completed in 2014 in order to determine fish abundance, presence, and migration within the CPA using beach seines, gill nets, and bottom trawls. Fish species captured using beach seines included chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), chum salmon (*Oncorhynchus keta*), and pink salmon (*Oncorhynchus gorbuscha*), while gill nets captured Pacific herring (*Clupea pallasii*), striped perch (*Embiotoca lateralis*), pile perch (*Rhacochilus vacca*), white spotted greenling (*Hexagrammos stelleri*), staghorn sculpin (*Leptocottus armatus*), pink salmon, chinook salmon, chum salmon, and Dolly Varden (*Salvelinus malma*) (Keystone 2024b). Bottom trawl survey capture included slender sole (*Lyopsetta exilis*), blackbelly eelpout (*Lycodes pacificus*), rock sole (*Lepidopsetta bilineata*), Pacific sanddab (*Citharichthys sordidus*), speckled sanddab (*Citharichthys stigmaeus*), English sole (*Parophrys vetulus*), gray starsnout poacher (*Bathyagonus alascanus*), staghorn sculpin, and juvenile sculpin spp. (Family *Cottidae*) (Keystone 2024b). Between 2020 and 2023, in order to update baseline fish presence and seasonal habitat use data within the CPA, annual nearshore and offshore presence surveys were conducted using beach seines and purse seines (Keystone 2024b). Chinook salmon, coho salmon, chum salmon, pink salmon, northern anchovy

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(*Engraulis mordax*) and Pacific sand lance (*Ammodytes hexapterus*) were captured within the CPA during survey efforts (Keystone 2024b). Pacific herring were also captured during all four years of fish presence surveys conducted within the CPA (Keystone 2021d, Keystone 2024b). Additional surveys were conducted in the CPA in 2015, 2016, 2019, 2020, 2021, 2022, and 2023 in order to observe the Pacific herring spawn. Of the seven spawn surveys conducted, the Pacific herring spawn was observed in 2015, 2016, 2019, and 2021 (Keystone 2024b). In 2021, a dive survey was conducted within the CPA that observed bay goby (*Lepidogobius lepidus*), gunnel sp. (*Pholis* sp.), bay pipefish (*Syngnathus leptorhynchus*), Pacific sanddab, and padded sculpin (*Artedius fenestralis*). In 2023, a camera drop survey included bay goby, slender sole, sculpin spp. (Family *Cottidae*), gray starsnout poacher, and northern ronquil/lingcod (*Ophiodon elongatus*) (Keystone 2024b).

Marine mammals known to occur within Howe Sound include humpback whale (*Megaptera novaeangliae*), grey whale (*Eschrichtius robustus*), minke whale (*Balaenoptera acutorostrata*), killer whales (*Orcinus orca*; northern resident, southern resident, transient and offshore), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), false killer whale (*Pseudorca crassidens*), harbour porpoise (*Phocoena phocoena*), Dall's porpoise (*Phocoenoides dalli*), Steller sea lion (*Eumetopias jubatus*), California sea lion (*Zalophus californianus*) and harbour seal (*Phoca vitulina*). Harbour seals are the most common reported species in Howe Sound and are year-round residents. Since 2009, documented sightings of killer whales, grey whales, humpback whales, and Pacific white-sided dolphins have increased (Ocean Wise 2020; Woodfibre LNG 2015).

## 7.4.2 Indigenous Knowledge

Through consultation with Woodfibre, Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) expressed concerns regarding:

- The proximity of Floatel #2 to a herring spawning location. Sk̓w̓X̓WÚ7mesh Úxwumixw stated that a herring spawn mitigation plan is something that they would like to see.
- The antifouling paint that would be used for Floatel #2 and how that could interact with herring spawning activities.

Through consultation with Woodfibre, the Tsleil-Waututh Nation expressed concern regarding the cumulative impacts to herring and other marine life as a result of vessel traffic, accidents/spills, and a doubling of the Project workforce in a small space.

## 7.4.3 Potential Effects and Mitigation Measures

The EAC Application and the Assessment Reports (EAO 2015, EAO 2023) assessed Project-related potential effects on marine fish and marine mammals, including:

- Change/loss in marine mammal habitat quality due to changes in available prey
- Fish injury and mortality due to the accidental release of cementitious material
- Marine fish and marine mammal injury and mortality due to underwater noise
- Marine fish and marine mammal behavioural changes due to underwater noise

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Several pathways assessed in the EAC Application are not applicable to this amendment application. As such, the following pathways of potential effects have been identified as applicable to the Marine Fish and Marine Mammals VC section of the amendment application:

- Operation of Floatel #2 will generate artificial lighting, which may alter the distribution and behaviour of marine fish and marine mammals and increase the risk of injury and mortality to these species.

All applicable mitigation measures identified in the EAC Application will be implemented for works occurring under this amendment application. This includes previously developed management plans, including:

- Construction Environmental Management Plan
- Construction Emergency Response Plan
- Construction Environmental Monitoring Plan
- Marine Mammal Management and Monitoring Plan
- Marine Fish and Fish Habitat Management and Monitoring Plan
- Marine Water Quality Monitoring and Management Plan

The safe operation of Floatel #2 will require the use of artificial lighting for the duration of the operation of the floatel. Although the effects of artificial lighting on marine fish and marine mammals were not assessed in the EAC Application or the Floatel #1 amendment, they are assessed here for completeness.

Potential behavioural changes caused by artificial lighting include positive or negative phototaxis (a directional response of an organism either toward or away from the light source) (Garratt et al. 2019). This phototactic response can result in localized changes in fish distribution and abundance, as well as changes in schooling and foraging behaviour (Garratt et al. 2019). Lighting effects may also influence the use of spawning areas, such as pilings used by herring or beach areas used by forage fish. These changes in fish behaviour may result in subsequent associated changes in predator (marine mammal) distribution and abundance. Artificial lighting has also been shown to alter predator-prey dynamics, including increased predator success in areas affected by artificial lighting (Yurk and Trites 2000). This change in predator-prey dynamics may increase the risk of injury and mortality to marine fish species but may benefit marine mammals.

As outlined in Section 5.5 of the EAC Application, lighting fixtures will be fully shielded (to minimize uplight to the atmosphere) and designed to minimize luminous flux, as suitable in accordance with safety requirements. The mitigation measures outlined in the EAC Application and CEMP are anticipated to be sufficient to manage the adverse potential effects of artificial lighting on marine fish and marine mammals including mitigating against changes to fish behaviour, area usage (e.g., spawning and rearing habitats) and prey-predator effects. As part of the Lighting Implementation Plan, lighting is also reassessed every six months. Consequently, no new mitigation measures are proposed, and the residual effects of artificial lighting on marine fish and marine mammals associated with Floatel #2 are anticipated to be negligible.

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Potential effects and mitigation measures for Floatel #2 will be consistent with those of Floatel #1. Installation and operation of Floatel #2 will adhere to existing mitigation measures, as described in 5.18.3.2.3 and 5.19.3.2.3 of the EAC Application and Condition 8 and Condition 9 of the EAC, which will reduce the effects on marine fish and mammals. A summary of changes to potential effects and mitigation measures for marine fish and marine mammals as assessed in the Assessment Report is provided in Table 7.5.

**Table 7.5: Summary of Potential Effects and Mitigation Measures – Marine Fish and Marine Mammals**

Proposed Amendment Component	Project Phase	Change in Proposed Works or Activities	Change in Potential Effects	Change in Mitigation or Enhancement Measures	Change in Mitigation or Enhancement Measures Success Rating
Installation and Operation of Floatel #2	Construction (Installation)	Yes	No change	No change	No change
	Operations	Yes	No change	No change	No change

#### 7.4.4 Changes to Characterization of Residual Effects

The Assessment Report (EAO 2015) concluded that the construction and operation of the Project would result in the following residual effects on marine fish and marine mammals:

- Harm to marine fish and marine mammals during construction and operation; and
- Change in behaviour of marine fish or marine mammals due to underwater noise during construction and operation.

Based on the assessment of potential effects presented in Section 7.4.3, no changes to the findings of the Assessment report are anticipated as a result of the amendment application. A detailed comparison between the Assessment Report (EAO 2015) conclusions and the assessment of residual effects for the Floatel #2 amendment is presented in Table 7.6 below.

Table 7.6: Changes to Assessment Report Characterization of Residual Effects – Marine Fish and Marine Mammals

Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Context	<p><b>Fish Habitat:</b> Low</p> <p><b>Harm to Fish and Marine Mammals:</b> Low (fish); Low to High (mammals)</p> <p><b>Fish and Marine Mammal Behaviour:</b> Low (fish); Low to High (mammals)</p>	<p><b>Marine Fish Habitat:</b> The marine habitat within the proposed area, subtidal area and surrounding areas are characterized as having experienced frequent anthropogenic disturbance, influencing the extent and quality of habitat. Due to the disturbed nature, the resilience to future changes would be considered low.</p> <p><b>Harm to Marine Fish and Marine Mammals:</b> Low or uncertain population numbers for some fish species likely to occur in the LAA may result in a low level of resilience. Moderate resilience for listed marine mammal species and high for other marine mammals that frequently occur within the LAA due to their prior exposure with underwater noise from existing vessel traffic. Listed transient marine mammals may have lower resilience if they have not been previously exposed to vessel traffic.</p> <p><b>Marine Fish and Marine Mammal Behaviour:</b> The context for residual effects on marine fish behaviour is low because some marine fish species are highly sensitive to underwater noise, such as Pacific herring, and the floatel would also be constructed in a highly disturbed habitat with reduced resilience to anthropogenic impacts. Marine mammals located in the LAA would likely have had previous exposure with vessel presence and associated underwater noise from exiting traffic, given the volume of shipping that presently occurs in the area. In 2013 there were a total of 12,909 large vessel movements in Howe Sound. Large commercial vessels currently transit through Howe Sound to Squamish Terminals along the established shipping route. The Project related vessel traffic represents a very small percentage increase in the overall vessel traffic in Howe Sound. Listed marine mammals would be less resilient against adverse effects of underwater noise, especially if they have not had previous experience with vessel traffic.</p>	<p><b>Marine Fish Habitat:</b> No change (see Marine Water Quality and Benthics VC)</p> <p><b>Harm to Marine Fish and Marine Mammals:</b> No change</p> <p><b>Marine Fish and Marine Mammal Behaviour:</b> No change</p>
Magnitude	<p><b>Fish Habitat:</b> Low to Moderate</p> <p><b>Harm to Fish and Marine Mammals:</b> Low to Moderate (fish); Low (mammals)</p> <p><b>Marine Fish and Mammal Behaviour:</b> Low (fish); Low – Moderate (mammals)</p>	<p><b>Marine Fish Habitat:</b> Construction of marine facilities and operation of the seawater cooling system intake and diffuser and the treated process water diffuser discharge would result in direct and indirect loss of marine habitat. Generally, the marine footprint would be in the area of degraded benthic habitat with low species diversity and abundance; however, lingcod eggs and herring spawn were identified within the immediate vicinity of the proposed location of the seawater cooling system outlet.</p> <p><b>Harm to Marine Fish and Mammals:</b> Marine infrastructure would be located in marine areas with low habitat quality (i.e., low species diversity and abundance). Direct mortality of marine fish from construction and dismantling marine infrastructure would be of low magnitude after the implementation of mitigation measures. Operation of the seawater cooling system intake would have the potential to cause impingement or entrainment of marine fish, especially juvenile and larval life stages. The seawater cooling system intake would be installed away from important fish habitats, in deep-water below the photic zone and 2 m above the seafloor to reduce potential marine fish mortality. The seawater cooling system intake would employ a travelling screen mechanism to further reduce potential harm to marine fish. Based on the location of the seawater cooling system intake, herring spawning locations and anticipated larvae movement, entrainment of juvenile herring is unlikely to result in population level impacts resulting in a residual adverse effect of low to moderate magnitude. Underwater noise from pile driving activities during construction would be expected to exceed the injury threshold for marine fish resulting in a low magnitude effect. The injury threshold for marine mammals would not be exceeded at a distance of 340 m from the source of noise. The magnitude of potential harm to marine mammals as a result of Project-generated underwater noise is considered low because injury or death to marine mammal species would not be expected with the implementation of mitigation measures and evidence of limited marine mammal haul-outs near the Project area.</p> <p><b>Marine Fish Behaviour:</b> Underwater noise generated by vessel operations would be expected to exceed the behavioural threshold for marine fish in the direct vicinity of the Project area during construction resulting in a low magnitude residual adverse effect (e.g., startle response and increased susceptibility to predation).</p> <p><b>Marine Mammal Behaviour:</b> Impact pile driving and vessel operations would be expected to exceed established behavioural response criteria for marine mammals. Behavioural responses may include temporary stress induced physiological changes, altered sound perception, habituation to vessel sounds, impaired communication, and avoidance behaviours that may disrupt migration or foraging patterns. The magnitude of the potential for underwater noise to affect marine mammal behaviour is considered low to moderate because of the localized and transient nature of the underwater noise and the absence of Southern resident killer whale critical habitat within Howe Sound.</p>	<p><b>Marine Fish Habitat:</b> No change. The activities under this amendment are not anticipated to change the magnitude of effects (low to moderate).</p> <p><b>Harm to Marine Fish and Marine Mammals:</b> No change. The activities under this amendment are not anticipated to change the magnitude of effects (moderate).</p> <p><b>Marine Fish and Marine Mammal Behaviour:</b> No change</p>



Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Extent	<b>Fish Habitat:</b> Local <b>Harm to Fish and Marine Mammals:</b> Local <b>Marine Fish and Marine Mammal Behaviour:</b> Local (fish); Local to Regional (mammals)	<b>Marine Fish Habitat:</b> Direct habitat effects would be from the construction of marine facilities at the foreshore, operation of the seawater cooling system intake and diffuser and the treated process water diffuser. Indirect habitat effects would be from shading created by the marine facilities and the diffusers. Impacts to marine fish habitat from thermal water discharges are considered localized as an increase to marine water temperature greater than 1 °C would not be anticipated outside of the initial dilution zone (10 m from the discharge point). <b>Harm to Marine Fish and Marine Mammals:</b> Harm to marine fish and mammals from underwater noise during construction would be localized to the Project area and the LAA. <b>Marine Fish and Marine Mammal Behaviour:</b> Behavioural responses to underwater noise generated from impact pile driving would be localized to the Project area for marine mammals. The distance to behavioural threshold for marine mammals would extend beyond the LAA boundaries for shipping activities (4,642 m from the source) so the adverse effect would be considered regional. During construction activities, underwater noise would be expected to exceed behavioural thresholds for marine fish within the vicinity of the Project area, so the extent would be considered local.	<b>Marine Fish Habitat:</b> No change. The extent of effects for this amendment are consistent or less than those characterized in the original EAC Application (local) <b>Harm to Marine Fish and Marine Mammals:</b> No change <b>Marine Fish and Marine Mammal Behaviour:</b> No change
Duration	<b>Fish Habitat:</b> Short to long term <b>Harm to Fish and Marine Mammals:</b> Short- to long term (fish); Short term (Mammals) <b>Fish and Marine Mammal Behaviour:</b> Short term (fish); Short term and temporary (mammals)	<b>Marine Fish Habitat:</b> Direct and indirect impacts due to construction and demolition of marine infrastructure would be short term in duration. Indirect shading impacts would occur throughout operations and would be considered long term. <b>Harm to Marine Fish and Marine Mammals:</b> Potential for marine fish mortality and injury during construction and demolition of marine infrastructure would be short term in duration. Potential for marine fish mortality from seawater cooling system (impingement/ entrainment, temperature and residual chlorine) would be during operations and considered long term. Potential for injury or mortality to marine mammals due to underwater noise would be short term during impact pile driving activities associated with installation of marine infrastructure. <b>Marine Fish and Marine Mammal Behaviour:</b> Behavioural responses to underwater noise generated from impact pile driving would be short term during the construction phase for marine mammals and marine fish. Behavioural responses to underwater noise generated from vessel operations would be temporary over the life of the Project.	<b>Marine Fish Habitat:</b> No change (see Marine Water Quality and Benthics VC) <b>Harm to Marine Fish and Marine Mammals:</b> No change. <b>Marine Fish and Marine Mammal Behaviour:</b> No change.
Reversibility	Reversible	<b>Marine Fish Habitat:</b> Effects on marine habitat would be considered reversible after marine construction is complete. Indirect effects on fish habitat from shading would be considered reversible after the floatel is decommissioned. <b>Harm to Marine Fish and Marine Mammals:</b> Harm from underwater noise is reversible after marine construction is complete. <b>Marine Fish and Marine Mammal Behaviour:</b> Potential impacts to marine fish and marine mammal behaviour due to underwater noise from vessel traffic would be reversible after construction is complete.	<b>Marine Fish Habitat:</b> No change (see Marine Water Quality and Benthics VC) <b>Harm to Marine Fish and Marine Mammals:</b> No change <b>Marine Fish and Marine Mammal Behaviour:</b> No change
Frequency	<b>Fish Habitat:</b> Multiple events during construction; Continuous during operations. <b>Harm to Marine Fish and Marine Mammals:</b> Multiple events during construction; Continuous during operations. <b>Marine Fish and Marine Mammal Behaviour:</b> Multiple events during construction; Continuous during operations (fish); Regular during operations (mammals).	<b>Marine Fish Habitat:</b> Loss of marine fish habitat would occur during construction and demolition of marine infrastructure within specific timing windows for fish. Impacts to marine fish habitat from shading effects and discharges to the marine environment would occur continuously during the operations phase. <b>Harm to Marine Fish and Marine Mammals:</b> Potential direct and indirect harm to marine fish would occur during multiple irregular events during construction and demolition of marine infrastructure within specific timing windows for fish. Potential marine fish mortality from the seawater cooling system (impingement/ entrainment, temperature and residual chlorine) would occur continuously during facility operations. Potential harm to marine mammals from underwater noise generated from impact pile driving activities would occur during multiple irregular events during construction of marine infrastructure. <b>Marine Fish and Marine Mammal Behaviour:</b> Multiple irregular events during construction and demolition of marine infrastructure within specific timing windows for fish. Potential impacts to marine fish behaviour due to thermal water discharges would be continuous throughout operations. Potential impacts to marine mammal behaviour would occur on a regular basis at regular intervals with a maximum of 40 ship transits per year along the shipping route.	<b>Marine Fish Habitat:</b> No change (see Marine Water Quality and Benthics VC) <b>Harm to Marine Fish and Marine Mammals:</b> No change. <b>Marine Fish and Marine Mammal Behaviour:</b> No change
Likelihood	There is a high likelihood of residual effects of change in marine fish habitat, marine fish mortality or injury, and disturbance to marine fish and mammals.		No change

Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Significance	<i>Considering the above analysis and having regard to the conditions identified in the TOC (which would become legally binding as a condition of an EA Certificate), EAO is satisfied that the proposed Project would not have significant adverse residual effects on marine fish and mammals.</i>		N/A
Confidence	<i>There is a moderate to high level of confidence in the likelihood and significance determinations based on the effectiveness of mitigation, existing federal and provincial regulatory requirements, and compliance with the proposed EA Certificate conditions.</i>		No change
Note: The text in italics is from the Assessment Report (EAO 2015). EAC Amendment #1 was issued by the EAO on July 12, 2017, and included changes to the process cooling technology from seawater cooling to air cooling, use of the existing Mill Creek water intake, and withdrawal of water from Woodfibre Creek for short-term needs during construction.			

## 7.4.5 Cumulative Effects Assessment

As outlined in Section 7.4.3, residual effects on marine fish and marine mammals are predicted to be consistent with the characterization in the Assessment Report. As such, the cumulative effects of the amendment are anticipated to have the same degree and type of interactions with past, present, and reasonably foreseeable future projects as previously assessed. The characterization presented in the Assessment Report is anticipated to remain valid.

## 7.4.6 Risks and Uncertainties

The level of uncertainty of the predictions made in this amendment assessment is considered to be low to moderate. Although no amendment-specific surveys were completed to support this application, the proposed siting of Floatel #2 is in close proximity to existing infrastructure within the CPA, and baseline conditions within the RAA are well understood. In addition, the potential effects pathways are well understood, and the effectiveness of proposed mitigation measures has been recently demonstrated with the installation and operation of Floatel #1.

Woodfibre LNG will also submit a Request for Review to DFO to obtain a decision regarding whether the installation and operation of Floatel #2 is likely to constitute a harmful alteration, disruption, or destruction of fish habitat. Additional surveys are not anticipated to be necessary to support this review.

## 7.4.7 Adaptive Management and Monitoring Measures

The installation and operation phases of the Floatel #2 will be subject to adaptive management and monitoring measures as described in the Woodfibre LNG CEMP (Woodfibre 2023). As the residual and cumulative effects of the amendment application are consistent with those of the Assessment Report, no additional adaptive management and monitoring is proposed for this amendment application.

## 7.5 HUMAN HEALTH

The Human Health VC addresses the potential for adverse health effects on human receptors due to exposure to environmental pollutants released as a result of the Project. In the EAC Application, the Human Health VC focused on the biophysical determinants of health such as air quality and other media through which people may be exposed to Project-related environmental pollutants. The focus on the biophysical determinants of health and exposure to environmental pollutants is maintained for this amendment. Specifically, from the exposure to air pollutants produced by diesel generators on Floatel #2, conservatively for up to 6-months before Floatel #2 is connected to shorepower.

The spatial assessment boundaries for the Human Health VC are divided into an LAA and an RAA, which are unchanged from the EAC Application. Table 7.7 describes the LAA and RAA for human health as it relates to potential effects from air quality.



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**Table 7.7: Human Health Assessment Spatial Boundaries**

Spatial Boundary	Description of Assessment Area
Local Assessment Area	The LAA is a 20 km x 20 km area surrounding the Project
Regional Assessment Area	The RAA is a 50 km (E-W) x 65 km (N-S) area surrounding the Project, including Horseshoe Bay to the south and the Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) territory to the north.

The Human Health VC section includes an updated description of existing conditions, Indigenous knowledge, residual effects assessment, and cumulative effects assessment based on how the amendment could affect Project interactions with human health.

## 7.5.1 Existing Conditions

Air quality in the District of Squamish is generally considered to be good. The region's coastal location and prevailing meteorological conditions support the dispersion of air pollutants, helping to maintain good air quality throughout the year. While temporary fluctuations can occur such as elevated particulate matter levels from regional wildfire smoke, common air pollutants remain below provincial and federal air quality objectives for most of the year.

Construction at the Project site is ongoing and currently in Year 2 of the construction phase. Floatel #1 is currently operational in the Project's marine environment and houses a portion of the construction workforce. The addition of Floatel #2 will increase floatel capacity by approximately 630 workers. It is estimated that up to 1,400 workers will require accommodations on the floatels.

The FAQMMP has been prepared to address condition 30 issued as part of Amendment #3 (EAO 2023). This plan was designed to support the health and safety of workers residing on Floatel #1.

As part of the FAQMMP, an on-site air quality monitoring station has been established to continuously measure concentrations of common air pollutants including nitrogen oxides (NO<sub>x</sub>, NO, NO<sub>2</sub>), SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, TSP, and VOC. These common air pollutants were selected due to their relevance to fuel combustion and dust-generating activities associated with construction activities.

In addition to the on-site monitoring station, existing air quality monitoring stations located in Squamish and Langdale are used to provide broader regional context. Together, these stations form an integrated monitoring network designed to track both near-field and far-field air quality effects during the construction phase. This network supports ongoing compliance with regulatory commitments and facilitates the timely detection and response to changes in local air quality that may be related to construction or Floatel #1 emissions.

Existing air quality is further described in Appendix C, and results from the on-going monitoring are provided in section 2.4.

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## 7.5.2 Indigenous Knowledge

Through consultation with Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation), they expressed concerns regarding air pollutant exposure from Floatel #2 diesel generators required in advance of connection to shorepower.

There were concerns related to potential effects on marine life as noted in Section 7.4 (Marine Fish and Marine Mammals), particularly effects to spawning herring and herring roe from anti-fouling agents on the hull of Floatel #2. Sk̓w̓x̓wú7mesh Úxwumixw emphasized the importance of using non-toxic paint on ship hulls to limit adverse effects on these culturally and ecologically significant species, as herring roe may be harvested as a traditional food during the spawning season in early spring (approximately February through April).

In past discussions, the anti-fouling agent tributyltin was raised as a possible chemical of concern due to its high toxicity to humans and aquatic ecosystems. The use of tributyltin on all ship hulls was banned in 2008. Certification was provided to confirm the hull of Floatel #1 was recoated with an antifouling agent free of tributyltin. Confirmation that antifouling agents applied to Floatel #2 do not contain tributyltin will also be obtained. In addition, sediment and seafood (Dungeness crab and various species of sole fish) samples collected in two locations, 1) offshore of the CPA within 500 m of the shore, and 2) near the mouth of Squamish Harbour to support the Project show that tributyltin concentrations are below laboratory detection limits. These results confirm that there is no existing tributyltin risk in the area, and that the deployment of Floatel #2 will not contribute tributyltin to the marine environment.

Floatel #2 hull paint with modern anti-fouling material is unlikely to pose a substantive risk to spawning herring and other marine life, as anti-fouling agent exposure is more relevant in high-traffic areas like ports, marinas, and shipyards where regular hull maintenance and paint stripping is taking place. However, a herring spawn mitigation plan will be developed.

## 7.5.3 Potential Effects and Mitigation Measures

In the EAC Application (see Section 9.2.2 Human Health Risk Assessment; Table 9.2.2-1 of the EAC Application), it describes that potential air quality effects to human health were not assessed quantitatively for the construction phase. Air emissions during construction are the result of fugitive emissions from the landfill, non-road engines, material handling, excavation, grading and marine vessel exhaust. Due to the intermittent, short-term nature of construction activities, air emissions from the construction phase will be less than the operation phase. Therefore, the EAC Application focused on potential air quality effects to human health for the operation phase with the understanding that it would be protective of residents in Squamish and more distant areas during the construction phase which has lower emissions. In the EAC Application, the predicted health risk from exposure to common air pollutants was negligible for the operation phase, and by extension the construction phase.

However, after the approval of the Project, an amendment to include Floatel #1 for the construction phase was proposed. Floatel #1 was introduced to house off-duty construction workers. In recognition of the potential health risks to these off-duty workers from exposure to construction related air pollutants, an air quality monitoring station was established onshore between the primary construction site and

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Floatel #1. This monitoring station was strategically located to capture representative air quality conditions that could affect workers residing on Floatel #1, and designed to provide real-time data on concentrations of NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>2.5</sub>, PM<sub>10</sub>, and VOC (as hexane).

A summary of the onshore air quality monitoring data is presented in the technical memorandum titled, “Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators” under section 4.0 (Existing Conditions) (see Appendix C). This summary shows that concentrations air pollutants under existing construction activities at the onshore monitoring station are below the Canadian Ambient Air Quality Standards (CAAQS). This monitoring encompasses a period from July 2024 to March 2025. There was a single day where the 24-hour average PM<sub>2.5</sub> concentration was numerically higher than the CAAQS (i.e., 27ug/m<sup>3</sup>). However, this is not considered an exceedance of the CAAQS metric. A CAAQS exceedance considers the average over three-years of 98th percentile of the 24-hour average concentrations. The onshore monitoring data shows a negligible health risk to workers residing in Floatel #1 from current construction phase emissions.

With the planned addition of Floatel #2, the number of workers living on floatels during peak construction activities would increase. Correspondingly, there will be an incremental rise in emissions due to the operation of diesel-fired generators on Floatel #2 for a conservatively estimated 6-month period before the onshore power connection. Given the degree of existing health risk to off-duty workers living in Floatel #1, a qualitative evaluation of potential changes in health risk was considered for Floatel #2.

As shown in Table 7.8, the inclusion of emissions from Floatel #2 when powered by diesel generators (Construction Year 3 + Floatel #2 Diesel Generators) does not increase the total emissions above those already accounted for under the normal operation phase. If the predicted health risk under the normal operation phase is negligible for residents in Squamish and more distant areas, it is reasonable to conclude that the health risk will also be negligible during the operation of Floatel #2.

For off-duty workers residing on the floatels, the health risks associated with changes to air quality are expected to remain negligible based on the current onshore monitoring data. The concentration of monitored air pollutants has remained low to date, indicating that local air quality is not substantially affected by construction related emissions. The anticipated increase in emissions from the temporary addition of diesel generators on Floatel #2 is unlikely to result in concentrations that exceed the CAAQS.

While there is some uncertainty regarding exposure to diesel particulate matter (diesel PM) because it is not speciated in the emission inventory, it is important to note that diesel PM is a component of PM<sub>2.5</sub> and therefore, captured within the existing PM<sub>2.5</sub> emission inventory. Since monitored PM<sub>2.5</sub> concentrations remain below the CAAQS, it is reasonable to infer that diesel PM levels are also unlikely to pose a health risk under the Amendment conditions.

Similarly, some uncertainty is associated with NO<sub>2</sub> exposure, as the emission inventory is based on total oxides of nitrogen rather than NO<sub>2</sub> specifically. Atmospheric chemical reactions, particularly in the presence of sunlight and ozone, contribute to the conversion of NO to NO<sub>2</sub> in the ambient environment. The onshore monitoring data for NO<sub>2</sub> have remained below the CAAQS and it is expected, based on the scale of increase expected from Floatel #2, that NO<sub>2</sub> would continue to remain below the CAAQS with the operation of Floatel #2. Once Floatel #2 is connected to shore power, the emissions associated with the diesel generators on Floatel #2 will cease.

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**Table 7.8: Emission Inventory for Operations and Construction**

Project Phase	Emission Inventory (tonnes/year)					
	NO <sub>x</sub>	SO <sub>2</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>	VOC
Normal Operation Phase (e.g. liquefaction and export of LNG)	296.9	43.6	39.7	5.5	5.0	13.6
Construction Phase (Year 2, Existing Construction Activities)	23.0	3.7	8.5	31.6	4.0	0.6
Construction Phase (Year 3 + Floatel #2 Diesel Generators)	108.2	10.1	24.7	25.1	4.5	3.5
Construction Phase (Year 4 + Floatel #2 Shore Power)	16.0	3.4	9.6	10.3	1.4	0.3

A summary of changes to potential effects and mitigation measures for human health as assessed in the Assessment Report is provided Table 7.9.

**Table 7.9: Summary of Potential Effects and Mitigation Measures – Human Health**

Proposed Amendment Component	Project Phase	Change in Proposed Works or Activities	Change in Potential Effects	Change in Mitigation or Enhancement Measures	Change in Mitigation or Enhancement Measures Success Rating
Floatel #2	Construction (Installation)	Yes	No change	No change	No change
	Operations	Yes	No change	No change	No change

## 7.5.4 Changes to Characterization of Residual Effects

The Assessment Report concluded that the operation of the Project would result in one residual effect on human health that is related to inhalation exposure to dibenzo(a,h)anthracene when LNG carriers are present. The associated risk from this exposure was characterized as low to negligible based on the magnitude of exposure. It is expected that health risk from exposure to dibenzo(a,h)anthracene during the construction phase would be similar or lower to the operation phase characterization.

Therefore, no changes to the characterization of residual effects to human health are warranted as a result of the amendment. The addition of Floatel #2 during the construction phase does not result in air emissions that would exceed the levels already assessed for the operation phase. The Assessment Report had concluded that the operation phase changes to air quality would result in a negligible health risk; a conclusion that extends to the construction phase under the amendment. Therefore, the characterization of residual effects to human health remains the same as that described in the Assessment Report. A detailed comparison between the Assessment Report conclusions and the assessment of residual effects for the Floatel #2 amendment is presented in Table 7.10 below.

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**Table 7.10: Changes to Assessment Report Characterization of Residual Effects – Human Health**

Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Context	<i>Moderate resilience</i>	<i>The health of the population is considered to have a moderate resilience to changes in air quality, as existing concentrations for all indicator CACs were below the most stringent air quality criteria.</i>	No change
Magnitude	<i>Negligible to low</i>	<i>The hazard quotient for dibenzo(a,h)anthracene in the 24-hour acute air assessment was 1.4. Based on the conservatism in the exposure and toxicity parameters used in the risk assessment (e.g., use of chronic threshold value and assuming that all sources were operating at maximum capacity every hour of every day), the overall magnitude of risk for acute exposure to dibenzo(a,h)anthracene in air would be considered low and likely negligible. In addition, predicted 1-hour and annual air concentrations of dibenzo(a,h)anthracene would be over three orders of magnitude below their respective acute and chronic health-based air thresholds.</i>	No change
Extent	<i>Local</i>	<i>The highest exposures to dibenzo(a,h)anthracene would occur at the maximum point of impingement (located outside of the Project area where maximum air concentrations are predicted to occur) for the 24-hour averaging time. Receptor locations further away from this area would be relatively less affected with a predicted hazard quotient of less than one.</i>	No change
Duration	<i>Long-term</i>	<i>The duration of the effects on human health would be restricted to the life of the proposed Project (approximately 25 years).</i>	No change
Reversibility	<i>Reversible</i>	<i>Effects to human health from exposure to dibenzo(a,h)anthracene would be reversible when proposed Project interactions cease.</i>	No change
Frequency	<i>Continuous</i>	<i>Residual effects of exposure to dibenzo(a,h)anthracene would occur continuously throughout the operations phase, although respiratory events coinciding with periods of increased predicted concentrations are expected to occur sporadically (e.g., presence of LNG carriers).</i>	No change
Likelihood	<i>The likelihood of residual effects on human health from exposure to dibenzo(a,h)anthracene is considered low due to the negligible to low magnitude of the predicted effect.</i>		No change

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Characterization of Residual Effects from the Assessment Report			Changes to the Residual Effects Characterization
Criteria	Assessment Rating	Rationale	
Significance		<i>Considering the above analysis and the conditions identified in the COC and TOC (which would become legally binding as a condition of an EA Certificate), EAO is satisfied that the proposed Project would not have significant adverse residual effects on the physical aspects of human health.</i>	N/A
Confidence		<i>There is a moderate level of confidence in the analysis undertaken to support the conclusions, particularly in consideration of the uncertainties associated with risk assessments.</i>	No change

Note:

The text in italics is from the Assessment Report (EAO 2015).

### 7.5.5 Cumulative Effects Assessment

In the Assessment Report, the assessment concluded that the cumulative effects to human health from the overlap of Project emissions with reasonably foreseeable future projects would be negligible.

This conclusion was based on the absence of reasonably foreseeable future projects that would overlap spatially and temporally with the Project.

With the addition of Floatel #2 under this amendment, the cumulative effects assessment conclusion remains unchanged. There are no reasonably foreseeable projects that are expected to contribute to overlapping air quality effects during the construction. As such, the cumulative effects assessment for this amendment continues to support the conclusion of a negligible cumulative human health risk related to air quality.

### 7.5.6 Risks and Uncertainties

The assessment of potential risks to human health from air pollutant exposure is associated with a low level of risk and uncertainty. This is primarily due to the use of conservative assumptions throughout the assessment of human health that are designed to overestimate potential exposures and associated health risk, which is consistent with a precautionary approach. One area of uncertainty is the potential exposure to diesel particulate matter to off-duty workers in the floatels. Although diesel particulate matter is not specifically assessed for inhalation risk, it is a subset of PM<sub>2.5</sub> (i.e., the emission inventory of PM<sub>2.5</sub> includes diesel particulate matter). Since the on-site monitoring data does not show a substantive PM<sub>2.5</sub> risk under the emission inventory of 4.0 tonnes/year, the Year 3 emission rate of 4.5 tonnes/year is unlikely to increase the risk beyond acceptable limits.

A similar uncertainty exists for risks from NO<sub>2</sub> exposure since the emission inventory presents NO<sub>x</sub> emissions, which then undergo chemical transformation in the atmosphere to form NO<sub>2</sub>. The onshore monitoring data for NO<sub>2</sub> have remained below the CAAQS and it is expected, based on the scale of increase, that NO<sub>2</sub> would continue to remain below the CAAQS under the Amendment conditions.

For the amendment including the addition of Floatel #2, the emissions generated during the construction phase are not expected to exceed those previously assessed for the operations phase. Under that scenario, the conclusion of low risk and low uncertainty was established for the operation phase, and are still valid and applicable to the construction phase with the amendment addition of Floatel #2.

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## 7.5.7 Adaptive Management and Monitoring Measures

Adaptive management of construction activities related to the amendment to address human health is not recommended at this time. This determination reflects the limited health risk to workers during off-duty periods when they are residing in the floatels.

The floatels are designed as indoor living environments with controlled ventilation and air filtration. Workers on both floatels will spend most non-working hours indoors, as there are limited outdoor facilities intended for prolonged use aside from a designated smoking area, an observation deck, and an outdoor sports court. Opportunities for extended exposure to ambient outdoor air are limited for off-duty workers residing on the floatels.

The existing air quality monitoring network meets requirements for tracking health-related air pollutants, with strategically located stations on-site, in Squamish (near-field), and in Langdale (far-field) to capture representative concentrations of air pollutants across the area of influence. The current system provides sufficient monitoring data to support ongoing health risk assessment and regulatory compliance during the construction phase of the Project. If the onshore air quality monitoring data suggests a potential health risk to off-duty workers at the floatels, periodic air quality monitoring inside the floatel accommodations may be conducted to confirm the air quality that off-duty workers are exposed to.



## 8.0 INTERACTIONS WITH SECTION 25 ASSESSMENT MATTERS

Section 25 of the *Environmental Assessment Act* requires every assessment to: (1) assess the effects of a project on the rights and interests of First Nations; and, (2) consider a number of matters (a through k in Table 8.1) in every assessment. Table 8.1 provides a summary of how these matters will be approached in the amendment application<sup>6</sup>.

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<sup>6</sup> This review is consistent with the approach taken for Floatel #1 (Woodfibre LNG 2023c).

**Table 8.1: Screening of Section 25 Matters**

Section	Assessment Matter	Considered Further (Yes/No)	Approach
25(1)	The effects of the project on First Nations and rights recognized and affirmed by section 35 of the <i>Constitution Act, 1982</i>	Yes	<p>The effects on First Nations and rights under section 35 of the <i>Constitution Act, 1982</i> are discussed in Section 9.0 of this amendment application. Woodfibre LNG has considered alternative options to limit potential effects to harvested marine resources and cultural sites, trails, and travelways.</p> <p>In accordance with EAC condition 22 (Aboriginal Consultation), Woodfibre LNG continues to consult with Indigenous Nations (i.e., Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh Nation and Musqueam Indian Band). This includes information sharing and discussion of site selection, site-specific mitigation measures, including the development and implementation of management plans and the conditions of the EAC. Woodfibre LNG has an ongoing dialogue to address effects of the Project. Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) conducted an independent Indigenous led review process on the Project and will also review the request to amend the EAC as it relates to Floatel #2 through their own nation led process, in alignment with a Memorandum of Understanding between the EAO and the Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation).</p>
25(2)(a)	Positive and negative direct and indirect effects of the reviewable project, including environmental, economic, social, cultural and health effects and adverse cumulative effects	Yes	The Project has the potential to result in positive and negative direct and indirect effects, including environmental, economic, social, cultural and health effects and adverse cumulative effects. These effects were assessed in the EAC Application and Assessment Reports (EAO 2015, EAO 2023). With respect to the proposed changes to the Project, potential effects with potential to change the characterization from the Assessment Reports (EAO 2015, EAO 2023) are carried forward and considered in Section 7.0. Results of monitoring and reporting on effectiveness of management plans informed the determination of valued components and potential effects to carry forward in this amendment, see Section 2.4.
25(2)(b)	Risks and uncertainties associated with those effects, including the results of any interaction between effects	Yes	Risks and uncertainties of potential effects, including any interactions identified between effects, have been considered as part of the valued components assessment in Section 7.0. Due to the history of comments and issues raised during the amendment process for Floatel #1, and the demonstrated effectiveness of the mitigations (Section 2.4), it is anticipated that the risks and uncertainties are largely addressed with the existing mitigations.
25(2)(c)	Risks of malfunctions or accidents	Yes	<p>Floatel #2 will be managed by the same third-party operator as Floatel #1 in accordance with management plans developed for Floatel #1 (Section 8.2). Floatel #2 will require onboard storage of and transport of food, fuel, and waste to and from service vessels. The risks of malfunctions or accidents are considered in Section 8.2.</p> <p>Woodfibre LNG plans to continue to implement several management plans which support reducing the potential for malfunctions and accidents, including:</p> <ul style="list-style-type: none"> <li>• ERP</li> <li>• CEMP – includes spill prevention and response and (EAC condition 21)</li> <li>• MTMMP-C (EAC condition 16)</li> <li>• MWQMMP for Construction (EAC condition 6)</li> </ul>
25(2)(d)	Disproportionate effects on distinct human populations, including populations identified by gender	No	As illustrated in Section 2.4, reporting and monitoring are demonstrating effectiveness of implementation of existing mitigation measures related to gender and cultural safety, such as the GCSP, workplace policies for worker health and wellness, the Gender Safety Advisory Committee, the Floatel and Workplace Culture Committee, and access restrictions for workers residing on the Floatel #1 (as per EAC conditions #26 to #29). The Project's proposed changes are not anticipated to have disproportionate effects on distinct human populations, including populations identified by gender. By implementing specific activities to promote gender and cultural safety, that will apply equally to Floatel #2, the Project is actively working to mitigate disproportionate effects on women, girls and 2SLGBTQIA+ people. As such, these effects are not considered further.
25(2)(e)	Effects on biophysical factors that support ecosystem function	No	With the implementation of mitigation measures described in management and monitoring plans such as the CSIMP, GCSP, CEMP and others (see Section 2.4) and in accordance with Schedule B of the EAC, the proposed changes are not expected to result in a change in potential effects on biophysical factors that support ecosystem function and therefore they are not considered further. Potential effects on marine water quality and benthic habitat and marine fish and marine mammals were further assessed in Section 7.3 and Section 7.4, and no changes to the characterization of residual effects were determined.

Section	Assessment Matter	Considered Further (Yes/No)	Approach
25(2)(f)	Effects on current and future generations	No	Woodfibre LNG has developed a CSIMP that serves to manage and monitor effects on community services and infrastructure (Woodfibre LNG 2023). All workers residing on Floatel #1 or #2 will be restricted from accessing the community of Squamish. No non-emergency access to the community of Squamish will be permitted. Workers will be transported to and from Floatel #2 via passenger ferry from the Lower Mainland, so relatively few interactions between Project workforce and the community will occur. In addition, in accordance with EAC condition 13, Woodfibre LNG is designing and delivering programs in collaboration with partners such as Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation), to support local and Indigenous employment, skills training, education, and procurement.  With the implementation of these mitigation measures, the proposed changes are not expected to result in a change in potential effects on current and future generations. To meet EAC condition 14, a committee has been established to review impacts and the effectiveness of mitigations; the committee will be extended to include Floatel #2.
25(2)(g)	Consistency with any land-use plan of the government or an Indigenous Nation if the plan is relevant to the assessment and to any assessment conducted under Section 35 or 73	No	The proposed changes are within the CPA previously assessed for the Project and therefore this are not considered further. <sup>1</sup>
25(2)(h)	Greenhouse gas emissions, including the potential effects on the province being able to meet its targets under the <i>Greenhouse Gas Reduction Targets Act</i> (now called the <i>Climate Change Accountability Act</i> , 2018)	No	Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of available power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. Given the timeframe for generated power is expected to be relatively short, it is anticipated that changes to greenhouse gas emissions would be limited. The addition of Floatel #2 is not expected to affect the province's ability to meet the targets under the <i>Climate Change Accountability Act</i> .
25(2)(i)	Alternative means of carrying out the project that are technically and economically feasible, including through the use of the best available technologies, and the potential effects, risks and uncertainties of those alternative	Yes	Alternative means to accommodate additional workers are assessed in the amendment application including an assessment of the potential environmental impacts of extending construction (e.g., no Floatel #2) (Section 8.1). Woodfibre LNG evaluated several options for providing temporary worker accommodation, including land-based options and a floating camp. The floating camp alternative was determined to be the preferred option. Eight alternatives for the location of Floatel #2 were evaluated based on environmental, socio-economic, regulatory, and technical criteria (see Section 8.1). Two viable locations were identified, one outside the CPA and one inside the CPA. The site inside the CPA has been carried forward in the amendment application.
25(2)(j)	Potential changes to the reviewable project that may be caused by the environment	No	The proposed changes are not expected to result in a material change to the geotechnical and natural hazard conditions or natural hazards in ways that were not already assessed in the application for an EAC. Woodfibre LNG engaged Northwest Hydraulic Consultants Ltd. (NHC) to assess the potential impact of a dam breach at the proposed location of Floatel #2. The assessment concluded that waves generated by a potential dam breach would be less than those anticipated during a 1:200 year storm event; the wave from a dam breach would be approximately 0.5 m, while wind generated waves (from a 1:200 year event) will be 1.7 m high (NHC 2025).
25(2)(k)	Other prescribed matters	n/a	No other prescribed matters have been identified.

Note:

<sup>1</sup> In June 2022, the Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) Council approved Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) 2026 – its 4-year strategic plan. The strategic plan will include an update to the X̓ay Temíxw Land Use Plan and the development of an associated X̓ay Shkwen Marine Use Plan, which is not yet completed but will be relevant to the amendment, when available (Squamish Nation 2023).

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## 8.1 ALTERNATIVE MEANS OF CARRYING OUT THE PROJECT

Prior to selecting a second floatel as the preferred workforce accommodation, Woodfibre LNG conducted an alternatives assessment that considered five alternatives: a) an additional floatel, b) use of the Port Mellon camp, c) a hotel proximate to Vancouver International Airport, d) use of North Vancouver hotels, and e) maintain status quo. Maintaining the status quo would mean that the current peak workforce will remain the same and the Project will continue to use Floatel #1 for the majority of its construction workforce. This will result in a delay to the Project schedule. Prolonging the duration of the Project would also extend the duration of potential Project construction effects. The Port Mellon camp and use of North Vancouver hotels were not selected due to logistical complexities (including daily worker transportation), security and safety considerations, and feedback from stakeholders during initial alternatives assessment that determined a floatel was a preferred option. In this analysis, a hotel proximate to Vancouver International Airport was proposed to be a permanent alternative to a second floatel. After analysis, it was deemed less preferable than a second floatel due to factors including productivity, environmental and worker safety considerations, and the lower number of available rooms.

Following selection of a second floatel (Floatel #2) as the preferred method of accommodation, Woodfibre LNG conducted a feasibility and constraints analysis of eight potential sites for temporary moorage of the proposed Floatel #2 (Figure 2), these included:

- Alternative 1 – Mamquam Blind Channel (49° 40' 37.869" N 123° 10' 6.847" W)
- Alternative 2 – Darrell Bay Terminal (49° 40' 3.407" N 123° 10' 16.729" W)
- Alternative 3 – Darrell Bay SW (49° 39' 29.704" N 123° 11' 30.357" W)
- Alternative 4 – Anvil Island (49° 33' 55.990" N 123° 18' 0.835" W)
- Alternative 5 – Woodfibre South (49° 38' 54.626" N 123° 15' 35.701" W)
- Alternative 6 – Within CPA - rafted against Floatel #1 with lines (49° 39' 46.600" N 123° 15' 22.303" W)
- Alternative 7 – Within CPA - spread moored (49° 39' 37.234" N 123° 15' 27.786" W)
- Alternative 8 – Britannia Beach (49° 37' 30.939" N 123° 12' 34.170" W)

Evaluation criteria included socio-economic factors, regulatory requirements, environmental constraints, and technical and economic feasibility considerations. A summary of the analysis results is provided below.

Of the eight alternatives considered, three were considered technically and/or economically unfeasible, and one alternative was rejected following feedback received from Sk̓w̓X̓W̓Ú7mesh Úxwumixw (Squamish Nation). Mamquam Blind Channel (Alternative 1) was considered unfeasible due to its proximity to Squamish and anticipated community concerns regarding potential impacts to recreation and ambient lighting/visual quality at this site. Darrell Bay Terminal (Alternative 2) was considered unfeasible due to the site's connectivity to shore and security concerns related to worker access to the community. In addition, Darrell Bay Terminal (Alternative 2) is an emergency egress location maintained by Ministry of

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Transportation and Transit (MOTT) for the SLRD. Anvil Island (Alternative 4) was determined to be economically and technically unfeasible due to distance from the Project Site and challenges associated with long-term single point anchoring. Feedback received from Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) indicated that the Woodfibre South site (Alternative 5) was not preferred due to its overlap with a recorded herring spawn location, therefore this site was not considered further.

Two off-site locations, Darrell Bay SW (Alternative 3) and Britannia Beach (Alternative 8), were considered economically and technically feasible. Both options require six mooring anchors. The Darrell Bay SW site is less visible from the highway compared to the Darrell Bay Terminal site (Alternative 2) and is not directly adjacent to recreational or private facilities. However, the Darrell Bay SW site overlaps with a known herring spawning location and potential challenges were identified with weather and mooring transfer boats at night.

Britannia Beach (Alternative 8) is adjacent to the historic Britannia Mine site. This site is located outside of the District of Squamish and within the SLRD. This site does not overlap recorded areas for eelgrass or herring/forage fish spawning, and there is limited forage fish habitat and spawning herring presence. The assessment identified that the location has conditions associated with the historic industrial use, but any constraints associated with the industrial history were not fully assessed/characterized. However, it is unlikely that localized sediment disturbance from Floatel #2 could significantly increase metal uptake in seafood within Átl'ka7tsem (Howe Sound), and further assessment would be required if this site was deemed to be preferred. This site would require a *Land Act* approval for the temporary use adjacent to existing water lots. In addition, this site may be subject to setbacks from the existing water lots. This location will continue to be explored by Woodfibre LNG in the event that the preferred location within the CPA is determined by the review process to not be feasible.

Two options within the CPA were considered: rafted against Floatel #1 with lines (Alternative 5) and moored along shore with a spud barge and gangway access (Alternative 6, preferred option). The initial mooring arrangement for Alternative 6 was revised to avoid the use of guide piles that would have required impact pile driving. The use of impact pile driving would have introduced potential effects to marine fish and marine mammals. While, Alternative 5 does not require anchors for mooring, it was not advanced because of safety constraints. The arrangement alongside the existing Floatel #1 presented safety risks. Snap back from tiedown lines in proximity to the passenger dock, though unlikely, has the potential for a significant safety event. In addition, emergency egress of Floatel #2 residences could only be facilitated through Floatel #1 which presented safety concerns (e.g., access to shore from Floatel #2 during an emergency may be hindered if Floatel #1 is compromised). The location of Floatel #2 at Alternative 5 also presented servicing challenges for Floatel #1.

The revised mooring arrangement for Alternative 6 requires the use of nine 15-ton anchors and therefore has potential for chain drag effects on the seabed. Access for Alternative 6 will be provided by a spud barge and gangways to shore reducing emergency egress risk associated with Alternative 5. Alternative 6 is located adjacent to the mouth of Woodfibre Creek, downstream of the Henriette Lake Dam. Concerns related to debris flow interactions with a floatel were raised during the assessment of Floatel #1, so Woodfibre LNG engaged NHC to assess the potential impact of a dam breach at the proposed location of Floatel #2. The assessment concluded that waves generated by a potential dam breach would be less

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than those anticipated during a 1:200 year storm event; the “wave” from a dam breach would be approximately 0.5 m at Floatel #2, while wind generated waves (from a 1:200 year event) will be 1.7 m high (NHC 2025). As such any impacts from debris flows do not preclude siting of Floatel #2 at this location (NHC 2025, Stantec 2021b).

Following a robust review through the feasibility and constraints analysis, Alternative 6 (within the CPA south of Floatel #1) was selected as the preferred site for Floatel #2, with Alternative 3 (Darrel Bay) and Alternative 8 (Britannia Beach) being considered acceptable for continued review by Woodfibre LNG, should the preferred alternative within the CPA be determined by the review process to not be feasible.

## 8.2 ACCIDENTS AND MALFUNCTIONS

Potential effects caused by accidental spills to marine waters during installation and operation of Floatel #2 would be limited to local effects and would not extend outside of Canada. The effects of accidents and malfunctions were assessed in Section 11 of the EAC Application. The installation and operation of Floatel #2 may result in accidents and malfunctions with the potential to adversely affect marine fish and marine mammals. These potential effects are characterized and assessed in Section 11 of the EAC Application.

Accidents and malfunctions identified in the EAC Application which are applicable to this Amendment include spills of toxic or hazardous materials (e.g., hydrocarbon fuels, lubricants) into environmentally sensitive habitats. Potential effects on marine fish and marine mammals associated with marine spills include the risk of injury or mortality to these species. The vector and severity of potential injury and mortality are dependent on the nature of the accident or malfunction.

The addition of Floatel #2 does not introduce any novel pathways for accidents and malfunctions to occur compared to the EAC Application, and all mitigation measures identified in the EAC Application and CEMP (Woodfibre 2023) will be implemented. The Project has effectively implemented these mitigation measures in the past, and as such, no additional measures are proposed to manage the potential risk of accidents and malfunctions associated with this amendment application.

Woodfibre LNG plans to continue to implement several management plans which support reducing the potential for malfunctions and accidents, including but not limited to:

- ERP – An ERP has been developed and is being implemented by Woodfibre LNG to satisfy the EAC Application requirements, FDS, and Section 38.1 under the *Energy Resources Activities Act* and Emergency Management Regulation for the BCER. The ERP describes incident and emergency reporting requirements and investigation procedures.
- CEMP – The CEMP outlines the compliance requirements to be achieved during construction and facilitate implementation of mitigation measures to satisfy conditions of approval in accordance with condition 21 of the EAC. The CEMP describes spill prevention and spill response measures as well as roles and responsibilities.

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- MTMMP-C – Described in Section 2.3.3.
- MWQMMP – The MWQMMP identifies measures to manage marine water quality during construction of the Project, outlines mitigation measures to reduce or eliminate environmental effects to marine water quality, and describes compliance and verification programs to assess the effectiveness of mitigation measures. An operational MWQMMP will be developed for the operations phase.

Existing mitigations are expected to effectively address potential effects to water quality during installation and operation of Floatel #2. No new mitigation measures are proposed.



## 9.0 ASSESSMENT OF POTENTIAL EFFECTS ON INDIGENOUS INTERESTS

Under section 25(1) of the *Environmental Assessment Act* (2018) , effects of the Project on First Nations and rights recognized and affirmed by section 35 of the *Constitution Act, 1982* must be assessed.

The following sections provide an analysis of the effects of the proposed change to the Project and whether it alters the conclusions of the Assessment Report regarding the exercise of Indigenous Interests. Indigenous Interests, as defined by the EAO, include “interests related to an Indigenous Nation and their rights recognized and affirmed by section 35 of the *Constitution Act, 1982*, including Treaty rights and Aboriginal rights and title, that may be impacted by a proposed project” (EAO 2020b).

Indigenous Interests considered in this assessment include traditional practices such as hunting, fishing, trapping, and plant gathering; access to traditionally harvested resources; effects to sites of traditional use; and effects to the cultural experience of traditional resource and land use as understood by the Assessment, Amendment #3, and ongoing consultation. In analyzing potential effects on Indigenous Interests, the conclusions of the marine water quality and benthic habitat, marine fish and marine mammals, and human health VCs were considered, as were the conclusions of the EAC application, and the records of ongoing consultation.

This analysis specifically considered whether the proposed changes would induce any new effects, whether they would alter the characterization of the predicted effects (e.g., a change in the magnitude of an effect), or whether any new mitigation measures are needed to prevent a change to the EAO’s characterization of the effects. This section assesses the potential effects to Indigenous Interests<sup>7</sup> for the First Nations identified in Section 5.1.

Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) conducted its own process to assess the potential Project effects on their Indigenous Interests (as part of the Squamish Nation Environmental Assessment Agreement), and Woodfibre LNG continues to engage with Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation) regarding all Project components. Woodfibre LNG also continues to engage with other engaged First Nations (including Tsleil-Waututh Nation, Musqueam First Nation, Cowichan Tribes First Nation, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, Stzuminus First Nation, Lake Cowichan First Nation, and Métis Nation of British Columbia) regarding the Project, see Section 5.1.

### 9.1 EXISTING CONDITIONS

As noted in Section 3.2, Floatel #2 is proposed to be located south of the existing Floatel #1 within the CPA, near the mouth of Woodfibre Creek within municipal boundaries of the District of Squamish.

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<sup>7</sup> Referred to in the Amendment Application as “Aboriginal Interests” and “potential effects to Aboriginal rights and title”.

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### 9.1.1 Sk̓wx̓wú7mesh Úxwumixw - Squamish Nation

This description of Indigenous marine use in the northern Átl'ka7tsem (Howe Sound) region was informed by the Occupation and Use Study completed by Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) in 2015. For example, the approximate location of Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) Canoe Journeys Summer Program route periodically occurs along these routes in Átl'ka7tsem (Howe Sound), including the channels adjacent to Bowen Island and Anvil Island. Throughout northern Átl'ka7tsem (Howe Sound), Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) members and groups harvest *ch'émesh* (herring roe) predictably between mid-February and late March every year. The Occupation and Use Study completed by Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) documents 87 distinct aquatic-themed sites of past and ongoing use by Sk̓wx̓wú7mesh Úxwumixw, (Squamish Nation) although this represents a mixture of marine-based activities and freshwater activities. Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) marine activities that occur typically include *cháylhen* (salmon), roe, prawn, and crab harvesting, cultural canoeing, recreational canoeing, and marine transportation across or along the shoreline of Átl'ka7tsem (Howe Sound).

Through consultation with Woodfibre LNG, Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) indicated that if a second Floatel were to be added, a site within the CPA is preferred compared to the other candidate sites previously identified by Woodfibre LNG. Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) expressed concerns about:

- The proximity of Floatel #2 to a herring spawning location. Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) stated that a herring spawn mitigation plan is something that they would like to see
- The antifouling paint that would be used for Floatel #2 and how that could interact with herring spawning activities

Sk̓wx̓wú7mesh Úxwumixw (Squamish Nation) stated that it is necessary for Woodfibre LNG to consult the Marine User Group, CSIMP Quarterly Meeting, Joint Woodfibre LNG/FortisBC Cumulative Issues Committee, and GSAC, as feedback from these groups provides important context for the amendment application.

### 9.1.2 Tsleil-Waututh Nation

As understood from the Tsleil-Waututh Nation Traditional Land Use (TLU) Report (as discussed in the Application; WLNG 2015), members of Tsleil-Waututh Nation utilize the waters of Howe Sound for traditional purposes, including fishing and marine harvesting. As indicated in Amendment #3, the CPA is located outside of Tsleil-Waututh Nation's engagement area. However, no residual effects resulting from the Project are anticipated to extend outside the CPA and interact with Tsleil Waututh Nation's interests within the Howe Sound area.

Through consultation with Woodfibre LNG, Tsleil-Waututh Nation expressed concern regarding the cumulative impacts to herring and other marine life as a result of vessel traffic, accidents/spills, and a doubling of Project workforce in a small space. Additionally, Tsleil-Waututh Nation raised concerns

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regarding Project timelines associated with Floatel #2 and the possible impacts on other regional projects pushing to meet similar timelines. Tsleil-Waututh Nation noted that their stewardship goals remain the same regardless of acceleration of resource development regulatory processes. Woodfibre LNG is committed to continued consultation with Tsleil-Waututh Nation via regular meetings at the Technical Working Group.

### 9.1.3 Schedule D Nations

As noted in Section 5.1, Woodfibre LNG informed all the First Nations and Métis Nation of British Columbia as identified in Schedule D of the Section 11 Order for the initial Environmental Assessment of the Floatel #2 amendment, and offered to provide more information or meet to discuss as requested. These Nations are:

- Musqueam First Nation
- Cowichan Tribes First Nation
- Halalt First Nation
- Lake Cowichan First Nation
- Lyackson First Nation
- Penelakut Tribe
- Stzuminus First Nation
- Lake Cowichan First Nation
- Métis Nation of British Columbia

To date, no feedback has been received. Woodfibre LNG will continue to respond to questions and concerns from First Nations and Métis Nation of British Columbia through its ongoing consultation efforts.

## 9.2 POTENTIAL EFFECTS AND MITIGATION

The assessment of the Current Use of Land and Resources for Traditional Purposes VC in the EAC Application evaluated how the Project may impact existing land use conditions, the surrounding environment, and the various factors that influence traditional use, including current use activities such as marine, resources, harvesting of terrestrial resources, use of marine waterways, and traditional use locations (WLNG 2019). The EAC Application considered the potential for pathways of effects through change in access to the environment and resources, the amount and quality of resources, and sensory disturbances on current use activity. Amendment #3 also considered potential interactions between Project changes and Indigenous Interests, specifically, effects on harvested marine resources and interactions associated with the ferry routes for workers transiting to Floatel #1.

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Applicable mitigation measures identified in the EAC Application will be implemented for works occurring under this Amendment Application. This includes previously developed management plans, including (but not limited to):

- CEMP
- Construction ERP
- Environmental Monitoring Plan
- Marine Mammal Management and Monitoring Plan
- Marine Fish and Fish Habitat Management and Monitoring Plan
- MWQMMP

The establishment and operation of Floatel #2 in reference to access to the environment and resources would have no new interaction as new infrastructure remains within the Marine Safety Zone of the CPA. It is anticipated that Floatel #2 would require anchors, with access to shore via a spud barge with gangways to shore, and will be moored in an area that is characterized as having fine wood debris and soft substrates (e.g., sand and silt) in the subtidal zone. During installation of the anchors, chains, and spud barge(s) there is potential for seabed disturbance and potential for mobilization of contaminants into the water column. Installation and operation of Floatel #2 will adhere to existing mitigation measures, as described in 5.16.3.2.4 of the EAC Application and Condition 6 of the EAC (Construction Marine Transportation Management Plan and Monitoring Plan, Marine Water Quality Management and Monitoring Plan), which will reduce the effects on marine benthic communities from mobilization of contaminants into the water column, habitat loss, and shading.

Floatel #2 has the potential to affect the amount and quality of resources including marine harvest resources. Sensory disturbances have the potential to interact with marine fish and marine mammals. Floatel #2 will generate artificial lighting within the CPA, which may alter the distribution and behaviour of marine fish and marine mammals (Section 7.4 Marine Fish and Marine Mammals). The mitigation measures outlined in the EAC Application and CEMP are anticipated to be sufficient to manage the adverse potential effects of artificial lighting on marine fish and marine mammals.

Ferry routes for worker transit (as originally identified in the EAC Application) are within Sk̓w̓x̓wú7mesh Úxwumixw's (Squamish Nation) territory, the Tsleil-Waututh Consultative Area, and the CPA. There will be an increase in ferry trips required for worker transport and servicing of Floatel #2, compared to what is currently needed to service Floatel #1; however, the number of ferry trips will be less than what was originally assessed in the Assessment Report (EAO 2015) when all workers would be accessing the site daily via passenger ferry. The proposed changes will not interact with known harvesting sites, heritage sites, and place names that were previously identified (WLNG 2019). Access through Átl'ka7tsem (Howe Sound) will remain open, and the incremental increase in marine traffic associated with Floatel #2 is minor relative to existing vessel activity. Vessel movements (e.g., increased personnel transfers/ferry trips to Floatel #2; additional service vessels) are expected to intersect intermittently and briefly with existing marine traffic throughout St'a7mes (Squamish Harbour) and other parts of Átl'ka7tsem; however, potential changes are anticipated to be negligible given the increase in marine traffic associated with Floatel #2 is minor relative to existing vessel activity (see Marine Transport row of

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Table 7.1 in Section 7.2). Project-related vessel traffic for the operation of Floatel #2 is anticipated to be less than what was assessed in the Assessment Report (EAO 2015). The Marine Transport Management and Monitoring Plan has been developed and is being implemented to meet EAC condition 16, see Section 2.4.

As noted in Section 9.1.1, although no specific concerns were expressed regarding air pollutant exposure from Floatel #2 and human health, Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) expressed concerns related to potential effects on marine life (Section 7.4; Marine Fish and Marine Mammals), particularly effects on spawning herring and herring roe from anti-fouling agents on the hull of Floatel #2. As noted in Section 7.5.2, the Floatel #2 hull paint with modern anti-fouling material is unlikely to pose a significant risk to spawning herring and other marine life, as anti-fouling agent exposure is more relevant in high-traffic areas like ports, marinas, and shipyards where regular hull maintenance and paint stripping is taking place. With the addition of Floatel #2 associated with the amendment, the potential effect on the quality and health of marine resources, and subsequently human health, is expected to remain negligible. Based on this conclusion, no additional monitoring or mitigation measures are recommended (see Section 7.5.3).

### 9.3 CHANGES TO CHARACTERIZATION OF RESIDUAL EFFECTS

The Assessment Report (EAO 2015) identified that construction and operation of the Project would result in the following residual effects on current use of lands and resources and Indigenous peoples' health and socio-economic conditions:

- Access to environment and resources
- Amount and quality of resources
- Sensory disturbances

Based on the assessment of potential effects, no changes to the findings of the Assessment Report are anticipated as a result of this amendment application. No material change is anticipated regarding the adverse residual effects on access to environment and resources, quality and quantity of resources, sensory disturbances, and Indigenous peoples' health and socio-economic conditions as a result of the proposed Project changes in this amendment application.

The Assessment Report concluded that, with the implementation of proposed mitigation, the combined effects of the above VCs from the proposed Project on Indigenous peoples' current use of lands and resources for traditional purposes and Indigenous peoples' health and socio-economic conditions (specifically, marine harvesting) are expected to be of low magnitude. Facility-related effects, which occur within an area used primarily by Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation) and Tsleil-Waututh Nation, would be long term and localized within the CPA.

Floatel #2 would be operated consistently with the current Floatel #1, including:

- No discharge of wastewater or sewage to Átl'ka7tsem (Howe Sound). Sewage and wastewater will be transferred to a tanker barge and transported via the primary Southern Átl'ka7tsem (Howe Sound) Route to an approved offsite receiving facility for disposal.

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- Workers, crew, and cargo will be transferred from the transfer platform at the stern of the vessel.
- No shore access to Squamish will be permitted from the vessel unless an exemption is granted, per Condition 29.
- Ferrying of workers during shift changes directly from the Lower Mainland using the primary Southern Átl'ka7tsem (Howe Sound) Route (Woodfibre LNG 2023b).
- Food and other materials will be transported to site using cargo vessels and barges from the Lower Mainland, avoiding traffic impacts through Squamish/Sea to Sky corridor.
- Domestic waste will be managed in accordance with the vessel providers' Waste Management Plan (Bridgemans 2024) which takes into account the District of Squamish Zero Waste Action Plan 2022-2027 and transported from Floatel #2 by service vessel as per the plan.

Marine traffic associated with servicing the vessel and worker transport includes one passenger vessel to and from site, 6 days a week and one cargo/servicing vessel to and from site six days a week. These vessels will service both Floatel #1 and #2. This represents slight increase in the marine traffic volumes provided in Amendment #3 for Floatel #1 but is anticipated to be less than the marine traffic volumes assessed in the original Assessment Report (EAO 2015). The operation of Floatel #2 for worker accommodations will utilize marine transport vessels to ferry workers during shift rotations, and also to transport operational personnel, materials, equipment, and waste to appropriate offsite disposal facilities. Section 2.3 summarizes Floatel #1 management plans, and Section 2.4 includes results of the effectiveness of Floatel #1 mitigation and management plans, and adaptive management demonstrating their success. Woodfibre LNG remains committed to maintaining continuous 24-hour security, seven days a week, with controlled access at all departure points including Darrell Bay and locations in the Vancouver/Lower Mainland area.

Overall, no significant alterations are expected to Indigenous Interests and traditional marine harvesting compared to what was presented in the original EAC Application. Although Floatel #2 introduces an incremental increase in vessel traffic compared to Floatel #1, the potential effects on current use of lands and resources and subsequently Indigenous Interests, remain manageable through the implementation of proposed mitigation strategies. This assessment confirms there is no material change in the residual effects conclusions reached in the Assessment Report (EAO 2015), due to the incremental increase in ferry transits compared to existing levels of marine vessel activity, the availability of other areas of use within Átl'ka7tsem (Howe Sound), and quality and health of marine resources.

## 9.4 CUMULATIVE EFFECTS ON INDIGENOUS INTERESTS

As outlined in Section 9.3, residual effects on Indigenous Interests are predicted to be consistent with the characterization in the Assessment Report. Cumulative effects were not identified to interact with the effects on traditional marine harvesting nor the health and socio-economic conditions of Indigenous peoples. As such, the cumulative effects of the amendment are anticipated to have the same degree and type of interactions with past, present, and reasonably foreseeable future projects as previously assessed. The conclusion presented in the Assessment Report (EAO 2015) is anticipated to remain valid.

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## 9.5 RISKS AND UNCERTAINTIES

The level of uncertainty of the predictions made in this amendment assessment is considered to be low to moderate. Although no amendment-specific baseline studies were completed to support this application, the proposed siting of Floatel #2 is in close proximity to existing infrastructure within the CPA, baseline conditions within the RAA are well understood, and Woodfibre LNG has been engaging with First Nations to understand their interests. In addition, the potential effects pathways are well understood, and the effectiveness of proposed mitigation measures has been recently demonstrated with the installation and operation of Floatel #1.

## 9.6 FOLLOW-UP STRATEGY TO EFFECTS ON INDIGENOUS INTERESTS

Woodfibre LNG is committed to continuing to work with First Nations, including Sk̓w̓X̓WÚ7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh Nation, and Schedule D Nations. Woodfibre LNG remains available to discussing concerns and considering further mitigation measures, as applicable and as appropriate.



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## 10.0 EFFECTS WITHIN FEDERAL JURISDICTION

Where the proponent is proposing changes to the Project as defined in the CPD of EAC #15-02, a notification must be submitted to the IAAC. Condition 2.10 of the FDS requires the Proponent to provide the IAAC with:

- A description of the proposed change(s) to the Designated Project and the environmental effects that may result from the proposed change(s);
- Any modified or additional measures to mitigate any environmental effect that may result from the proposed change(s) and any modified or additional follow-up requirements; and
- An explanation of how, taking into account any modified or additional mitigation measure referred to in condition 2.10.2, the environmental effects that may result from the proposed change(s) may differ from the environmental effects of the Designated Project identified during the environmental assessment.

Under condition 2.11, additional information may include the results of consultation with Indigenous groups and relevant authorities on the proposed change(s). Woodfibre LNG intends to provide this amendment application to support IAAC's information needs. For the purposes of the FDS and this amendment, 'environmental effects' are defined as those described in section 5 of the *Canadian Environmental Assessment Act, 2012*. Table 10.1 below provides a concordance of where the relevant information for each environmental effect is presented in the amendment application, where applicable. A summary of consultation with First Nations and Métis Nation of British Columbia is presented in Section 5.0.

**Table 10.1: Effects within Federal Jurisdiction**

Environmental Effects (as outlined in section 5 of the <i>Canadian Environmental Assessment Act</i> )	Section of Amendment Application Where the Effect is Assessed	Changes to the FDS Conclusions
5(1) For the purposes of this Act, the environmental effects that are to be taken into account in relation to an act or thing, a physical activity, a designated project or a project are:		
5(1)(a) A change that may be caused to the following components of the environment that are within the legislative authority of Parliament: (i) fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i> .	Section 7.3 and Section 7.4 – Marine Water Quality and Benthic Habitat; Marine Fish and Marine Mammals.	No
(ii) aquatic species, as defined in subsection 2(1) of the <i>Species at Risk Act</i> .	Section 7.3 and Section 7.4 – Marine Water Quality and Benthic Habitat; Marine Fish and Marine Mammals.	No
(iii) migratory birds, as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i> .	N/A – no change in interaction with migratory birds is anticipated.	No

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<b>Environmental Effects (as outlined in section 5 of the <i>Canadian Environmental Assessment Act</i>)</b>	<b>Section of Amendment Application Where the Effect is Assessed</b>	<b>Changes to the FDS Conclusions</b>
(iv) any other component of the environment that is set out in Schedule 2.	N/A – there are no other components of the environment set out in Schedule 2 to the CEAA 2012.	No
5(1)(b) a change that may be caused to the environment that would occur <ul style="list-style-type: none"> <li>(i) On federal lands</li> <li>(ii) In a province other than the one in which the act or thing is done or where the physical activity, the designated project or the project is being carried out</li> <li>(iii) Outside Canada</li> </ul>	N/A – there are no works proposed on federal lands, outside of British Columbia, or outside of Canada.	No
5(1)(c) with respect to Aboriginal peoples, an effect occurring in Canada of any change that may be caused to the environment on <ul style="list-style-type: none"> <li>(i) Health and socio-economic conditions</li> <li>(ii) Physical and cultural heritage</li> <li>(iii) The current use of lands and resources for traditional purposes</li> <li>(iv) Any structure, site or thing that is of historical, archaeological, paleontological or architectural significance</li> </ul>	Section 9.0 – Assessment of Potential Effects on Indigenous Interests.	No
5(2) However, if the carrying out of the physical activity, the designated project or the project requires a federal authority to exercise a power or perform a duty or function conferred on it under any Act of Parliament other than this Act, the following environmental effects are also to be taken into account:		
(a) a change, other than those referred to in paragraphs (1)(a) and (b), that may be caused to the environment and that is directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of the physical activity, the designated project or the project; and	N/A – no other changes that may be linked to a federal authority's exercise of power.	No
(b) an effect, other than those referred to in paragraph (1)(c), of any change referred to in paragraph (a) on <ul style="list-style-type: none"> <li>(i) health and socio-economic conditions,</li> <li>(ii) physical and cultural heritage, or</li> <li>(iii) any structure, site or thing that is of historical, archaeological, paleontological or architectural significance.</li> </ul>	7.5 – Human Health, no other changes were identified.	No

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## **11.0 CONSIDERATION OF THE SQUAMISH NATION ENVIRONMENTAL ASSESSMENT AGREEMENT**

The proposed amendment does not result in any changes to the conditions listed in the SNEAA. Consultation with Sk̓w̓X̓wú7mesh Úxwumixw (Squamish Nation) regarding this amendment application is described in Section 5.1.

## 12.0 CONCLUSIONS

With submission of this application, Woodfibre LNG is requesting an amendment of the Certified Project Description (CPD) in Schedule A of EAC #15-02, the Sk̓w̓x̓wú7mesh Úxwumixw Environmental Assessment Agreement, and a recommendation regarding the FDS to allow for additional temporary floating worker accommodation and associated facilities.

Floatel #2 will be managed by the same third-party operator as Floatel #1, in accordance with the conditions and management plans developed for Floatel #1. Key management plans that have been developed for Floatel #1 that are applicable to Floatel #2 include the following:

- Community Services and Infrastructure Management Plan
- Gender and Cultural Safety Plan
- Construction Marine Transportation Management Plan and Monitoring Plan
- Floatel Air Quality Monitoring and Mitigation Plan
- Floatel Noise Monitoring and Mitigation Plan

The operating controls and mitigation measures listed in these plans will be directly applicable to Floatel #2. Potential effects associated with Floatel #2 are expected to be consistent with those for Floatel #1. The mitigation measures in place for Floatel #1 are demonstrated to be effective and are anticipated to address potential effects for Floatel #2 (Section 2.4).

Based on the assessments presented within this amendment application, it is Woodfibre LNG's conclusion that the proposed changes do not alter the findings or conclusions of the EAO's Assessment Report for the Project.

The amendment has not identified additional mitigation measures and no additional effects to Indigenous Interests are anticipated. Woodfibre LNG has engaged and will continue to engage with Sk̓w̓x̓wú7mesh Úxwumixw (Squamish Nation), Tsleil-Waututh Nation, Musqueam First Nation, Cowichan Tribes First Nation, Halalt First Nation, Lake Cowichan First Nation, Lyackson First Nation, Penelakut Tribe, Stzuminus First Nation, Lake Cowichan First Nation, and Métis Nation of British Columbia.

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# **APPENDIX A**

## **Key Project Conditions**

APPENDIX A KEY PROJECT CONDITIONS

Table A.1 Summary of Key Project Conditions

Condition	Authorization	Theme	Condition	Status	How condition applies to Floatel #2
<p>Condition 14 - Community Services and Infrastructure</p> <p>The Holder must develop, in consultation with Aboriginal Groups, local governments, provincial government infrastructure and service providers, a plan to adaptively manage and monitor effects on services and infrastructure delivered by provincial agencies and local governments. The scope of the plan is for effects that are directly attributable to the Project, and related to Construction. The plan must include the mitigation measures in the Application Table 22-1 under the heading “infrastructure and community services”.</p> <p>The plan must include specific actions to address the following:</p> <ul style="list-style-type: none"><li>• Communication with potentially affected Aboriginal Groups, local governments and regional districts, and provincial government infrastructure and service providers regarding Project activities and actions; and</li><li>• An approach for monitoring and reporting on the effectiveness of the mitigation measures set out in the plan.</li></ul> <p>The Holder must provide the plan to EAO no less than 60 days prior to the Holder’s planned date to commence Construction. The Holder must not commence Construction until the plan has been approved by EAO, unless otherwise authorized by EAO. Once approved, the Holder must also provide the approved plan to EAO, local governments, and provincial government infrastructure and service providers, and Aboriginal Groups.</p> <p>The Holder is required to implement the plan to the satisfaction of EAO, as of the start of Construction until two years after the completion of Construction, unless otherwise directed by EAO.</p> <p>The Holder must establish a committee to engage DOS and its community organizations, no less than once per quarter, and consult with parties identified in this condition, with participation from FortisBC, on issues that impact workforce housing, safety and community services. This must include socio-economic metrics, quarterly reports, and potential cumulative issues arising from concurrent workforce housing interactions between Woodfibre LNG and FortisBC’s projects, and to develop or refine responsive mitigation measures.</p>	EAC E15-02 Amendment 3	Engagement and Consultation	14.2	<p>The CSIMP was developed with stakeholder consultation and received EAO approval on September 15, 2023. The Cumulative Issues Committee is in place and meets no less than once per quarter with the parties and on the issues identified by Condition 14 (includes housing and Floatel #1 related issues).</p>	<p>The CSIMP will continue to set out WLNG’s plans developed to adaptively manage and monitor effects on community services and infrastructure, including the housing of its workforce.</p> <p>The Cumulative Issues Committee will continue to meet as required by the condition; socioeconomic metrics, quarterly reports and cumulative issues will encompass Floatel #2.</p>
<p>Condition 26.1 - Gender and Cultural Safety Plan</p> <p>The Holder must retain one or more Qualified Person(s) with training and experience relevant to human resources, gender and cultural safety, and industrial camps to develop a gender and cultural safety plan which would apply to all Workers of the Project. The plan must be developed in consultation with Aboriginal Groups and other stakeholders identified in 26.3 (g).</p>	EAC E15-02 Amendment 3	Gender and Cultural Safety	26.1	<p>The Gender and Cultural Safety Plan (GCSP) was developed and subject to consultation in early 2024. The GCSP includes mitigations (programming and initiatives) related to Floatel #1.</p>	<p>The GCSP and all Floatel/worker related mitigations identified in the plan will extend to Floatel #2.</p>
<p>Condition 26.2 - Gender and Cultural Safety Plan</p> <p>Following the development of the plan, the Holder must provide the plan to the EAO for approval a minimum of 60 days prior to the planned occupancy of the Floatel, unless otherwise authorized by the EAO.</p>	EAC E15-02 Amendment 3	Gender and Cultural Safety	26.2	<p>The GCSP was submitted to the EAO and approved in May 2024, prior to Floatel #1 becoming occupied.</p>	<p>The GCSP will be updated to reflect Woodfibre LNG’s plans for Floatel #2. Woodfibre LNG will also share the updated plan and a summary of changes - reflecting feedback and input from the Floatel #2 process - with Indigenous groups, the Gender Safety Advisory Committee and stakeholders. Woodfibre LNG will continue to make any updates to the plan as per its adaptive management strategy described in the plan.</p>
<p>Condition 26.3 - Gender and Cultural Safety Plan</p> <p>The plan will be applicable to all Workers on the Project and must include at least the following:</p> <p>a) Objectives to establish proactive measures that:</p> <p>i. Deter and address harassment and violence;</p> <p>ii. Deter gender-based violence in the DOS and Squamish community area by Workers; and</p> <p>iii. Establish clear reporting and response protocols regarding harassment and violence reports at the Project</p>	EAC E15-02 Amendment 3	Gender and Cultural Safety	26.3	<p>The GCSP includes the items and mitigations identified by condition 26.3.</p>	<p>All related GCSP mitigations identified by condition 26.3 will continue to be implemented and applied to Floatel #2.</p>

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<p>and gender-based violence by Workers in the DOS and Squamish community area and report complaints to community partners pursuant to paragraph (f).</p> <p>b) How the Holder will implement a workplace harassment and violence prevention program. The workplace harassment and violence prevention program must identify applicable provisions that address at least the following:</p> <p>i. Unacceptable conduct both on and off Worker's shifts, and</p> <p>ii. Potential consequences and corrective actions for unacceptable conduct, up to and including permanent removal of Workers from the Project.</p> <p>c) A Worker code of conduct that will be applicable to all Workers and must include the following:</p> <p>i. A requirement that all Workers will sign off and agree to the code of conduct,</p> <p>ii. Details outlining consequences for not complying with the code of conduct, including potential termination and removal from the Project and disqualification for re-employment at the Project,</p> <p>iii. Details outlining forms or actions of unacceptable Worker behaviour and the process for addressing and correcting unacceptable Worker behaviour,</p> <p>iv. Standards for behaviour at work to deter harassment and violence,</p> <p>v. Standards for behaviour when off-duty to deter harassment, violence, including gender-based violence, in the DOS and Squamish community area; and</p> <p>vi. How the Worker code of conduct will be implemented and communicated at the work site, at temporary Worker accommodations, including the Floatel and endorsed by the Workers.</p> <p>d) How the Holder will address complaints of harassment and violence at the Project, which must include at a minimum:</p> <p>i. Procedures for receiving and responding to complaints of harassment and violence;</p> <p>ii. Procedures that promote and encourage proactive reinforcement of positive Worker conduct that includes:</p> <p>A) Encouraging Workers to address and report early indicators of unacceptable conduct; and</p> <p>B) Communicating to Workers a philosophy of raising awareness of bullying, harassment, threatening behaviour, racism, and other forms of discrimination.</p> <p>iii. How Workers may provide feedback regarding their Project related experiences, including the opportunity to complete and submit surveys, and how Worker's feedback and information will inform adaptive management of the gender and cultural safety plan; and</p> <p>iv. Development of Worker behaviour indicators that verify complaints of harassment and violence and that can be used to address early signs of harassment and violence.</p> <p>e) How the Holder will provide on-site mental health support, as reference in Condition 27.2 (ii), for Workers when the Floatel is operational, pursuant to subsection 26.1.</p> <p>f) How the Holder will implement a confidential reporting line to receive complaints of harassment and violence, including gender-based violence.</p> <p>g) How the Holder will facilitate consultation with community partners, including the formation of a Gender Safety Advisory Committee, that includes Aboriginal Groups, DOS, FortisBC and other Squamish area justice service organizations, regarding gender and cultural safety and the implementation of the Gender and Cultural Safety Plan. The Gender Safety Advisory Committee must include, at a minimum:</p> <p>i. The parties that the Holder will consult with;</p> <p>ii. The development of a Terms of Reference for holding meetings;</p> <p>iii. How indicators identified in paragraph (d) (iv) and information from reporting line identified in paragraph (f) will be reported;</p> <p>iv. How the feedback received through such consultation will inform adaptive management; and</p> <p>v. How any recommendations from the Gender Safety Advisory Committee will be incorporated into trainings for designated Workers, such as senior personnel from the Holder.</p>					
<p>Condition 26.4 - Gender and Cultural Safety Plan</p> <p>The plan and any updates made pursuant to Condition 2 or Condition 3 in the Certificate must be implemented throughout the operations of the Floatel, under the direction of one or more Qualified Person(s) pursuant to subsection 26.1, and to the satisfaction of the EAO.</p>	EAC E15-02 Amendment 3	Gender and Cultural Safety	26.4	The GCSP is kept updated and relevant, under direction by the QP.	The GCSP is currently being updated by the QP to reflect the plans for Floatel #2 and will be implemented to the satisfaction of the EAO.
<p>Condition 27.1 - Worker Health and Wellness</p> <p>The Holder must ensure the following trainings are provided to Workers and incorporated into workplace policies and culture at the Project, to the satisfaction of the EAO:</p> <p>a) Gender and cultural safety training as part of Worker onboarding. This training must include topics that address, at least:</p>	EAC E15-02 Amendment 3	Safety, Health and Wellness	27.1	All trainings noted by condition 27.1 are in place for the Project.	All training noted by condition 27.1 will extend to workers residing on Floatel #2.

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<p>i. The risks for Indigenous women and girls to be disproportionately impacted by industrial camps and how their lived experiences are often different from non-Indigenous peoples and Indigenous men; and</p> <p>ii. Lessons on privilege and discrimination based on gender, class, and ethnicity.</p> <p>b) Violence and sexual harassment/abuse prevention training as part of Worker onboarding, which must include at least:</p> <p>i. Mandatory harassment prevention training provided for all Workers with refresher training at least once per year, and</p> <p>ii. Designated Workers, such as senior personnel from the Holder and Project contractors and subcontractors must undergo additional training sessions, conducted by a Qualified Person(s) with appropriate training in workplace violence and sexual harassment/abuse, to enable the Holder and Project contractors to effectively support Workers who disclose instances of workplace violence and sexual harassment/abuse.</p> <p>c) Addictions awareness training must be provided by the Holder as part of Worker orientation. Workers must be provided reasonable accommodations to access addiction support services on and off shift to ensure continuity of care without the risk of permanent employment loss.</p> <p>d) Designated Workers, such as senior personnel from the Holder, must receive and act upon recommendations from the Gender Safety Advisory Committee.</p>					
<p>Condition 27.2 - Worker Health and Wellness</p> <p>The Holder must ensure the following medical or mental health professionals and services are provided to Workers, to the satisfaction of the EAO:</p> <p>i. The Holder must make all reasonable efforts, or as otherwise authorized by the EAO, to retain a Qualified Professional(s), including but not limited to a Nurse Practitioner, to provide medical services onboard the Floatel, at all hours of the day, to mitigate use of and reliance on non-emergency medical services in the DOS;</p> <p>ii. Medical professionals on the Floatel must be equipped to provide timely access to a qualified mental health support professional;</p> <p>iii. Medical professionals on the Floatel must be trained in sexual health and on-site medical facilities must offer sexual health related resources and options for medical referrals; and</p> <p>iv. The Holder must track the use of, and Worker satisfaction with, the medical and mental health services and facilities offered at the Floatel, with the intent to adapt these facilities to best support Workers' recreational and mental health needs.</p>	EAC E15-02 Amendment 3	Safety, Health and Wellness	27.2	Medical and mental health services noted by condition 27.2 are available to workers on the current Floatel #1.	Medical and mental health services noted by condition 27.2 will be available to workers on Floatel 2. Medical services (e.g. medical clinic/medic) will be on board Floatel #2. Given the proximity to Floatel #1, an assessment is underway to determine what level of medical services will be required on board Floatel #2.
<p>Condition 28.1 - Floatel and Workplace Culture Committee</p> <p>The Holder must implement, to the satisfaction of the EAO, a Floatel and Workplace Culture Committee at the Floatel with designated senior personnel from, at a minimum the Holder, Floatel service provider, site security, and Floatel Indigenous Cultural Manager (if such a position is staffed).</p>	EAC E15-02 Amendment 3	Safety, Health and Wellness	28.1	The Floatel and Workplace Culture Committee is in place, governed by a Terms of References, and includes representatives identified by condition 28.1.	The existing Floatel and Workplace Culture Committee will extend to Floatel #2. Any Floatel Indigenous Cultural Managers residing on Floatel #2 may participate in the committee.
<p>Condition 28.2 - Floatel and Workplace Culture Committee</p> <p>The Floatel and Workplace Culture Committee must develop and implement, at a minimum: a) Development of a Terms of Engagement.</p> <p>b) A mandate that must include, at a minimum:</p> <p>i. To create a safe work environment for all Workers at the Project; and</p> <p>ii. Participating in consequence management and disciplinary actions, as needed, for infractions on Worker conduct.</p> <p>c) A detailed outline of actionable measures to track, review, respond to, and improve upon the work culture and environment to ensure implementation and effectiveness of the committee's mandate.</p> <p>d) Documenting weekly inspections to ensure rules and policies are displayed in communal areas of the Floatel and temporary housing accommodating Workers, including dining areas, exercise facilities and leisure or entertainment areas.</p> <p>e) At least on digital reporting system, in addition to other forms of employee conduct reporting, must be maintained for complaints from Workers, and must fulfill the following criteria:</p> <p>i. A reporting system that allows anonymous sharing of information to protect those who report incidents of assault, harassment, violence or abuse;</p> <p>ii. All Workers must be informed and aware of how the reporting system will work, through documented orientation or training procedures, and what happens when a complaint is made and how Workers can be protected from reprisals; and</p> <p>iii. Submissions through the reporting system must be periodically aggregated into statistics and themes of complaint, including those submitted under means other than the anonymous reporting system, and reported to the Gender Safety Advisory Committee.</p>	EAC E15-02 Amendment 3	Safety, Health and Wellness	28.2	The Floatel and Workplace Culture Committee is governed by a Terms of Reference that reflects this mandate and actions.	The Floatel and Workplace Culture Committee will continue to implement actions identified by condition 28.2, and any other actions that the committee determines are required for Floatel #2.

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Condition	Authorization	Theme	Condition	Status	How condition applies to Floatel #2
<p>Condition 29 - Access and Travel</p> <p>The Holder must implement a restriction of access to the DOS applicable to Workers residing on the Floatel that will not permit marine-based transportation off the Floatel for recreation, entertainment or other non-work-related activities. The Holder must require Workers, who were not residents within the DOS prior to September 20, 2023, to reside at the Floatel. The Holder may grant exceptions for extenuating circumstances, which may include place of residence being in the Sea-to-Sky Corridor, or Indigenous and cultural considerations. The Holder must keep a record of the exceptions with rationale for each exception. The Holder must provide a copy of the record of exceptions to the EAO upon request.</p>	EAC E15-02 Amendment 3	Access, Traffic and Transportation	29	Woodfibre is meeting the requirements of Condition 29.	Floatel #2 will be used to accommodate workers and will be considered company designated housing. The same restrictions to leaving the original Floatel #1 and other requirements of Condition 29 would apply to Floatel #2.
<p>Condition 30.1 - Floatel Air Quality and Noise Monitoring</p> <p>The Holder must retain a Qualified Professional(s) to develop the following monitoring and mitigation plans, in consultation with MOE, MOH, BC Energy Regulator, VCH and Aboriginal Groups:</p> <p>a) Air Quality Monitoring and Mitigation Plan, and</p> <p>b) Noise Monitoring and Mitigation Plan.</p>	EAC E15-02 Amendment 3	Air Quality and Noise	30.1	The Air Quality Monitoring and Monitoring Plan and Noise Monitoring and Mitigation Plan, developed by QPs in consultation with MOE, MOH, BCER, VCH and Aboriginal Groups, are in place for Floatel #1.	The Air Quality and Noise Monitoring plans and all mitigations will extend to Floatel 2. The revised plans will be distributed for consultation with MOE, MOH, BCER, VCH and Aboriginal Groups.
<p>Condition 30.2 - Floatel Air Quality and Noise Monitoring</p> <p>Following the development of the plans, the Holder must provide the plan to the EAO for review a minimum of 30 days prior to the planned Worker occupation of the Floatel and or operations of the Floatel as a temporary Worker accommodation, unless otherwise authorized by the EAO.</p>	EAC E15-02 Amendment 3	Air Quality and Noise	30.2	The noted plans were provided to EAO on March 8, 2024 which was greater than 30 days prior to occupation of the Floatel #1.	The plans will extend to Floatel #2. If changes are required for the plans they will be submitted to EAO for review at least 30 days prior to the planned date for worker occupation and or operations of Floatel #2 unless otherwise authorized by EAO. Noting that requirements could change through the amendment process.
<p>Condition 30.3 - Floatel Air Quality and Noise Monitoring</p> <p>The Air Quality Monitoring and Mitigation Plan must include the following:</p> <p>a) Air quality monitoring and mitigation measures to limit the exposure and associated human health risks that include, at a minimum:</p> <p>i. Methods to monitor Construction air emissions and contaminants of concern for sources modelled in the amendment application and the Human Health Risk Assessment for Off-duty Workers, which include but are not limited to particulate matter and nitrogen dioxide;</p> <p>ii. Procedures for reporting Construction air emission data gathered, including reporting to the MOE, MOH, BC Energy Regulator, VCH, Aboriginal Groups and the public; and</p> <p>iii. An adaptive management plan to address effects of the Project related to air quality from Construction emissions in the event that air quality standards, identified in the Human Health Risk Assessment for Off-duty Workers, are exceeded.</p>	EAC E15-02 Amendment 3	Air Quality and Noise	30.3	The Air Quality Monitoring and Mitigation Plan includes the items identified by condition 30.3.	The plan will extend to Floatel #2. If changes are required for the plans, WLNG will consult on the revised plan with proposed changes and the plans will be shared with Indigenous groups and relevant stakeholders.
<p>Condition 30.4 - Floatel Air Quality and Noise Monitoring</p> <p>The Noise Monitoring and Mitigation Plan must include the following:</p> <p>a) Noise monitoring and mitigation measures to limit the exposure and associated human health risks that include, at a minimum:</p> <p>i. Methods to monitor and assess compliance with Health Canada's sleep disturbance thresholds;</p> <p>ii. Procedures for reporting Construction noise data gathered, including reporting to the MOE, MOH, BC Energy Regulator, VCH, Aboriginal Groups and the public;</p> <p>iii. An adaptive management plan to address effects of the Project related to noise from Construction in the event that Health Canada's sleep disturbance thresholds are exceeded.</p>	EAC E15-02 Amendment 3	Air Quality and Noise	30.4	The Noise Monitoring and Mitigation Plan includes the items identified by condition 30.4.	The plan will extend to Floatel #2. If changes are required for the plan, proposed changes will be shared with Indigenous groups and relevant stakeholders.
<p>Condition 30.5 - Floatel Air Quality and Noise Monitoring</p> <p>The plans, and any updates made pursuant to Condition 2 and Condition 3 of the Certificate, must be implemented throughout the Worker occupation of the Floatel and or operations of the Floatel as a temporary Worker accommodation under the direction of a Qualified Professional(s) retained by the Holder and to the satisfaction of the EAO.</p>	EAC E15-02 Amendment 3	Air Quality and Noise	30.5	The plans are implemented under the direction of a QP and to the satisfaction of the EAO.	The plans are currently being reviewed, and will be updated if necessary, by the QP to reflect the plans for Floatel #2, and will be implemented to the satisfaction of the EAO.

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# **APPENDIX B**

## **List of Organizations**



**WOODFIBRE LNG PROJECT:  
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## APPENDIX B LIST OF ORGANIZATIONS

Community Group	Participants
Community Service and Infrastructure Management Plan (CSIMP) Quarterly Meeting	<p>Squamish Nation Tsleil-Waututh Nation District of Squamish Squamish-Lillooet Regional District (SLRD) Squamish Business Improvement Association Squamish Chamber of Commerce Squamish Fire Department Squamish General Hospital Squamish Housing Association Garibaldi Fire Department Squamish RCMP Squamish Terminals Squamish Tourism School District No. 48 BC Ambulance Community Futures Howe Sound Vancouver Coastal Health PearlSpace (formerly Howe Sound Women's Centre) Rotary Club of Squamish Sea to Sky Community Services Sea to Sky Gondola Squamish Helping Hands (Under One Roof) Westwinds Senior Society BC Marine Logistics Khiew Consulting Squamish Men's Shed Primacorp Ventures (Quest) LandSea Camp Services Fast Property GFL Totem Security Ministry of Transportation and Infrastructure Ministry of Housing Ministry of Energy, Mines and Low Carbon innovations Ministry of Education and Child Care West Vancouver Sea to Sky Constituency Office FortisBC</p>
Joint Cumulative Issues Quarterly Meeting	<p>District of Squamish Squamish Nation PearlSpace (formerly Howe Sound Women's Centre) Squamish RCMP Vancouver Coastal Health Ministry of Transportation and Transit FortisBC</p>

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Community Group	Participants
Marine Users Group (MUG)	<p>Squamish Nation  Tseil-Waututh Nation  Musqueam  District of Squamish  Western Canada Marine Response Corp  Clear Seas  Squamish Search &amp; Rescue (SAR)  BC Coast Pilots  Sea to Sky Gondola  Squamish Tourism  Mercury Transport Inc.  Port Metro Vancouver  Western Canada Marine Response Corp  BC Marine Logistics  BC Coast Pilots  Squamish Terminals  WindSports  Squamish Terminals  Paddleboarding Club  Royal Canadian Marine Search &amp; Rescue (RCMSAR Stn 4 Squamish)  Canadian Coast Guard  Squamish Yacht Club  Squamish Need and Boat Launch Committee  West-Barr Contracting Ltd.  Squamish Harbour Boat Rentals Ltd.  Greenline Ferries  DFO  Ministry of Transportation and Transit</p>
Gender Safety Advisory Committee Members and Observers	<p>Squamish Nation  Tseil-Waututh Nation  PearlSpace (formerly Howe Sound Women's Centre)  District of Squamish  FortisBC  IAAC  BCER  BC EAO</p>

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# **APPENDIX C**

## **Air Quality Memo**

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## **APPENDIX C   AIR QUALITY MEMO**

To: Woodfibre LNG

From: April Hauk  
Stantec, Kamloops, BC

Project/File: 123222939

Date: June 11, 2025

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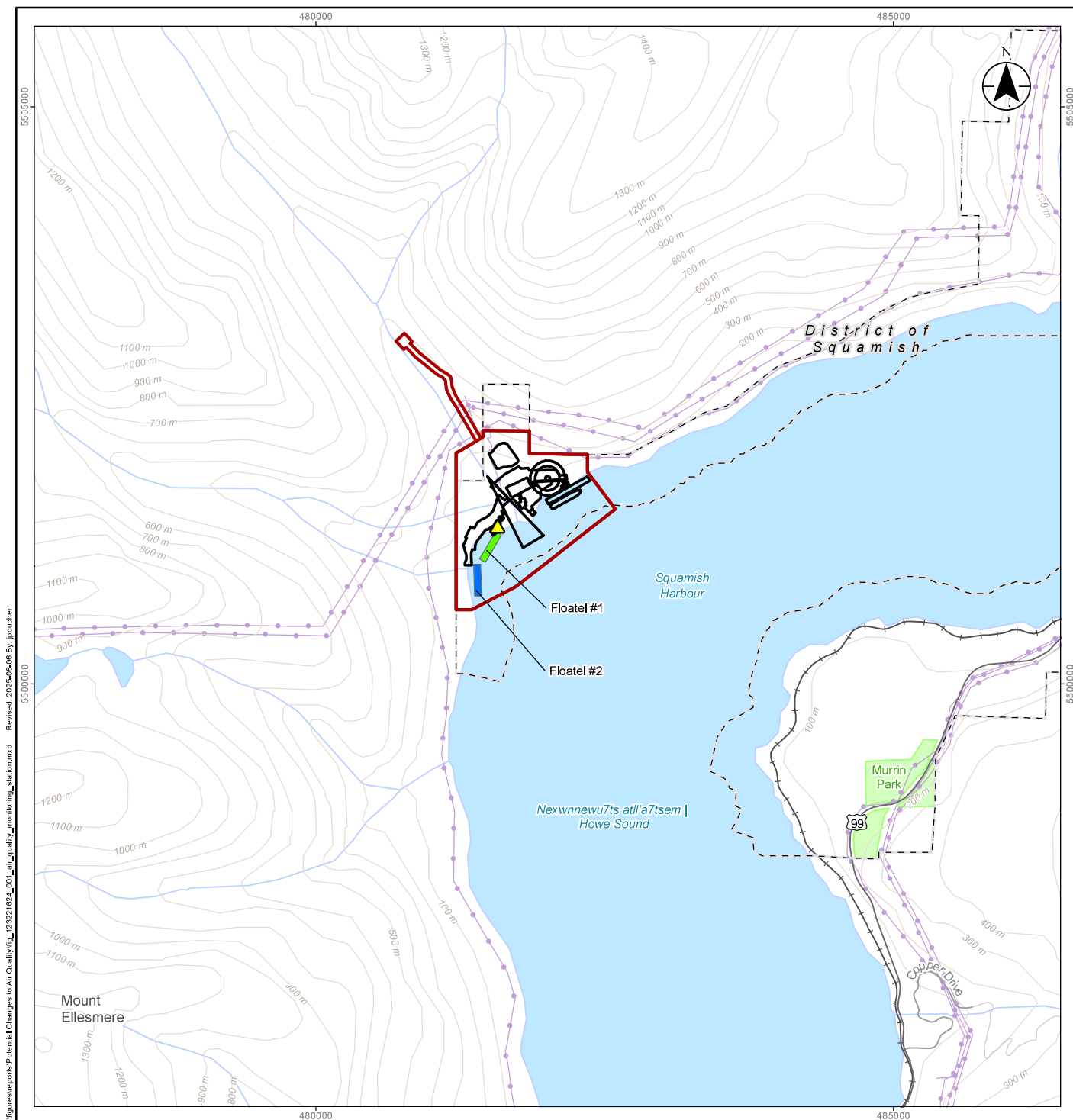
**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2  
Temporary Diesel-fired Power Generators**

## **1 Introduction**

Woodfibre LNG is requesting an Amendment to EAC-#15-02 for installation and operation of a second floating worker accommodation (Floatel #2). The Floatel #2 is proposed to be located within the Certified Project Area (CPA) south of Floatel #1 (Figure 1.1). It is proposed that Floatel #2 would be temporarily moored within the CPA and provide accommodation for approximately 630 workers commencing in December 2025.

Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. In the interim, onboard diesel-fired generators will be used.

The use of diesel-powered generators may result in a change to air quality near Floatel # 1 and Floatel #2, where off-duty workers are housed. With the approval of Floatel #1, Condition 30 of EAC #15-02 required the development of a Floatel Air Quality Monitoring and Management Plan (FAQMMP) (Woodfibre LNG, 2024a). The monitoring is intended to demonstrate compliance with ambient air quality standards and assist Woodfibre LNG in determining whether mitigation during the Project's construction phase is required. The FAQMMP would continue to be implemented during the operation of Floatel #2.



I:\C:\0185-jag01\two\group\1232\project\1232\figures\reports\Potential Changes to Air Quality\fig\_123221624\_001\_aic\_quality\_monitoring\_station.mxd Revised: 2025-06-06 By: poucher



**Notes**  
 1. Coordinate System: NAD 1983 UTM Zone 10N  
 2. Data Sources: DataBC, Government of British Columbia; Natural Resources Canada  
 3. Imagery: ESRI World Imagery

- Highway
- Road
- Local Street
- Railway
- Transmission Line
- Topographic Contour
- Watercourse
- Waterbody
- Provincial Park, Ecological Reserve, or Protected Area
- Municipal Boundary

- ▲ Air Quality Monitoring Station
- ▭ Woodfibre LNG Certified Project Area
- ▭ Project Footprint
- ▭ Existing Floatel #1 Site
- ▭ Preferred Floatel #2 Site



Project Location: Swlyat  
 Project Number: 123221624  
 Prepared by JPOUCHER on 20250606  
 Requested by AAU on 20250422

Client/Project/Report: Woodfibre LNG Limited  
 Woodfibre LNG Project  
 Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators  
 Figure No. 1.1  
 Doc No.

## Floatel #1 and #2 and Air Quality Monitoring Station Locations

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for verifying the accuracy and completeness of the data. The recipient releases Stantec, its officers, employees, consultants and agents, from any and all claims arising in any way from the content or provision of the data.

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

## 2 Construction Emissions

A detailed construction emission inventory was compiled to support the Human Health Risk Assessment (HHRA) (Stantec 2023) for Floatel #1 and Amendment #3 of EAC #15-02. The emissions inventory initially started with equipment identified in the Environmental Assessment (EA) (Woodfibre LNG 2014) and a subsequent screening assessment (Hemmera 2020). These lists were updated by gathering information from a number of sources within Woodfibre LNG and its contractors. A detailed list of construction equipment was assembled based on construction planning information indicating the type and number of operating units (Stantec 2023). The equipment list provided was determined to be consistent with similar projects and activities being carried out elsewhere in British Columbia. In preparation of Amendment #4 (Floatel #2), Woodfibre LNG confirmed that estimates of construction activities established in HHRA for Floatel #1 (Stantec 2023) are still valid, and emissions are unchanged.

The chemicals of potential concern (COPCs) that were considered in the HHRA include:

- sulphur dioxide (SO<sub>2</sub>)
- nitrogen dioxide (NO<sub>2</sub>)
- particulate matter less than 2.5 microns in diameter (PM<sub>2.5</sub>)
- diesel particulate matter (DPM)
- polycyclic aromatic hydrocarbons (PAH)
- particulate matter less than 10 microns in diameter (PM<sub>10</sub>)

A summary of construction emissions is provided in Table 2.1 for construction years 2, 3 and 4.

The first year of construction was not quantified as this was a partial year of construction and the highest emissions were determined to occur in Year 3.



**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

**Table 2.1 Construction Emission Rates for Construction Year 2, 3 and 4**

Construction Year	Annual Construction Emissions (tonnes/year)									
	VOC	CO	NO <sub>x</sub> <sup>a</sup>	EPM <sub>30</sub> <sup>b</sup>	EPM <sub>10</sub> <sup>b</sup>	EPM <sub>2.5</sub> <sup>b</sup>	FPM <sub>30</sub> <sup>c</sup>	FPM <sub>10</sub> <sup>c</sup>	FPM <sub>2.5</sub> <sup>c</sup>	SO <sub>2</sub>
Year 2	0.55	8.5	23	0.61	0.60	0.58	114	31	3.4	3.7
Year 3 (Estimated Peak Construction Activity)	<b>0.59</b>	<b>17</b>	<b>35</b>	<b>0.79</b>	<b>0.76</b>	<b>0.72</b>	<b>85</b>	<b>23</b>	<b>2.6</b>	<b>7.1</b>
Year 4	0.34	9.6	16	0.35	0.34	0.32	37	10	1.1	3.4

Notes:

Table adapted from Stantec 2023.

Estimated peak construction activity was estimated based on information gathered from WLNG and its contractors. Year 3 activities include site-preparation, foundations and earthworks, completion of the material off-loading facility, construction of buildings, offloading of LNG production modules from a heavy load carrier, and the floating storage terminal installation. Further information is in Stantec 2023 report.

<sup>a</sup> NO<sub>x</sub> is oxides of nitrogen

<sup>b</sup> EPM represents PM from equipment combustion exhaust source

<sup>c</sup> FPM represent PM from fugitive sources

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

### 3 Floatel #2 Onboard Diesel-fired Generator Emissions

Woodfibre LNG intends to connect Floatel #2 to shorepower, however, access to the necessary infrastructure may take up to six months. In the interim, onboard diesel-fired generators will be used to provide power to services on Floatel #2. Emissions from the onboard diesel-fired generators are summarized in Table 3.1. There are three generators onboard Floatel #2; however, only two generators will operate at one time. The onboard diesel-fired generators would add 73.2 tonnes NO<sub>x</sub>, 3.0 tonnes SO<sub>2</sub>, 7.7 tonnes CO, 1.2 tonnes PM<sub>2.5</sub>, and 2.9 tonnes VOC in six months of operation.

Emissions are discharged from the ship's main exhaust stack, which is design to promote dispersion of emissions. The main exhaust stack is 42 m from the low-level waterline, well above the ship's deck and air intakes.

**Table 3.1 Floatel #2 Onboard Diesel-fired Generator Emissions**

Source Identification		Wartsila 6R32 <sup>a</sup>
Unit Description		Continuous
Number of units		2 (+1 Standby)
Source Type		Point
Engine Power	kW	1850 (each) <sup>a</sup>
Fuel Type		Diesel
Fuel Gas Consumption Rate	m <sup>3</sup> /d	4.8
Sulphur Content <sup>b</sup>	%	<0.10 <sup>b</sup>
<b>Emission Factors <sup>c</sup></b>		
SO <sub>2</sub>	g/kWh	0.42
NO <sub>x</sub>	g/kWh	10.5
CO	g/kWh	1.10
PM <sub>2.5</sub>	g/kWh	0.17
PM <sub>10</sub>	g/kWh	0.42
VOC	g/kWh	0.17
<b>Emission Rates (Total for two generators) <sup>d</sup></b>		
NO <sub>x</sub>	Tonnes	73.2
SO <sub>2</sub>	Tonnes	3.0
CO	Tonnes	7.7
PM <sub>2.5</sub>	Tonnes	1.2

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

Source Identification		Wartsila 6R32 <sup>a</sup>
PM <sub>10</sub>	Tonnes	1.3
VOC	Tonnes	2.9

Notes:

- <sup>a</sup> Engine specifications provided by Woodfibre LNG
- <sup>b</sup> Sulphur content of 0.1% in marine fuel oil as per MARPOL Annex VI (IMO 2008)
- <sup>c</sup> Emission factors from Ports Emissions Inventory Guidance: Methodologies for Estimating Port-Related and Goods Movement Mobile Source Emissions", EPA-420-B-22-011, April 2022 (US EPA 2022).
- <sup>d</sup> Total emissions are based on combined emissions for two engines operating for 6 months (182.5 days).

## 4 Existing Air Quality

Existing air quality at the proposed location for Floatel #2 can be described by using onsite monitoring data and regional monitoring data from Squamish and Langdale Elementary monitoring stations.

Condition 30 of EAC #15-02 required the development of a Floatel Air Quality Monitoring and Management Plan (FAQMMP) (Woodfibre LNG, 2024a). As such Woodfibre LNG has created and implemented the FAQMMP. Monitoring was initiated July 3, 2024. The monitoring is intended to demonstrate compliance with ambient air quality standards and assists Woodfibre LNG in determining whether mitigation during the Project's construction phase is required. The air quality monitoring station (AQMS) continuously measures PM<sub>2.5</sub>, PM<sub>10</sub>, TSP, and NO<sub>2</sub> concentrations, along with passive sampling and analysis for SO<sub>2</sub> and VOCs. The location of the AQMS is UTM Easting 481,569 m and Northing 5,501,374 m, NAD83 datum, zone 10U (shown in Figure 1.1).

Applicable regulatory criteria stated in the FAQMMP include the 2020 and 2025 Canadian Ambient Air Quality Standards (CAAQS) (Table 4.1) and the BC Ambient Air Quality Objectives (BC AQOs) (Table 4.2).

**Table 4.1 Summary of 2020 and 2025 Canadian Ambient Air Quality Standards for the Contaminants of Potential Concern**

Substance	Averaging Period	Canadian Ambient Air Quality Standards <sup>a</sup>	
		(µg/m <sup>3</sup> ) <sup>b,c</sup>	
		2020	2025
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour <sup>d</sup>	113	79
	Annual <sup>e</sup>	32	23
Sulphur Dioxide (SO <sub>2</sub> )	1-hour <sup>f</sup>	183	170
	Annual <sup>g</sup>	13	10.4
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour <sup>h</sup>	27	— <sup>i</sup>
	Annual <sup>j</sup>	8.8	— <sup>i</sup>

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

Substance	Averaging Period	Canadian Ambient Air Quality Standards <sup>a</sup>	
		(µg/m <sup>3</sup> ) <sup>b,c</sup>	
		2020	2025

Notes:

- <sup>a</sup> Canadian Ambient Air Quality Standards (CCME 2025) for 2020 and 2025.
- <sup>b</sup> µg/m<sup>3</sup> is the mass of the substance in micrograms per cubic meter of air.
- <sup>c</sup> Standard conditions of 25°C and 101.325 kPa are used to convert from ppb<sub>v</sub> to µg/m<sup>3</sup>.
- <sup>d</sup> The 3-year average of the annual 98<sup>th</sup> percentile of the daily maximum 1-hour average concentration.
- <sup>e</sup> The average over a single calendar year of all 1-hour average concentrations.
- <sup>f</sup> The 3-year average of the annual 99<sup>th</sup> percentile of the daily maximum 1-hour average concentrations.
- <sup>g</sup> The average over a single calendar year of all 1-hour average concentrations.
- <sup>h</sup> The 3-year average of the annual 98<sup>th</sup> percentile of the daily 24-hour average concentrations.
- <sup>i</sup> Currently under review by the CCME
- <sup>j</sup> The 3-year average of the annual average of the daily 24-hour average concentrations.

**Table 4.2 British Columbia Ambient Air Quality Objectives**

Substance	Averaging Period	Air Quality Objective <sup>a</sup>
		µg/m <sup>3</sup> <sup>b,c</sup>
Nitrogen Dioxide (NO <sub>2</sub> )	1-hour <sup>d</sup>	113
	Annual <sup>e</sup>	32
Sulphur Dioxide (SO <sub>2</sub> )	1-hour <sup>f</sup>	183
	Annual <sup>g</sup>	13
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour <sup>h</sup>	25
	Annual <sup>i</sup>	8.0
Coarse Particulate Matter (PM <sub>10</sub> )	24-hour	50
Total Suspended Particulate (TSP)	24-hour	120
	Annual <sup>j</sup>	60

Notes:

- <sup>a</sup> British Columbia Air Quality Objectives (BC Ministry of Environment and Parks (ENVP) 2021).
- <sup>b</sup> µg/m<sup>3</sup> is the mass of the substance in micrograms per cubic meter of air.
- <sup>c</sup> Standard conditions of 25°C and 101.325 kPa are used to convert from ppb<sub>v</sub> to µg/m<sup>3</sup>
- <sup>d</sup> Achievement based on annual 98<sup>th</sup> percentile of daily 1-hour average maximum (D1HM), averaged over three consecutive years.
- <sup>e</sup> Achievement based on annual average of 1-hour average concentrations over one year.
- <sup>f</sup> Achievement based on annual 99<sup>th</sup> percentile of daily 1-hour average maximum (D1HM), averaged over three consecutive years.
- <sup>g</sup> Achievement based on annual average of 1-hour concentrations over one year.
- <sup>h</sup> Achievement based on annual 98<sup>th</sup> percentile of daily average, averaged over one year.
- <sup>i</sup> Achievement based on annual average, averaged over one year.
- <sup>j</sup> Based on geometric mean.

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

A summary of concentrations measured onsite at the Woodfibre LNG AQMS are presented in Table 4.3. Over the nine months of air quality monitoring at the Woodfibre LNG site concentrations of measured parameters were below the applicable regulatory criteria most of the time (Table 4.1 and Table 4.2). Elevated concentrations of PM<sub>2.5</sub>, PM<sub>10</sub>, and TSP were greater than the applicable regulatory criteria for three months (i.e., August 2024, October 2024, February 2025). These elevated concentrations are likely attributable to construction activities onsite. Concentrations of NO<sub>2</sub>, and SO<sub>2</sub> have been below the applicable regulatory criteria during the nine months of monitoring. Woodfibre LNG has received no complaints from residents of Floatel #1 regarding air quality.

Regional air quality measured at Squamish and Langdale Elementary monitoring stations is summarized in Table 4.4. Regional air quality is generally good, with concentrations below the applicable regulatory criteria (Table 4.1 and Table 4.2).

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

**Table 4.3 Summary Ambient Concentrations at Woodfibre LNG Air Quality Monitoring Station**

Air Contaminant	Units	Monthly Maximum								
		July 2024	August 2024	September 2024	October 2024	November 2024	December 2024	January 2025	February 2025	March 2025
PM <sub>2.5</sub> (24-hour average)	µg/m <sup>3</sup>	9.3	<b>25.8</b>	20	17	17	11	10.4	9.5	7.3
PM <sub>10</sub> (24-hour average)	µg/m <sup>3</sup>	23.2	31.8	35	<b>72</b>	47	29	34.2	<b>53.0</b>	16.3
TSP (24-hour average) <sup>a</sup>	µg/m <sup>3</sup>	33.8	34.8	92	<b>134</b>	105	80	106.3	48.5	27.8
NO <sub>2</sub> (1-hour average)	ppb	22.1	25.4	20.5	21.3	20.6	40.2	27.4	19.5	34.6
NO <sub>2</sub> (24-hour average)	ppb	12.2	12.9	10.0	8.0	9.0	14.4	10.2	19.5	12.7
SO <sub>2</sub>	ppb	N/A	N/A	0.2 <sup>a</sup>		<0.2 <sup>b, c</sup>	<0.2 <sup>c</sup>	0.2	<0.2 <sup>c</sup>	<0.2 <sup>a</sup>
VOC as Hexane		N/A	N/A	0.8 <sup>a</sup>		<0.7 <sup>b, c</sup>	4.3	8.6	<0.7 <sup>c</sup>	<0.7 <sup>a</sup>

Notes:

Table adapted from Woodfibre monthly reports (Woodfibre LNG, 2024b, 2024c 2025a, 2025b, 2025c, 2025d, 2025e, 2025f)

**Bold** values are greater than the applicable regulatory criteria

<sup>a</sup> Passive monitors were deployed September 1, 2024 to November 7, 2024

<sup>b</sup> Passive monitors were deployed November 7, 2024 to December 2, 2024

<sup>c</sup> Concentrations below the Reported Detection Limit (RDL) are indicated with a '<' symbol

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

**Table 4.4 Regional Air Quality Summary from Squamish and Langdale Monitoring Stations**

Air Contaminant	Units	Monthly Maximum								
		July 2024	August 2024	September 2024	October 2024	November 2024	December 2024	January 2025	February 2025	March 2025
Squamish Elementary Monitoring Station										
PM <sub>2.5</sub> (24-hour average)	µg/m³	11.2	19.3	21.0	8.1	7.9	6.2	9.4	7.4	6.2
NO <sub>2</sub> (1-hour average)	ppb	13.8	19.4	19.3	15.6	13.9	16.6	25.6	27.3	19.0
NO <sub>2</sub> (24-hour average)	ppb	6.8	8.5	9.1	5.8	7.7	6.9	11.9	12.0	8.6
Langdale Elementary Monitoring Station										
PM <sub>2.5</sub> (24-hour average)	µg/m³	11.2	20.5	14.5	7.2	12.0	5.8	8.7	20.7	5.4
PM <sub>10</sub> (24-hour average)	µg/m³	19.4	27.3	21.4	17.2	17.7	12.8	13.0	25.8	11.1
NO <sub>2</sub> (1-hour average)	ppb	22.5	29.3	21.8	17.6	19.4	14.9	19.3	21.0	15.2
NO <sub>2</sub> (24-hour average)	ppb	6.6	8.2	7.0	6.6	7.4	7.3	12.0	6.6	6.5

**Notes:**

July and August 2024 data is obtained from BC ENVP Envista BC Air Data Archive (2025)

September 2024 to March 2025 data is obtain from Woodfibre monthly reports (Woodfibre LNG, 2024b, 2024c, 2025b, 2025c, 2025d, 2025e, 2025f)

**Bold** values are greater than the applicable regulatory criteria

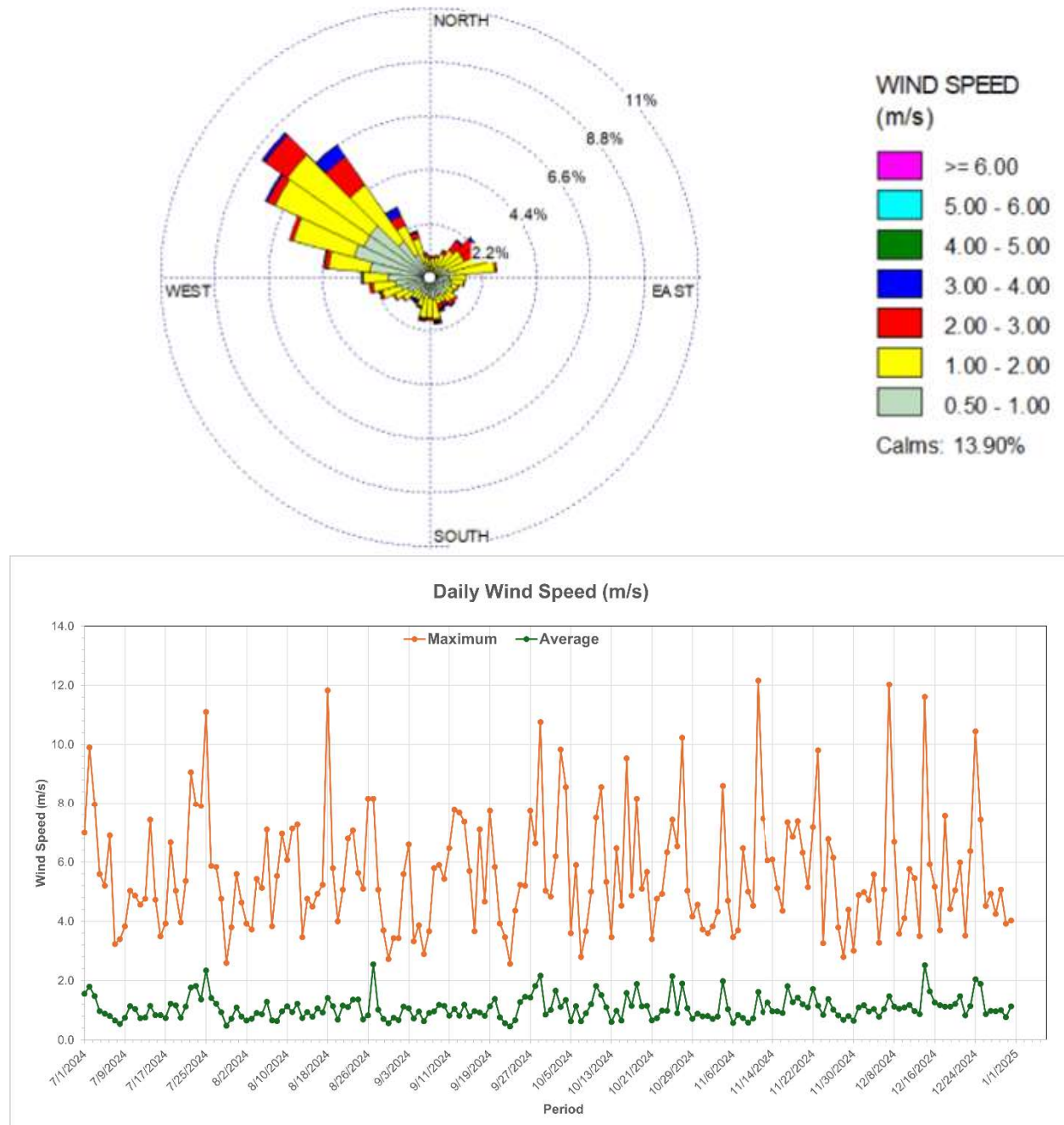


**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

## **5 Existing Wind Conditions**

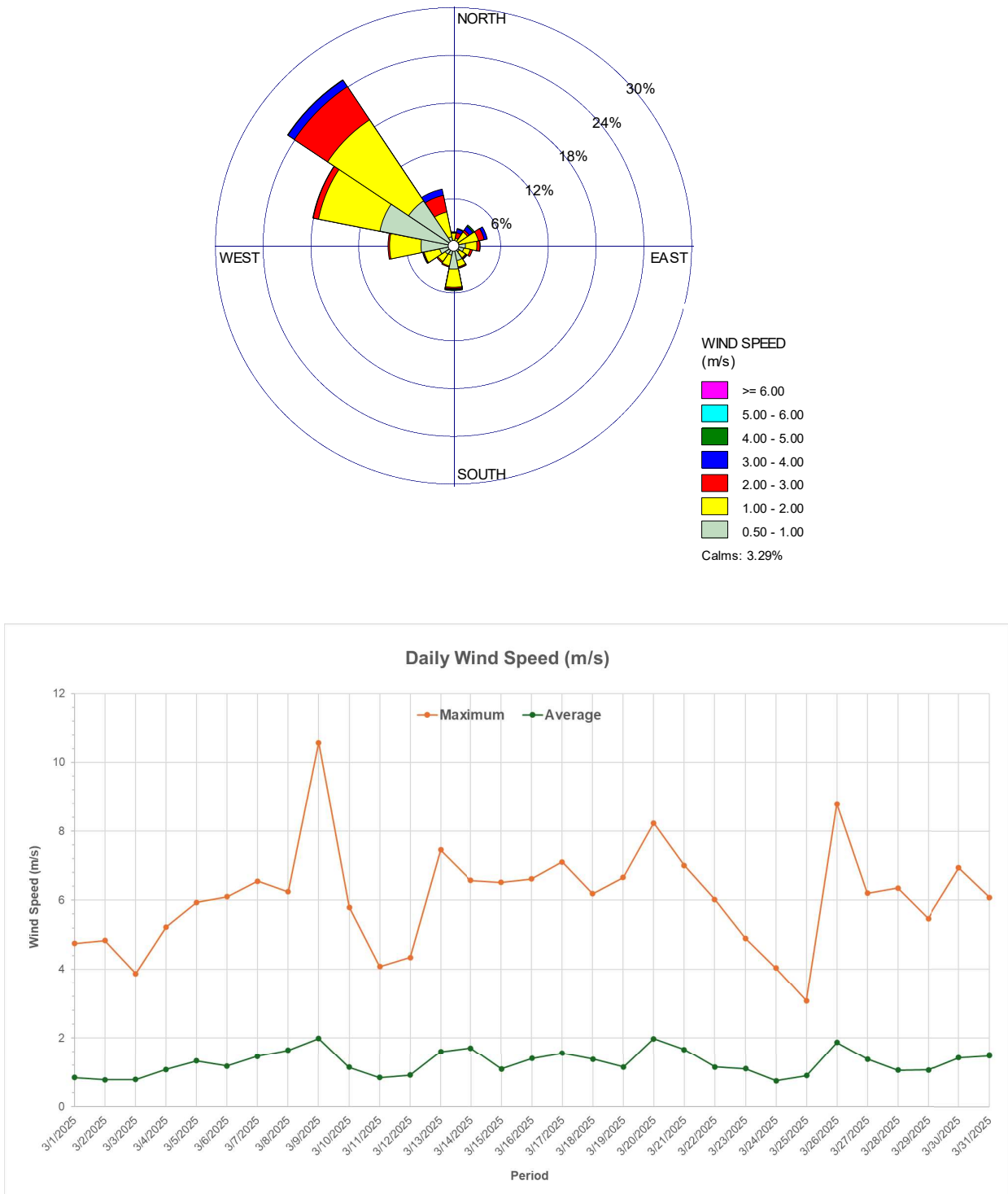
Measurement of wind speed and direction is undertaken at the onsite meteorological station co-located with the AQMS. The dominant wind direction is from the northwest with average wind speed of between approximately 1.0 to 2.0 m/s which is consistent with down slope flows from the mountainous terrain near the Project site. Figure 5.1 and Figure 5.2 show the wind rose and wind speed from onsite measurements for July 1 to December 31, 2024 and January 1, 2025 to March 31, 2025.

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**



**Figure 5.1 July 1 to December 31, 2024 Wind Rose and Daily Wind Speeds from Onsite Meteorological Station (Woodfibre LNG 2025a)**

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**



**Figure 5.2 January 1 to March 31, 2025 Wind Rose and Daily Wind Speeds from Onsite Meteorological Station (Woodfibre LNG 2025f)**

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

## **6 Summary**

Woodfibre LNG is requesting an amendment to EAC-#15-02 for installation and operation of a second floating worker accommodation (Floatel #2). Floatel #2 is proposed to be located within the Certified Project Area (CPA) south of Floatel #1. Woodfibre LNG intends to connect Floatel #2 to shorepower and BC Hydro advises that the amount of power will be sufficient. Engineering design and procurement of long lead items (due to the specialized nature of the equipment) has begun. However, it is likely that the shorepower connection will occur after Floatel #2 is operational. The amendment assessment conservatively considers it will take up to 6 months for connection to shorepower. In the interim, onboard diesel-fired generators will be used.

The onboard diesel-fired generators adds 73.2 tonnes NO<sub>x</sub>, 3.0 tonnes SO<sub>2</sub>, 7.7 tonnes CO, 1.2 tonnes PM<sub>2.5</sub>, and 2.9 tonnes VOC in six months of operation. Emissions are discharged from the ship's main exhaust stack, which is design to promote dispersion of emissions, well above the ship's deck and air intakes. Wind speed and direction data collected onsite show that most of the time wind is flowing from the northwest moving emissions away from the Floatel #1 and Floatel #2.

The use of diesel-powered generators may result in a change to air quality near Floatel # 1 and Floatel #2, where off-duty workers reside. As the timeframes for generated power are expected to be short term, related effects on air quality near Floatel #1 and Floatel #2 are expected to be equally short term. During the use of Floatel #2, air quality monitoring onsite will continue following the requirements of the FAQMMP (Woodfibre LNG, 2024a). The monitoring is intended to demonstrate compliance with ambient air quality standards and assists Woodfibre LNG in determining whether mitigation during the Project's construction phase is required. The data is reviewed regularly and mitigations from the FAQMMP will be implemented as necessary.


**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

## 7 Closure

This memorandum entitled Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators was prepared by Stantec Consulting Ltd. ("Stantec") for the account of Woodfibre LNG General Partner Inc. (the "Client") to support Amendment #4 to EAC-#15-02, for the Woodfibre LNG Project (the "Project"). In connection therewith, this document may be reviewed and used by the British Columbia Environmental Assessment Office (BC EAO) participating in the review process in the normal course of its duties. Except as set forth in the previous sentence, any reliance on this document by any other party or use of it for any other purpose is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The information and conclusions in the document are based on the conditions existing at the time the document was published and does not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by the Client or others, unless expressly stated otherwise in the document. Any use which another party makes of this document is the responsibility and risk of such party. Such party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other party as a result of decisions made or actions taken based on this document.

Regards,

**Stantec Consulting Ltd.**

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**April Hauk** B.Sc., EP  
Associate – Air Quality  
Phone: (250) 852-5921  
Mobile: (250) 261-3849  
april.hauk@stantec.com

**Reference: Potential Changes to Air Quality near the Floatels with the Addition of Floatel #2 Temporary Diesel-fired Power Generators**

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