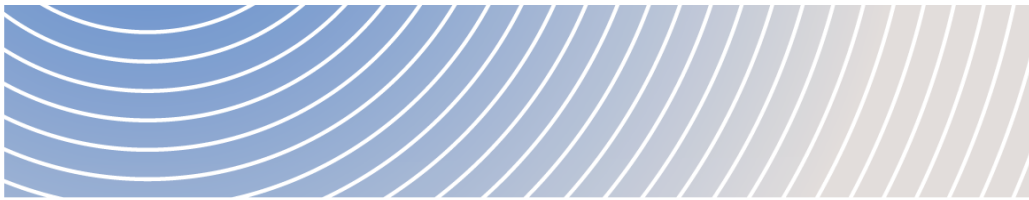




Impact Assessment  
Agency of Canada

Agence d'évaluation  
d'impact du Canada

# Analysis of Proposed Changes: Woodfibre LNG Project



FINAL REPORT

November 2023



Canada 



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# 1. Introduction

Woodfibre LNG Limited Partnership (the proponent) proposed the development and operation of the Woodfibre LNG Project (the Project), a liquefied natural gas (LNG) production facility with marine storage and an off-loading facility located at the ancestral Skwxwú7mesh Úxwumixw (Squamish Nation) village site of swíyát, which is also the former Woodfibre pulp and paper mill site on the west side of Howe Sound, approximately seven kilometres (km) west-southwest of Squamish, British Columbia (B.C.). The Project began construction in late 2022.

The Project was subject to an environmental assessment under the *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and B.C.'s *Environmental Assessment Act*. The federal environmental assessment was conducted by means of substitution in accordance with the *Memorandum of Understanding between the Canadian Environmental Assessment Agency and the British Columbia Environmental Assessment Office (EAO) on Substitution of Environmental Assessments (2013)*. On October 26, 2015, B.C. issued an Environmental Assessment Certificate, accompanied by a Certified Project Description and provincial conditions. The former Minister of Environment and Climate Change issued a federal Decision Statement under CEAA 2012 for the Project on March 18, 2016. The Decision Statement contained legally binding conditions, including two conditions pertaining to requirements in the event of any changes to the Project.

Separately, the proponent and Squamish Nation entered into an agreement to conduct an independent environmental assessment. Squamish Nation issued an Environmental Assessment Certificate to the proponent on October 14, 2015, allowing the Project to proceed in accordance with a set of conditions established by Squamish Nation. The conditions in the Squamish Nation Environmental Certificate are legally binding and operationalized through a Squamish Nation Environmental Assessment Agreement (SNEAA).

Following completion of the federal environmental assessment, there have been two changes to the Decision Statement. The Decision Statement was first amended on March 7, 2018 to accommodate a Project change (cooling technology changed from seawater to air-cooling). The Decision Statement was amended again on August 4, 2023 to address feasibility issues in the implementation of condition 3.8 3.8 (establish a separate exclusion zone for pinnipeds) and clarify the requirements included in condition 6.4 (water quality monitoring).

On August 6, 2019, the proponent informed the Canadian Environmental Assessment Agency (the Agency) of a proposed Project change involving the addition of a temporary floating worker accommodation facility (the floatel) to support the construction phase of the Project. As required by the Decision Statement, the proponent provided information to the Agency about the proposed changes and potential effects in a report dated October 2019 and subsequent memos dated September 12, 2022, January 24, 2023 and April 3, 2023.

B.C.'s Environmental Assessment Office (EAO) carried out its own amendment process for the changes as they relate to the provincial Environmental Assessment Certificate under B.C.'s *Environmental Assessment Act* for the Project. The EAO convened a Technical Advisory Committee (TAC) to assist with its review. The TAC included representatives from Squamish Nation, Tsleil-Waututh Nation, provincial ministries, federal departments, and local and regional governments.

Squamish Nation determined that the floatel was a material change to the approved project description and would require an amendment to the SNEAA. Squamish Nation, the EAO and the Impact Assessment Agency of Canada (the Agency) cooperated on their respective regulatory processes under the *Memorandum of Understanding Between Squamish Nation and Environmental Assessment Office and Impact Assessment Agency of Canada*. Squamish Nation coordinated with the EAO and the Agency to determine which conditions in each party's certificates or Decision Statement required potential updates and where additional mitigation measures were best placed.

The Agency conducted an analysis of the proposed project changes and the potential adverse environmental effects of those changes within areas of federal jurisdiction, and considered comments from federal and provincial governments, and Indigenous groups to assess:

- whether the changes constitute a new or different designated project that may require a new impact assessment; and
- whether any changes (including addition or removal) are required to the key mitigation measures and follow-up requirements included as conditions, and the project description included in the Decision Statement.

This report provides a summary of the proposed project changes, and an analysis of whether these changes may result in adverse environmental effects that may not have been considered in the original environmental assessment. The report also considers whether existing key mitigation measures and follow-up requirements included as conditions in the Decision Statement are still applicable, need to be modified and/or are no longer required, or whether new mitigation measures or follow-up requirements should be added as conditions to the Decision Statement.

## 2. Proposed Project Design Changes

The proponent is proposing the addition of a temporary floating worker accommodation facility (the floatel) within the project area to support the construction phase of the Project (Figure 1). The Project changes include operation of the floatel, installation of associated mooring infrastructure for the floatel, and onshore drinking water treatment. The change would be entirely contained within the Certified Project Area defined by the original environmental assessment.

Worker accommodation for the Project was not considered in the original environmental assessment and the Project relied on market housing availability. Detailed planning in 2019 indicated that housing affordability and availability had changed and that Squamish and the surrounding areas could no longer support an influx of workers. Community feedback in the post-environmental assessment stage also indicated the need for additional accommodation.

### Temporary Floating Worker Accommodation Facility

The floatel would be approximately 180 metres long, 65 metres wide and provide accommodation for 600 workers during their shifts. Workers would commute to and from the Project site by passenger vessels from the Lower Mainland every week (the proponent is currently proposing three trips per week). The floatel would be in operation during the construction phase of the Project. The self-contained facility would be equipped with its own kitchen, recreational area, sewage collection and holding tanks, garbage collection,

and a loading dock. Power would be provided from BC Hydro via an existing connection at the Woodfibre site, with contingency backup power from onboard diesel generators.

The floatel would require mooring infrastructure including on-shore bollards and four in-water breasting dolphins with associated piles. The floatel would not discharge sewage to Howe Sound; all wastes would be collected by a contractor using barges.

#### Drinking Water Supply

The Project changes would include a water intake on Woodfibre Creek in the area of an existing cleared trail and may include a modular water treatment plant (approximately 6m container). Water would be withdrawn at a rate of approximately 0.005 cubic metres per second (m<sup>3</sup>/s). Water withdrawal from Woodfibre Creek was considered as part of the first project change regarding cooling processes, and the maximum withdrawal of 0.07 m<sup>3</sup>/s of water from Woodfibre Creek would be sufficient to meet the demand for the floatel. Extracted water would be treated in a shore-based, modular water treatment plant located on the south bank of Woodfibre Creek. Water treatment processes, including filtration and chlorination, would be in accordance with standards for drinking water supply.

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## 2.1 Agency's Analysis of Changes

The *Physical Activities Regulations* under the IAA identify the physical activities that constitute designated projects that may require an impact assessment. On their own, the proposed Project changes do not include any physical activities described in the Regulations. Consequently, the Agency is of the view that the changes do not constitute a new or different designated project that may require a new impact assessment.

# 3. Potential Adverse Environmental Effects from Proposed Project Changes

The following is an analysis of whether using the floatel would require modification, addition or removal, to the mitigation measures and follow-up requirements included as conditions in the Decision Statement to avoid environmental effects. The analysis focused on potential adverse environmental effects in areas of federal jurisdiction, including any potential effects on species at risk listed in Schedule 1 of the *Species at Risk Act* (SARA).

The analysis also considers whether the changes may have an adverse impact on the rights of Indigenous peoples in Canada recognized and affirmed by section 35 of the *Constitution Act, 1982*.

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## 3.1 Fish and Fish Habitat

Effects to fish and fish habitat were assessed during the original environmental assessment of the Project and mitigation measures and follow-up program requirements were developed. The Decision Statement includes conditions related to fish habitat.

### 3.1.1 Proponent's Assessment

The proponent indicated that installation of floatel mooring infrastructure may affect marine fish and mammals from direct loss of marine habitat, loss of benthic habitat from shading of the seafloor, and changes to fish and marine mammal behaviour from underwater noise. In addition, installation of the water intake at Woodfibre Creek may affect freshwater fish.

Since the assessment, the proponent has contracted a floatel provider and finalized the design of mooring infrastructure. The original proposal indicated a direct loss of approximately 19m<sup>2</sup> of benthic habitat impact. The floatel mooring infrastructure is now assessed to result in a direct loss of approximately 22m<sup>2</sup> of marine benthic habitat. The proponent noted that direct loss of fish habitat for the project, including the floatel, would be offset in accordance with a *Fisheries Act* authorization.

The proponent described that the floatel would shade subtidal vegetation underneath the floatel which would result in approximately 0.4 ha of habitat loss. The proponent indicated that the subtidal area beneath the floatel is largely absent of marine vegetation and that there are no high-density areas of eelgrass, kelp bed, or other habitat features. However, hard substrates and rockweed within the intertidal and subtidal areas may serve as spawning habitat for Pacific herring.

The proponent indicated that installation of piles and vessel operation (passenger or service ferries bringing people or goods to the floatel) are expected to produce noise at sufficient levels to affect behavior of fish and marine mammals. In particular, the proponent expects impact pile driving (if required) and floatel operations would exceed behavior response thresholds for marine mammals. The proponent described these impacts as localized and transient. The mitigation measures identified in the original environmental assessment, such as bubble curtains to create a noise barrier, would remain applicable to the floatel.

The only potential interaction of the floatel with freshwater fish is from installation of a water intake at Woodfibre Creek. Some removal of riparian vegetation may be required but the area is already sufficiently cleared. The proponent noted that mitigation measures identified in the original environmental assessment, including limiting vegetation clearing and installing fish screens at the water intake, would remain applicable. Water withdrawal from Woodfibre Creek was assessed as part of a previous project change and no additional assessment is required as part of this change.

The proponent concluded that the floatel is not anticipated to cause any residual or additional effects on fish and fish habitat beyond those predicted by the original environmental assessment. Thus, the conclusions of the original environmental assessment with respect to fish and fish habitat are considered unchanged.

### 3.1.2 Views Expressed

Fisheries and Oceans Canada (DFO) reviewed the proponent's information and stated that based on the information provided, they do not anticipate any required changes to conditions in the Decision Statement

related to mitigation measures or follow-up requirements for fish and fish habitat. DFO did not provide any additional comments.

Environment and Climate Change Canada (ECCC) expressed concerns regarding the proponent's proposal to install an on-shore water treatment system. Given the water treatment system would likely need to store chemicals for disinfection (i.e. chlorine) onsite, ECCC noted that potable water with residual chlorine will likely be a deleterious substance under the *Fisheries Act*. The proponent responded with a commitment to ensure the shore-based water treatment system is self-contained, secured, and located in an existing cleared area near the floatel walkway landing area. The proponent stated that it is committed to ensuring any storage of chlorine or other chemicals will be in accordance with applicable Safety Data Sheets and will meet the requirements of the Workplace Hazardous Materials Information System for B.C.

Tsleil-Waututh Nation raised concerns about the potential effects of underwater noise and vibrations from the floatel and related marine traffic on aquatic organisms including fish. In addition, Tsleil-Waututh Nation noted that marine fish, herring in particular, are sensitive to artificial lighting and requested further information on the potential impacts of the floatel's lighting on the marine environment during nighttime conditions. The proponent responded that noise emissions associated with equipment operation, and its transmission through the floatel deck, floors, and hull into the marine environment is expected to be negligible. The proponent does not anticipate that thresholds for behavioural disturbance or hearing injury on marine fish and marine mammals would be exceeded due to the negligible contribution of underwater noise from vessel-based equipment to existing conditions. However, the proponent responded that it will mitigate effects of the Project on the marine environment as required by existing federal and provincial conditions through the development and implementation of a Marine Mammal Management and Monitoring Plan and a Construction Environmental Management Plan.

The EAO held a public comment period on the amendment application between November 12 and December 15, 2019. Comments received focused on potential effects of the floatel on forage fish, particularly on spawning habitat for Pacific herring. Concerns were also raised regarding potential environmental hazards to salmon populations and other feed fish such as anchovy. In response, the proponent explained the proposed floatel would result in minor to negligible residual effects to forage fish with the implementation of the Environmental Management Plans and specific mitigation measures detailed in the original environmental assessment.

### 3.1.3 Agency's Analysis and Conclusions

Taking into account the advice from DFO and the resolution of concerns from ECCC and Tsleil-Waututh, the Agency is of the opinion that the floatel would not result in any change to adverse environmental effects to fish and fish habitat beyond those assessed during the environmental assessment. The Agency is confident that the key mitigation measures from the original environmental assessment, such as fish habitat offsetting, installation of bubble curtains during construction and noise thresholds to limit effects to marine mammals, would apply to the use of the floatel as well. In addition, the change would be entirely contained within the Certified Project Area defined by the original environmental assessment. Existing key mitigation measures and follow-up requirements will address any effects resulting from the proposed changes. The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.



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## 3.2 Migratory birds

Effects on migratory birds were assessed during the original environmental assessment of the Project, and mitigation measures and follow-up requirements were developed. The Decision Statement includes conditions related to migratory birds.

Subsection 79(2) of the *Species at Risk Act* 2002 (SARA) requires the identification of the Project's adverse effects to SARA-listed wildlife species and their critical habitat. If the Project is carried out, SARA requires that measures be taken to avoid or lessen those effects and that such effects be monitored.

### 3.2.1 Proponent's Assessment

The proponent indicated that the floatel has the potential to result in effects to marine birds (which includes migratory birds) from loss of habitat and changes in behavior due to sensory disturbance. The proponent indicated that the potential effects to avifauna more generally would be "close to nil" and did not conduct a specific assessment other than to note that there would not be any additional clearing and mitigation measures identified in the original environmental assessment would apply.

The proponent conducted an additional survey to assess the effects of direct habitat loss from the proposed floatel on migratory birds and indicated that no marine bird habitat loss is anticipated. The proponent also stated that mitigation measures related to the loss of marine bird habitat would remain applicable.

The proponent provided some additional information as part of discussions with ECCC regarding marbled murrelet, a SARA-listed migratory bird. The proponent acknowledged that there could be overlap between an existing cleared access trail and marbled murrelet critical habitat polygons, but that activities would be limited to brushing and no tree clearing would occur. The proponent confirmed it will conduct marbled murrelet pre-construction surveys and summarize findings in the Construction Wildlife Management and Monitoring Plan and to complete brushing activities outside of nesting season to the extent possible.

With regard to sensory disturbance to migratory birds, the proponent anticipated the increase in noise and light disturbance from floatel construction and operation to be temporary and of low intensity. The proponent concluded that the conclusions of the original environmental assessment would remain unchanged.

### 3.2.2 Views Expressed

ECCC shared concerns regarding potential effects to migratory birds from loss of habitat and changes in behavior due to sensory disturbance (light and noise). ECCC stated that, with the installation of the floatel, there is the possible risk of birds becoming disoriented while circling a light source, which may deplete their energy reserves, resulting in either death due to exhaustion or dropping to the ground or vessel deck where they are at risk of predation. ECCC also pointed out likely impacts to local marbled murrelet populations, owing to sensory disturbance from the water treatment container during the operation phase. ECCC recommended the proposed monitoring to include monitoring for bird mortality/stranding. In response, the proponent confirmed that the Wildlife Management and Monitoring Plan for the construction phase of the

Project will include appropriate mitigation and monitoring measures aimed at limiting or avoiding the effects of lighting on birds and committed to reviewing guidance and best practices with respect to controlling operational lighting to limit potential effects. Further, the proponent committed to ensuring a designated Environmental Monitor is responsible for monitoring wildlife mortality events, including events related to birds.

ECCC also provided comments about potential impacts to marbled murrelet critical habitat. Key recommendations put forward by ECCC include:

- The proponent should take into account recent guidance in the design of marbled murrelet suitable nesting habitat: 'Guidance and Tools to Support the Identification of Potential Marbled Murrelet Suitable Nesting Habitat (Manning et al. 2018)'.
- Surveys should be conducted throughout forested footprint areas and not restricted to critical habitat polygons. Any habitat meeting the biophysical attributes of habitat has potential to support the species and should be considered in the assessment.
- If suitable nesting habitat cannot be avoided, compensation for the loss of suitable nesting habitat may be recommended through further consultation.

The proponent is also required to avoid clearing during primary nesting season to the extent feasible and following guidelines for restricted activity periods to protect nesting birds and to comply with the federal *Migratory Birds Convention Act* and the provincial *Wildlife Act*. Where clearing is required during the nesting season, pre-clearing surveys for nesting birds would be undertaken and appropriate species-specific setbacks will be established and maintained around any confirmed or suspected active nests to reduce potential mortality or disturbance.

### 3.2.3 Agency's Analysis and Conclusions

Taking into account the comments from ECCC and the project redesign, the Agency is of the opinion that the floatel would not result in any change to adverse environmental effects to migratory birds beyond those assessed during the environmental assessment. In particular, the Agency notes that the key recommendations put forward by ECCC were considered as part of the original environmental assessment and have been addressed, to the extent possible, through the existing conditions in the Decision Statement. These include taking into account ECCC's *Avoidance Guidelines* and developing a follow-up program to determine the effectiveness of mitigation measures. The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## 3.3 Greenhouse Gas Emissions

The Project's contribution to greenhouse gas (GHG) emissions was assessed during the original environmental assessment of the Project and mitigation measures were developed. The Decision Statement includes conditions in relation to GHG emissions.

### 3.3.1 Proponent's Assessment

The proponent does not expect changes to Project-related GHG emissions due to the floatel. The proponent indicated that electricity used in the floatel would be supplied by the BC Hydro grid. Backup diesel generators would be used to provide electrical power only in the event of a BC Hydro power failure. Since backup generators on the floatel would be used infrequently and for short durations, the proponent expected the contribution to GHG emissions to be negligible.

Additionally, the proponent noted that the floatel would reduce GHG emissions from a reduction in daily vehicle traffic and ferry traffic. Personnel would be transported to the floatel by ferry from the Lower Mainland and the proponent is proposing a schedule of three trips per week. The original environmental assessment contemplated workers commuting from homes in Squamish and Metro Vancouver and along the Sea to Sky Highway to the ferry at Darrel Bay. Workers would have been ferried across Howe Sound to and from the Project site and Darrel Bay for each shift. The original environmental assessment considered 400 to 800 additional vehicles per day during peak construction along the Sea to Sky Highway.

### 3.3.2 Views Expressed

Federal and provincial experts did not raise concerns related to GHG emissions from the project change. The EAO did not receive public comments focused on GHG emissions in relation to the floatel. However, members of the public expressed concerns concerning increased GHG emissions from the transportation (fly-in/fly-out) of temporary workers to and from the site. Several commenters were of the view that the cumulative impacts of increased emissions from both the floatel and associated worker transportation should be quantified.

### 3.3.3 Agency's Analysis and Conclusions

Given that the floatel would use electricity supplied by the BC Hydro grid, the Agency is of the opinion that the floatel would not result in any adverse change to GHG emissions. The Agency acknowledges that certain aspects were not quantified, including the transportation of temporary workers to Squamish for work, and the removal of commuter vehicles from the roads. However, these activities may balance each other out in the sense that transportation of temporary workers would increase emissions but removing daily commutes from staff would decrease emissions.

The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## 3.4 Human Health

The effect of environmental changes on health with respect to Indigenous groups was assessed during the original environmental assessment, and mitigation measures and follow-up program requirements were developed. The Decision Statement issued for the Project included conditions in relation to human health of Indigenous people.

### 3.4.1 Proponent's Assessment

The proponent anticipated floatel operation and pumps at the potential water treatment plant at Woodfibre Creek have the potential to contribute to construction atmospheric sound levels. Activities at the floatel, such as washing machines and kitchen activities, are expected to contribute less than three A-weighted decibels (dBA) to the overall ambient sound during the construction phase. The original environmental assessment indicated that sound levels at the floatel location would be approximately 60 to 65 dBA (daytime) and 55 to 60 dBA (nighttime). The electrically powered pumps for water treatment equipment would generate less than two dBA increase in ambient sound. Humans typically can only perceive changes in excess of three dBA. The proponent indicated that because sound level changes are not perceptible, the effect at receptors surrounding the Project site is also not perceptible.

The proponent indicated that the floatel would be the only component of the Project change that would be temporarily visible from viewing locations identified in the original environmental assessment; however, the change is expected to be reversible and minor. The proponent is of the view that the addition of accommodation onboard the construction vessel, and shore access would not have any interactions with visual quality. There would be no change in visual quality and, therefore, there are no additional effects to human health as a result of change in visual quality.

Additionally, the proponent indicated that the proposed Project change would reduce atmospheric emission due to the reduction in vehicle and ferry traffic in Sea to Sky Highway and Howe Sound respectively.

The proponent also conducted a human health risk assessment to assess risks to off-duty workers; however, this is not captured by the Agency's analysis because CEAA 2012 is focused on effects to Indigenous groups.

### 3.4.2 Views Expressed

Tsleil-Waututh Nation raised concerns regarding the potential effects of noise from the electric water pump and bilge pumps on the workers' health and requested further information on how the potential effects may be mitigated. The proponent provided further information and monitoring regarding noise levels at the project site and indicated that noise effects from equipment is predicted to be negligible when considering attenuation from the equipment enclosures, distance, and sleeping quarter walls.

Many of the public comments received focused on potential hazards to human health and the environment from spills or leaks from the floatel. Some comments focused on health risks for temporary workers that will be housed at the floatel, including plans for evacuation in emergency situations. The proponent responded that a Construction Environmental Management Plan is currently being developed that will describe key mitigation measures for waste management at the project site. The Construction Environmental Management Plan will also outline responsibilities and appropriate controls to limit waste generated and systems to reduce, recycle and recover waste, thereby limiting potential adverse effects to human health and the environment. The proponent also highlighted the site will provide emergency medical services, including on-site medical personnel and resources that meet or exceed all regulatory requirements and meet the needs of the worksite during construction. This will also include emergency evacuation for egress, including an emergency helipad.

### 3.4.3 Agency's Analysis and Conclusions

The Agency is of the opinion that the floatel would not result in any adverse environmental effects to human health with respect to Indigenous peoples. Existing key mitigation measures and follow-up requirements will adequately address any effects resulting from the proposed changes. The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## 3.5 Current Use of Lands and Resources for Traditional Purposes

The effect of environmental changes on current use of lands and resources for traditional purposes was assessed during the original environmental assessment and mitigation measures and follow-up program requirements were developed. The Decision Statement issued for the Project included conditions in relation to current use of lands and resources for traditional purposes.

### 3.5.1 Proponent's Assessment

The proponent indicated that seabed disturbance and marine contamination from floatel mooring may result in adverse effects on the quantity and quality of marine resources Indigenous groups harvest. However, the proponent concluded that the proposed Project changes would not materially change harvest quantity for Indigenous groups, and therefore would not have adverse effects on Indigenous groups' use of resources.

Additionally, the proponent stated that additional accommodation on-site would reduce daily employee transport vessel traffic. Disturbance from vessel traffic to Indigenous groups' use of canoe routes for fishing and marine harvesting, as well as their use of cultural sites, would be lessened as a result.

The proponent concluded that the floatel would not result in additional effects on the current use of lands and resources for traditional purposes of Indigenous peoples beyond those predicted in the Environmental Impact Statement. The proponent concluded that the effects assessment on hunting, fishing, and trapping activities, as well as cultural and traditional uses of the land, would remain the same as what was assessed during the original environmental assessment.

### 3.5.2 Views Expressed

Tsleil-Waututh Nation raised that it has ongoing concerns regarding the impacts of underwater noise and vibration associated with floatel operations, including from associated disturbance and noise created by passenger and service vessels on the aquatic environment, including fish and marine mammals. The proponent responded that it will develop and implement a Marine Mammal Management and Monitoring Plan that meets the requirements of the Decision Statement, the EAO's Environmental Assessment Certificate, and the Squamish Nation Environmental Assessment Approval Conditions. The key mitigation

measures from the original environmental assessment, such as installation of bubble curtains during construction and noise thresholds to limit effects to marine mammals, would continue to apply to the floatel.

### **3.5.3 Agency's Analysis and Conclusions**

The Agency is of the opinion that the floatel would not result in any additional adverse environmental effects to the current use of lands and resources for traditional purposes by Indigenous groups beyond those assessed during the environmental assessment, and that the proposed changes would reduce effects on Indigenous fishing and harvesting routes. The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## **3.6 Physical and Cultural Heritage, and Structure, Site or Thing of Historical, Archaeological, Paleontological or Architectural Significance**

The effect of environmental changes on heritage was assessed during the original environmental assessment and mitigation measures and follow-up program requirements were developed. The Decision Statement issued for the Project included conditions in relation to physical and cultural heritage and structures, sites, or things of historical, archaeological, paleontological or architectural significance.

### **3.6.1 Proponent's Assessment**

The proponent is of the view that there are no changes to the potential effects on cultural or heritage resources as well as structures, sites, or things of historical, archaeological, paleontological or architectural significance due to the proposed project changes. The proponent is of the view that potential terrestrial and marine disturbance from floatel piles and shore access to the Project is not significant and could be effectively avoided or reduced by the mitigation measures developed during the original environmental assessment. The proponent concluded that no material change to cultural or heritage resources as well as structures, sites, or things of historical, archaeological, paleontological or architectural significance would occur.

### **3.6.2 Views Expressed**

Indigenous groups and members of the EAO's Technical Advisory Committee did not provide views on the potential impacts of the proposed Project changes.

### **3.6.3 Agency's Analysis and Conclusions**

The Agency is of the opinion that the proposed Project change would not result in any additional environmental effects on physical and cultural heritage, nor structures, sites or things of historical, archaeological, paleontological or architectural significance. The Agency is therefore of the view that no

changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## 3.7 Listed Species At Risk

Effects to listed species at risk were assessed during the original environmental assessment and mitigation measures and follow-up program requirements were developed. The Decision Statement issued for the Project included conditions in relation to species at risk, specifically the little brown myotis (*Myotis lucifugus*).

### 3.7.1 Proponent's Assessment

The proponent is of the view that there are no potential interactions between the Project change and at-risk bats, and amphibians (including coastal tailed frog, western toad and red-legged frog). There is no vegetation clearing proposed other than the potential for limited brushing for the water intake at Woodfibre Creek and existing mitigation measures from the original environmental assessment would remain applicable.

### 3.7.2 Views Expressed

ECCC shared concerns regarding potential adverse effects of the proposed amendment to species at risk, and their habitats, including bats and amphibians. In particular, ECCC raised concerns regarding potential effects to coastal tailed frog, listed as Special Concern under Schedule 1 of the SARA, and known to occur in Woodfibre Creek. ECCC recommended the design of measures to avoid/mitigate impacts of water intake on amphibians at-risk, and specifically amphibian-intake avoidance measures. The proponent responded that mitigation measures related to amphibians have been incorporated into the Wildlife Management and Monitoring Plan, which will apply to construction and operation of the water treatment plant, including its intake at Woodfibre Creek. The proponent also made a commitment that prior to commencing instream work on Woodfibre Creek (e.g., installation of water intake structures), a qualified professional experienced with amphibians will assess instream habitat to determine if an amphibian salvage and relocation program is required (e.g. for coastal tailed frog, western toad, or northern red-legged frog).

### 3.7.3 Agency's Analysis and Conclusions

Taking into account the resolution of comments from ECCC, the Agency is of the opinion that the proposed project changes would not result in additional effects on listed species at risk. The Agency notes that the proponent has also committed to consider a screen size for the water intake that would be protective of amphibians at the larval stage, as long as requirements from *Fisheries and Oceans Canada* can also be met. The Agency is therefore of the view that no changes are required to the key mitigation measures and follow-up requirements identified in the original environmental assessment and set out as conditions in the Decision Statement.

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## 3.8 Rights of Indigenous Peoples

Analysis of adverse effects of changes to the environment on current use of lands and resources for traditional purposes, health of Indigenous peoples, physical and cultural heritage, and biophysical resources informed the assessment of impacts on the rights of Indigenous Peoples of Canada as recognised and affirmed in section 35 of the Constitution Act, 1982 during the original environmental assessment. Mitigation measures and follow-up requirements were developed and the Decision Statement includes related conditions.

### 3.8.1 Proponent's Assessment

The Proponent stated within its amendment assessment that the project changes have the potential to interact with the ability of Indigenous groups to exercise their Aboriginal rights as recognized and affirmed by section 35 of the *Constitution Act, 1982* and interests.

The potential interactions presented in the proponent's amendment assessment are local in nature and the property on which the facility will be constructed falls solely in the traditional territory of the Squamish Nation. LNG carriers and supporting marine vessels would pass through areas of Howe Sound within several Indigenous groups' asserted traditional territories. The Proponent anticipates that the proposed changes would only have the potential to interact with Squamish Nation and Tsleil-Waututh Nation's Aboriginal rights and interests.

Following an independent assessment of the Project from 2014 to 2015, Squamish Nation issued an Environmental Assessment Certificate, which includes legally-binding conditions for the Project. The Squamish Nation Environmental Assessment Agreement established the Squamish Nation Environmental Working Group, through which the proponent has been seeking a decision on the proposed floatel from Squamish Nation. The proponent recognizes Squamish Nation as a regulator for the Project and will continue to address Squamish Nation interests while respecting established confidentiality agreements.

The proposed changes will not interact with known harvesting sites, registered heritage sites, and place names identified by Tsleil-Waututh Nation. However, the floatel may have a minor interaction with marine resources that are harvested by Tsleil-Waututh Nation and related harvest quantities. The floatel is expected to reduce the number of daily ferry trips required to and from the Project site than what was proposed in the original environmental assessment, which may lessen the potential impacts on Tsleil-Waututh Nation's marine-based rights and interests such as fishing, marine harvesting and cultural practices.

The proponent anticipates that the proposed changes are not expected to materially change the pathways of effects on Tsleil-Waututh Nation and other potentially impacted Indigenous groups. The implementation of existing mitigation measures included in the Decision Statement and the EAO's Environmental Assessment Certificate will prevent or reduce the potential interactions of the proposed amendment activities. The proponent concluded that the Project changes would not alter the analysis from the original environmental assessment on Aboriginal rights and interests.



## 3.8.2 Squamish Nation Regulatory Process

Through engagement with the EAO, the Agency and the proponent, Squamish Nation has conveyed its role as an autonomous regulatory agency, with interest in collaborative decision-making with the EAO and the Agency. In respect of the Nation's regulatory authority, Squamish Nation, the EAO, and the Agency entered into a non-binding MOU on June 9, 2020 that the three Parties would cooperate in the conduct of amendment applications, while respecting each government's decision making outcomes. The MOU outlined general areas of focus:

- Cooperation from early engagement through to required independent decisions;
- Harmonize, if possible, timelines for assessing impacts and making decisions;
- Coordinate on potential conditions to avoid duplication and regulatory burden; and
- Information sharing while respecting each party's legislative, policy, and contractual requirements.

Arising from the MOU, Squamish Nation, the EAO and the Agency used the proponent's Amendment Application to deliberate on whether the proposed amendment would cause changes to the potential effects of the Project, and whether this analysis requires new or amended conditions of the SNEAA, the provincial Environmental Assessment Certificate, or the federal Decision Statement. Squamish Nation actively participated in the TAC process administered by the EAO, with a focus on matters that are well-addressed under the proponent's valued component and intermediate component assessment structure. Participation in the TAC process helped Squamish Nation engage with the EAO and the Agency on issue resolution and potential conditions of approval that would be best resolved through an Environmental Assessment Certificate amendment. Conversely, matters of unique interest to Squamish Nation that either had negligible bearing on non-Nation members or were not well suited to assessment under the EAO's framework were pursued between the proponent and Squamish Nation, with options to resolve through new or amended SNEAA conditions. Squamish Nation's decision on this amendment is expected in autumn 2023.

## 3.8.3 Views Expressed

Tsleil-Waututh Nation requested further information from the proponent regarding alternatives to the floatel, human health, effects of underwater noise on fish and fish habitat and marine mammals, and potential effects of Project-related marine traffic on Tsleil-Waututh interests. Tsleil-Waututh Nation expressed that it could not agree that the floatel would have minor, positive or no new interactions with Tsleil-Waututh Nation's interests in the absence of the requested information.

The proponent responded to Tsleil-Waututh's requests for information and provided clarification on the proposed changes. The proponent indicated that it would continue to engage with Tsleil-Waututh Nation on outstanding concerns and comments as they relate to the amendment application and that it continues to be committed to sharing information and engaging Tsleil-Waututh Nation throughout the design and planning phase of the Project and decommissioning.

## 3.8.4 Agency's Analysis and Conclusions

The Agency anticipates that the Project changes would not change the residual effects assessment on environmental effects within federal jurisdiction, and is therefore satisfied that there would be no additional impacts to Rights of Indigenous Peoples beyond those assessed in the initial environmental assessment.

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## 3.9 Additional Information on Socio-economic and Gender-based Analysis Plus

Gender-based Analysis Plus (GBA Plus) is an analytical process that assesses how diverse population groups experience impacts of projects differently. The original environmental assessment predates the Government of Canada's renewed commitment to gender-based analysis so this lens was largely absent in the environmental assessment conducted for the Project. The proponent provided this information out of transparency and accountability. However, socio-economic and GBA Plus effects did not influence the Agency's analysis or conclusion on the potential adverse environmental effects of the proposed Project changes.

### 3.9.1 Proponent's Context

The proponent assessed social effects, taking into account infrastructure and community services, land and resource use, and community health and well-being. The proponent has also provided measures to mitigate gender-based impacts of worker accommodation on the community.

Affordable and accessible housing remains a longstanding issue in the surrounding communities, particularly in Squamish. Rental accommodation is limited and in high-demand along the Sea to Sky Corridor, resulting in high rental costs. The original plan to house construction workers in rental housing and temporary accommodation in Metro Vancouver, Whistler and Squamish would increase pressure on already at-peak accommodation. Proposed mitigation to use the floatel and to house construction workers would likely avoid the potential increase in demand for housing and accommodation from the Project contemplated in the original assessment. The proponent is of the view that the floatel would mean that effects to demand for housing and temporary accommodation through increased population associated with the construction workforce is negligible. Further, the proponent has made a commitment through its Community Services and Infrastructure Management Plan that it would not issue an allowance for off-site accommodation (living out allowance), and that all employees, contractors and sub-contractors would be required to stay in company housing.

The proponent considered impacts on emergency and community services by construction workers and noted that the use of the floatel would likely reduce the demand for the services in the project area. Any minor health emergency for project workers will be managed onsite instead of using community services. Some emergencies however would still require the proponent to transport workers to local health services like hospitals. The proponent concluded that impacts to emergency and other community services from the proposed worker accommodation would be minimal/negligible.

The original Application noted that higher incomes associated with the Project could contribute to increased drug and alcohol use within a small segment of Project workers and their families. Some workers could increase spending on alcohol and drugs, which would likely have residual impacts on vulnerable populations in the local community. The proposal to use the floatel to control workers access to the Squamish municipality would likely reduce Project-related impacts associated with drug and alcohol abuse. The proponent expects that key mitigation measures put forward in the Application to curtail drug and alcohol use among workers, such as the establishment and enforcement of a substance abuse policy for the Project workers, would be sufficient to avoid or reduce potential impacts.

The proponent also noted in the original Application that the potential for increased crime owing to the influx of construction workers to the Project area is unlikely since most of the construction workforce would travel directly to and from the Project site. The proposed floatel would control workers access to local communities and the potential for increased crime is unlikely. For further clarity, recreational or routine access to the community would not be permitted in order to address concerns related to the potential for increased crime. The proponent did not propose further mitigation.

Overall, the proponent is of the view that the proposed floatel would result in minor positive effects to infrastructure and community services, land and resource use, and community health and well-being and that no additional mitigation measures are required.

## Gender safety

Over the course of the review process for the floatel and in addition to conditions required by the EAO and by Squamish Nation, the proponent has developed programming to be responsive to community and Squamish Nation concerns, and also to advance the findings of the National Inquiry on Murdered and Missing Indigenous Women and Girls, and the report of the Select Standing Committee on the Status of Women, released in December 2022.

The proponent has committed to the following key initiatives:

- Implementing a robust Code of Conduct, that would apply to all employees, contractors and sub-contractors on the Project and includes a zero-tolerance approach for bullying, harassment or violence of any type, including culture based and gender based violence
- Ensuring cultural supports are in place for the floatel, including mechanisms to ensure that incident reporting can occur in a culturally sensitive manner, without fear of retribution, as well as ensuring supports such as floatel cultural worker (similar to an elder-in-residence).
- Establishing a Gender Safety Advisory Committee, co-chaired by Woodfibre LNG Limited Partnership President and an elder from Squamish Nation, Gwen Harry. The Committee includes a representative from the Squamish Nation's elected Council, the Chief of the Tsleil-Waututh Nation, member representatives of both Nations, and representatives from the community, including the Howe Sound Women's Centre, as well as other gender safety practitioners. The Agency and other regulatory agencies also participate in the Committee as observers. This Committee evaluates the proponent's programming and make recommendations on how the Project manages safety and security impacts to Indigenous women, other women in the community, and 2SLGBTQQIA+ people.
- Working with partner organizations to develop and provide community based training, focused on personal safety, risk awareness recognition and consent training. This is being developed and delivered in collaboration with members of the Squamish Nation, the District of Squamish and Howe

Sound Women's Centre with input from the Gender Safety Advisory Committee.

- Establishing a graduate-level project to design, implement and collect regional data related to incidents of sexual and gender-based violence, harassment and bullying in the community during the construction phase of the Project. Although most of the Project workforce would be transported to and from the floatel without interaction with the community, research findings would provide insight to better understand the relationship between industrial development projects and violence against Indigenous women, girls and 2SLGBTQQIA+ people, and would be reported to the proponent and the Gender Safety Advisory Committee to inform any program or floatel based changes as required.
- Implementing a floatel culture committee that would monitor and make any required changes to programming to ensure a culturally and gender-welcoming workforce environment, address any elements of hyper-masculine culture within the floatel, and ensure that standards are being met with respect to advancing a diverse workplace that promotes and delivers on the commitments to gender and cultural safety.

### 3.9.2 Views Expressed

The EAO received comments expressing concerns about the level of access workers would have to the community despite being housed within the floatel and indicating that the level of access would largely determine how much of an impact there will be on vulnerable populations in Squamish. Many commenters expressed the view that additional details are needed from the proponent about what access workers would have to Squamish and how that access would be managed. Comments also expressed concerns for the safety of vulnerable populations, including Indigenous women and girls, owing to the temporary influx of workers.

Squamish Nation and Tsleil-Waututh Nation raised concerns about the frequency of workforce access to the Squamish municipality and the potential gendered and community impacts from the Project, such as discrimination, sexual harassment and racism. Tsleil-Waututh Nation noted that a masculine work culture with limited recreation and work-life balance has the potential to contribute to poor mental health and well-being. Tsleil-Waututh Nation requested further information from the proponent on the proposed mitigation measures and how the proponent's strategies align with the recommendations outlined in the report of the National Inquiry into Missing and Murdered Indigenous Women and Girls and the 2022 report by the Standing Committee on the Status of Women titled *Responding to the Calls for Justice: Addressing Violence Against Indigenous Women and Girls in the Context of Resource Development Projects* (FEWO report).

The proponent responded that it will work with the floatel operator to provide recreational and medical facilities and that the floatel is intended to operate as a "dry" camp. As described in detail above the proponent continues to develop the Community Services and Infrastructure Management Plan, as required by the EAO's Environmental Assessment Certificate, in consultation with Indigenous groups and community stakeholders, and would deliver initiatives to address the findings of the National Inquiry into Missing and Murdered Indigenous Women and Girls and the FEWO report. The proponent has committed to developing additional measures such as:

- a code of conduct for the Project workers;
- a healthy living strategy;
- a substance abuse policy;

- addictions training;
- life skills workshops; and
- providing counseling services.

In addition, the proponent has committed to establishing a Gender Safety Advisory Committee for the Project that is co-chaired by representatives of the proponent and Squamish Nation.

### 3.9.3 Agency's Discussion

The Agency has considered the proponent's analysis regarding socio-economic effects including the need for the worker accommodation to support the construction phase of the Project. Although the proponent assessed social effects, information specific to GBA Plus impacts of worker accommodation was not required because it was not a requirement under Section 5 of CEEA 2012.

The Agency recognizes that communities residing in resource-intensive regions experience increased risk of adverse social impacts. Temporary in-migration of workers to these communities may attract some economic benefits, but there is increasing evidence of a wide range of negative social impacts associated with industrial work camps, particularly incidents of violence against Indigenous women, girls and sexual minorities. Concerns raised by community members often relate to sexual abuse of Indigenous women and young girls, sexually transmitted infections due to rape and sex trafficking, safety concerns from increased crime and drug and alcohol abuse. Indigenous Nations have consistently communicated these concerns and living in proximity with temporary workers in camps and rental accommodation.

The Agency also acknowledges the views expressed by members of the public that detailed information on mitigation measures, namely if/how worker access to the community of Squamish would be restricted, would strengthen the analysis on how the Project would affect diverse groups of people differently.

During trilateral engagement between Squamish Nation, the EAO, and the Agency, Squamish Nation indicated a detailed review of the proposed floatel was still underway. Floatel-specific conditions to mitigate or avoid socio-economic effect pathways were under consideration focused on general community interest as well as unique Squamish Nation interest.

The Agency is aware that the proponent has been working with Squamish Nation on a Community and Gender Safety Program and that the EAO has proposed a new condition intended to acknowledge and address gender and culture based violence, harassment and related misconduct. In addition, the Agency acknowledges the proponent's commitment to develop and implement workplace policies and safety programs for employment of underrepresented groups (e.g. Indigenous women, gender and sexually diverse people, and visible minorities), and a cultural training and awareness program for all employees.

## 4. Conclusion

Considering the potential adverse environmental effects of the proposed Project changes, the Agency is of the view that changes to mitigation measures and follow-up requirements included as conditions in the Decision Statement would not be required.



# Annex

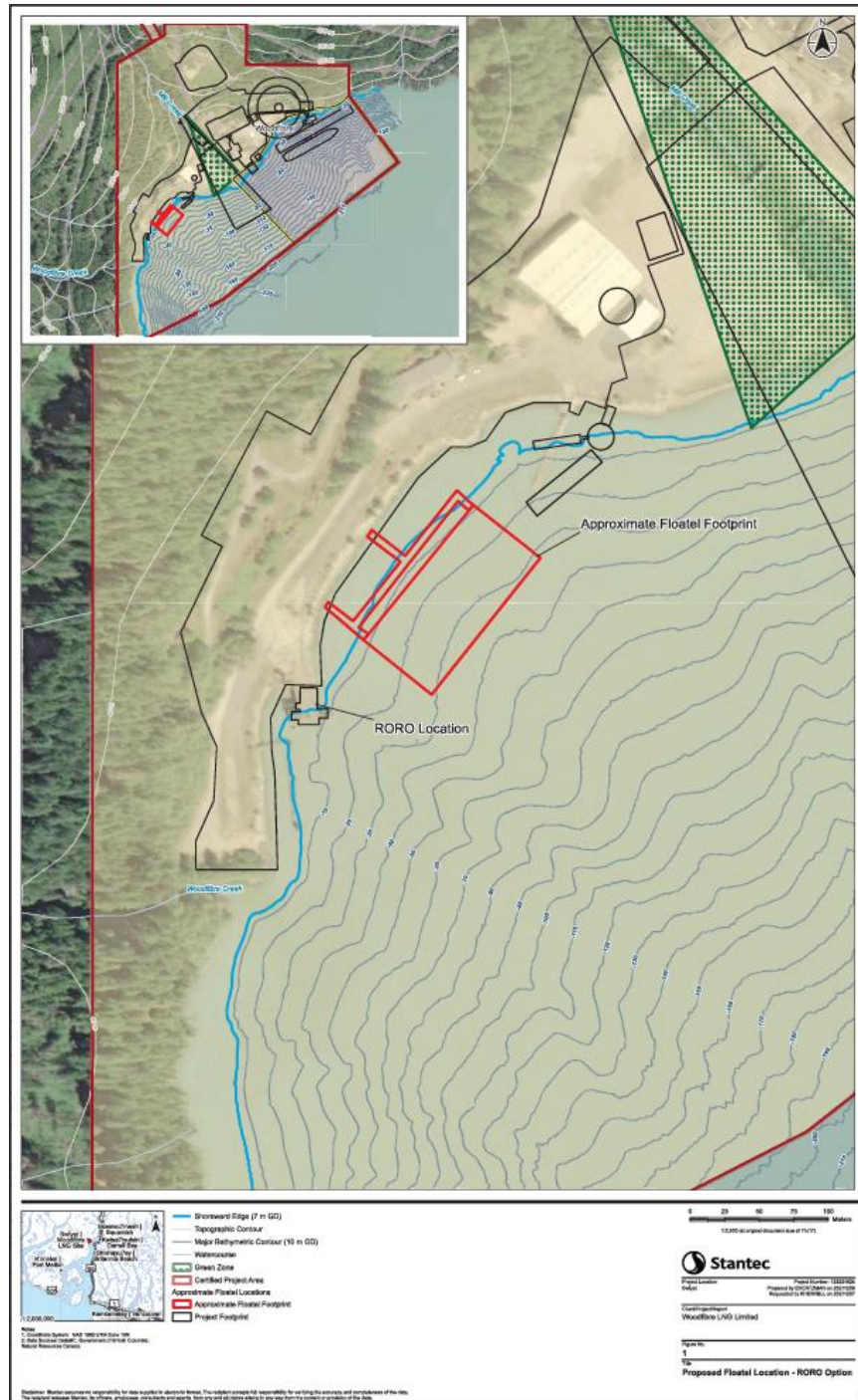


Figure 1: Location of the temporary floating working accommodation (floatel)

Source: Memo from Woodfibre LNG Limited Partnership to Impact Assessment Agency of Canada dated April 3, 2023