

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

12.0 FRESHWATER AQUATIC RESOURCES

The assessment of potential effects of the Project on freshwater aquatic resources was provided in Section 12 of the EIS. This section of the EIS Addendum provides:

- An update to the potential project and cumulative effects on the Freshwater Aquatic Resources VC as a result of the project changes
- An updated list of mitigation measures for the Freshwater Aquatic Resources VC
- Updated conclusions on the assessment of effects on the Freshwater Aquatic Resources VC, taking into account project changes and the requested additional information.

Table 12-1 lists the documents applicable to Freshwater Aquatic Resources submitted by PNW LNG as part of the environmental assessment process to date and identifies if information is either *updated by EIS Addendum*, *superseded*, *not relevant*, or *not affected* by information in the EIS Addendum. The following sections of the EIS Addendum contain information that updates the documents classified as *updated by EIS Addendum* or *superseded* in Table 12-1. Figure 12-1 to Figure 12-4 have been updated from those provided in the EIS to reflect the project changes and any other applicable updates.

Table 12-1 Status of Previously Submitted Documents

Document Name	Status
Section 12 of the EIS (February 2014)	Updated by EIS Addendum
Appendix I of the EIS (February 2014): Freshwater Aquatic Resources -Habitat Site Plates and Photo Catalogue	Not affected
Appendix J of the EIS (February 2014): Technical Assessment Report - Freshwater Acidification and Eutrophication	Not affected
Appendix K of the EIS (February 2014): Conceptual Fish Habitat Offsetting Strategy	Superseded
Responses to the Working Group (June 2014)	Updated by EIS Addendum

12.1 PROJECT EFFECTS ASSESSMENT UPDATE

12.1.1 Baseline Conditions

The marine terminal design mitigation results in the relocation of the marine terminal berth by 510 m from the location described in the EIS. The project changes do not interact with the freshwater environment in the study area as delineated in Section 12.3 of the EIS; therefore, the baseline conditions for the freshwater aquatic environment remain valid and unchanged. The baseline conditions described in the Freshwater Acidification and Eutrophication Technical Assessment Report (Appendix J of the EIS, submitted February 2014) remain valid and unchanged.

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

12.1.2 Effects Assessment

The marine terminal design mitigation has no interaction with the freshwater aquatic environment affected by the Project. Watercourses on Lelu Island will be infilled and removed to accommodate the project components. The marine terminal design mitigation does not change the project interactions with the freshwater aquatic environment. Project effects on the freshwater aquatic environment are identical to those reported in the EIS and subsequent technical memorandums.

The assessment of project effects on fish habitat availability has changed due to clarification from Fisheries and Oceans Canada (DFO) on the definition of serious harm to fish provided in the Fisheries Protection Policy Statement (DFO 2013) as:

- The death of fish
- Permanent alteration to fish habitat—an alteration of fish habitat of a spatial scale, duration, and intensity that limits or diminishes the ability of fish to use such habitats as spawning grounds, or as nursery, rearing or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes
- Destruction of fish habitat—an elimination of habitat of a spatial scale, duration, and intensity that fish can no longer rely upon such habitats for use as spawning grounds, or as nursery, rearing or food supply areas, or as a migration corridor, or any other area in order to carry out one or more of their life processes.

Based on the Fisheries Protection Policy Statement (DFO 2013b) and the clarification received from DFO, project effects on freshwater fish and fish habitat are not considered as serious harm to fish. The freshwater environment on Lelu Island does not provide a measurable contribution to any fisheries resources. The magnitude of effects on fish and fish habitat is now considered to have no measurable adverse effect on the function or use of the habitat and no measurable reduction in size of any fish population (see Table 12-2). The loss of freshwater habitat on Lelu Island does not cause any loss of productivity of fish habitat. Therefore, project effects on freshwater fish and fish habitat are considered not significant.

Project effects on food and nutrient content have not changed. Because the reduction in food and nutrient input from watercourses is too small to be measurable, there is no expectation that the Project will have adverse residual effects on food and nutrient availability in fish-bearing streams or estuarine/near shore environments.

Project effects on fish mortality have not changed. With the adoption of fish salvage as mitigation, no residual effects on the likelihood of fish mortality are expected.

The marine terminal design mitigation and the conclusion of no serious harm are not predicted to result in a material change to the assessment of residual effects for the construction, operations, and decommissioning phases of the Project on freshwater aquatic environment. The marine terminal design mitigation has no interaction with freshwater fish and fish habitat. However, Table 12-2 has been updated based on the clarification received from DFO.

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

The Project is not expected to cause any serious harm to freshwater fish and fish habitat and no residual effects are expected on freshwater fish and fish habitat. Although characterization of residual effects of the Project on the freshwater aquatic environment has been updated, the determination of significance of those residual effects remains not significant.

A Habitat Offsetting Plan (HOP) has been developed for the Project (see Appendix G.10 of the EIS Addendum). Because effects on freshwater habitat are not expected to result in serious harm to fish, the HOP does not include offsetting for freshwater habitat.

Changes to the information presented in Table 12-2 (compared to Table 12-8 of the EIS) are identified with underlined text.

12.2 CUMULATIVE EFFECTS ASSESSMENT UPDATE

The marine terminal design mitigation and the conclusion of no serious harm to fish are not expected to result in a material change to the assessment of residual effects for the construction, operations, and decommissioning phases of the Project on freshwater aquatic environment. The project contribution to cumulative effects on the freshwater aquatic environment remains unchanged from the assessment presented in the EIS. Characterizations of cumulative effects have been updated in Table 12-3. Changes in characterization have been identified with underlined text.

While the potential fish habitat lost to infilling will not be offset, this potential habitat does not provide a measurable contribution to aquatic resources in the regional assessment area (RAA). Because most of the other watercourses potentially affected by acidification and eutrophication from cumulative effects are unlikely to support resident or anadromous fish populations, except for the headwaters of Hayes Creek, the Project is not expected to result in a cumulative change in fish habitat that results in a net loss of productivity. An Acidification and Eutrophication Follow-up Program will be conducted to confirm this expectation (see Section 30). Therefore, cumulative effects on fish habitat are expected to be not significant.

Cumulative effects on food and nutrient content and fish mortality have not changed. Because no residual effects on food and nutrient content are expected (see Section 12.1.2), no cumulative effects are anticipated. No residual project effects on the likelihood of fish mortality are expected (see Section 12.1.2). Acidification and eutrophication from cumulative effects could result in fish mortality, but watercourses that are potentially affected are unlikely to support resident or anadromous fish populations, except for the headwaters of Hayes Creek. Therefore, residual cumulative effects on fish mortality are expected to be not significant.

Changes in the construction schedule for the Project have not affected the outcomes of the cumulative effects assessment for freshwater aquatic resources. Conclusions on the significance of cumulative effects are based primarily on spatial overlaps, rather than temporal overlaps; therefore changes in the construction schedule do not affect these conclusions.

12.3 RESPONSES TO THE OUTSTANDING INFORMATION REQUESTS

There were no outstanding requests for information for Freshwater Aquatic Resources.

12.4 MITIGATION

12.4.1 Changes to Mitigation Measures Presented in the EIS

Based on project changes and the feedback received during the environmental assessment process, the set of mitigation measures originally presented in the EIS to address potential effects to Freshwater Aquatic Resources has been updated. The following mitigation measure has been removed:

- A Conceptual Fish Habitat Offsetting Strategy (see Appendix K of the EIS) has been presented for the Project. Implementation of the Conceptual Fish Habitat Offsetting Strategy will mitigate the loss of freshwater fish habitat as a result of construction of the Project to achieve no net loss of the productive capacity of the fish habitat.

12.4.2 Complete List of Current Mitigation Measures

All of the technically and economically-feasible mitigation measures currently being presented by PNW LNG to address potential effects to freshwater aquatic resources are listed below. This includes those originally presented in the EIS that remain relevant, as well as those that have been removed as a result of feedback received during the environmental assessment process or as a result of the project changes. By implementing this full set of mitigation measures, PNW LNG is confident that the Project will not result in significant adverse effects to freshwater aquatic resources.

- Where practical, effects to the lower sections of Watercourses 8/9 and 11 will be avoided
- The infilling of watercourses will be avoided where practical
- An erosion and sediment control plan will be designed and installed, as required, to avoid downstream effects
- PNW LNG will maintain a vegetated buffer that extends 30 m inland from the high-water mark around Lelu Island
- Mitigation of potential effects on change in fish mortality from project activities will be achieved by implementing a fish salvage program. Before the infilling of any watercourses fish salvage will be conducted in Watercourses 8/9 and 11, to avoid potential fish mortality. Any captured fish will be released in downstream reaches or nearby watercourses with similar habitat conditions.

12.5 CONCLUSION

Project changes were assessed for potential effects, including cumulative effects, on freshwater aquatic resources. Based on this assessment there are no changes to the potential adverse effects or the residual adverse effects identified in the EIS. With the exception of habitat offsetting, mitigation measures remain the same as those identified in the EIS. The characterization of the residual adverse effects of the Project on freshwater environment (i.e., context, magnitude, extent, duration, frequency, reversibility) has been updated based on the clarification received from DFO; however, because there is not expected to be a loss of productivity of fish habitat, an adverse effect on nutrient or food supply or an increase the likelihood of fish mortality, the determination of significance of those effects remains not significant (see Table 12-2).

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

Table 12-2 Summary of Residual Effects on Freshwater Aquatic Resources

Project Phase	Mitigation Measures	Residual Effects Characterization						Likelihood	Significance	Confidence	Follow-up and Monitoring
		Context	Magnitude	Extent	Duration	Reversibility	Frequency				
Change in (permanent alteration or destruction of) Fish Habitat											
Construction	<ul style="list-style-type: none"> The extent of infilling of water courses will be reduced, where practical Infilling lower sections of watercourses (near the intertidal area) will be avoided where practical Sedimentation and erosion control plan will be in place to avoid downstream effects A 30 m vegetation buffer will be maintained around Lelu Island. 	H	<u>N</u>	PDA	LT	I	S	L	N	H	Follow up: Aquatic Acidification and Eutrophication.
Operations		N/A	N/A	N/A	N/A	N/A	N/A				
Decommissioning		N/A	N/A	N/A	N/A	N/A	N/A				
Residual effects for all phases		H	<u>N</u>	PDA	LT	I	S				
Change in Food and Nutrient Content											
Construction	<ul style="list-style-type: none"> A 30 m vegetation buffer will be maintained around Lelu Island. 	H	L	PDA	LT	I	S	L	N	H	Follow up: Aquatic Acidification and Eutrophication.
Operations		N/A	N/A	N/A	N/A	N/A	N/A				
Decommissioning		N/A	N/A	N/A	N/A	N/A	N/A				
Residual effects for all phases		H	L	PDA	LT	I	S				
Increased Fish Mortality Risk											
Construction	<ul style="list-style-type: none"> Fish salvage program during construction. 	H	N	PDA	ST	I	S	L	N	H	Follow up: Aquatic Acidification and Eutrophication.
Operations		N/A	N/A	N/A	N/A	N/A	N/A				
Decommissioning		N/A	N/A	N/A	N/A	N/A	N/A				
Residual effects for all phases		H	N	PDA	ST	I	S				
KEY	MAGNITUDE:	DURATION:						LIKELIHOOD OF RESIDUAL EFFECT:			
CONTEXT:	N = No measurable adverse effect on the function or use of the habitat; no measurable reduction in size of the fish population	ST = Measurable effect restricted to one day to a maximum of one week.						<i>Based on professional judgment.</i>			
L = Low resilience: occurs in a fragile ecosystem and/or highly disturbed environment	L = Measurable effect on habitat function is anticipated but on low quality, marginal or non-critical habitat; anticipated mortality risk to non-sport fish species	MT = Measureable effect extends from one week to a year						L = Low probability of occurrence			
M = Moderate resilience: occurs in a stable ecosystem and/or moderately disturbed environment	M = Measurable effect on habitat function is anticipated on moderate or high quality or critical habitat; anticipated mortality risk to sport fish species	LT = Measurable effect extends from 1 to 5 years, but not permanent						M = Medium probability of occurrence			
H = High resilience: occurs in viable ecosystem and/or undisturbed environment	H = Measurable effect on habitat function is anticipated on limiting habitat for provincially-listed species or SARA-listed species; anticipated mortality risk to provincially-listed species or SARA-listed species	P = Measurable effect is permanent and unlikely to recover to baseline level						H = High probability of occurrence			
	EXTENT:	FREQUENCY:						SIGNIFICANCE:			
	PDA —residual effects are restricted to the stream within the specific activity area (i.e., construction in project site or temporary workspaces)	S = Residual effect occurs once						S = Significant			
	LAA —residual effects extend beyond the activity area but remain within the LAA	MI = Residual effect occurs sporadically at irregular intervals throughout construction, operations, closure and post-closure						N = Not Significant			
	RAA —residual effects extend to RAA (watershed/sub-regional level)	MR = Residual effect occurs on a regular basis and at regular intervals throughout construction, operations, closure and post-closure						CONFIDENCE AND RISK			
		C = Residual effect occurs continuously						<i>Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation, and assumptions made.</i>			
		REVERSIBILITY:						L = Low level of confidence			
		R = Productive capacity will recover (after disruption) through natural process or restoration; loss of an individual or small number of fish that are part of a secure population						M = Moderate level of confidence			
		I = Permanent loss of productive capacity and destruction of developing eggs or population is at risk						H = High level of confidence			

Table 12-3 Summary of Residual Cumulative Effects on Freshwater Aquatic Resources

Cumulative Environmental Effect and Project Contribution	Other Projects, Activities and Actions	Mitigation and Compensation Measures	Residual Cumulative Effects Characterization						Likelihood	Significance	Prediction Confidence	Follow-up and Monitoring Programs	
			Context	Magnitude	Extent	Duration	Reversibility	Frequency					
<p>Change in (permanent alteration or destruction of) fish habitat Area of habitat directly and indirectly affected by the Project is a direct measure of project effects.</p>	<p>Cumulative Effect with Project</p> <ul style="list-style-type: none"> Disturbances in instream flows, flow regime, water temperature and other physical attributes that are critical components of fish habitat Reduction of areal extent of available habitat required by fish species to complete their life cycles and adverse effects on limiting habitat types 	<ul style="list-style-type: none"> Canpotex Potash Export Terminal CN Rail Line Fairview Container Terminal Phase I Fairview Container Terminal Phase II Northland Cruise Terminal Prince Rupert LNG Facility Prince Rupert Ferry Terminal Prince Rupert Grain Limited Ridley Terminals Inc. 	None	H	<u>N</u>	<u>RAA</u>	P	<u>I</u>	S	L	N	<u>M</u>	None
	<p>Project Contribution to Cumulative Effect (in RAA)</p> <ul style="list-style-type: none"> Removal of watercourses Acidification and eutrophication of surface waters may result in the loss of fish habitat 	<p>Construction:</p> <ul style="list-style-type: none"> Site preparation (land-based) Onshore construction Waste Management and Disposal <p>Operations:</p> <ul style="list-style-type: none"> LNG facility and supporting infrastructure on Lelu Island Waste Management and Disposal Fish habitat offsetting <p>Decommissioning:</p> <ul style="list-style-type: none"> Dismantling facility and supporting Infrastructure Waste Disposal Site Clean Up and Reclamation 	See Table 12-2 Summary of Residual Effects on Freshwater Aquatic Resources	H	<u>N</u>	PDA	LT	I	S	L	N	H	Follow-up: Aquatic Acidification and Eutrophication.

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

Cumulative Environmental Effect and Project Contribution	Other Projects, Activities and Actions	Mitigation and Compensation Measures	Residual Cumulative Effects Characterization						Likelihood	Significance	Prediction Confidence	Follow-up and Monitoring Programs	
			Context	Magnitude	Extent	Duration	Reversibility	Frequency					
Change in food and nutrient content Infilling of watercourses on the island may affect food and nutrient availability Acidification of surface waters may reduce production of aquatic invertebrates and therefore reducing the nutrient content	Cumulative Effect with Project Reduction in the production of food and nutrients that are critical for fish growth, particularly in higher order streams and estuarine environment	<ul style="list-style-type: none"> Canpotex Potash Export Terminal CN Rail Line Fairview Container Terminal Phase I Fairview Container Terminal Phase II Northland Cruise Terminal Prince Rupert LNG Facility Prince Rupert Ferry Terminal Prince Rupert Grain Limited Ridley Terminals Inc. 	None	H	L	RAA	P	I	S	L	N	H	None
	Project Contribution to Cumulative Effect (in RAA) <ul style="list-style-type: none"> Removal of watercourses Acidification and eutrophication of surface waters may result in the loss of fish habitat 	Construction: <ul style="list-style-type: none"> Site preparation (land-based) Onshore construction Waste Management and Disposal Operations: <ul style="list-style-type: none"> LNG facility and supporting infrastructure on Lelu Island Waste Management and Disposal Fish habitat offsetting Decommissioning: <ul style="list-style-type: none"> Dismantling facility and supporting Infrastructure Waste Disposal Site Clean Up and Reclamation 	See Table 12-2 Summary of Residual Effects on Freshwater Aquatic Resources	H	L	PDA	LT	I	S	L	N	H	Follow-up: Aquatic Acidification and Eutrophication.

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

Cumulative Environmental Effect and Project Contribution	Other Projects, Activities and Actions	Mitigation and Compensation Measures	Residual Cumulative Effects Characterization						Likelihood	Significance	Prediction Confidence	Follow-up and Monitoring Programs	
			Context	Magnitude	Extent	Duration	Reversibility	Frequency					
Increased fish mortality risk <ul style="list-style-type: none"> Infilling of watercourses Acidification of surface waters 	Cumulative Effect with Project Cumulative effects of anthropogenic disturbances on fish populations may interfere with their ability to maintain a viable population through the removal of critical habitat types such as spawning and overwintering habitat.	<ul style="list-style-type: none"> Canpotex Potash Export Terminal CN Rail Line Fairview Container Terminal Phase I Fairview Container Terminal Phase II Northland Cruise Terminal Prince Rupert LNG Facility Prince Rupert Ferry Terminal Prince Rupert Grain Limited Ridley Terminals Inc. 	None	H	N	PDA	ST	I	S	L	N	M	None
	Project Contribution to Cumulative Effect (in RAA) <ul style="list-style-type: none"> Removal of watercourses Acidification and eutrophication of surface waters may result in the loss of fish habitat 	Construction: <ul style="list-style-type: none"> Site preparation (land-based) Onshore construction Waste Management and Disposal Operations: <ul style="list-style-type: none"> LNG facility and supporting infrastructure on Lelu Island Waste Management and Disposal Fish habitat offsetting Decommissioning: <ul style="list-style-type: none"> Dismantling facility and supporting Infrastructure Waste Disposal Site Clean Up and Reclamation 	See Table 12-2 Summary of Residual Effects on Freshwater Aquatic Resources	H	N	PDA	ST	I	S	L	N	H	Follow-up: Aquatic Acidification and Eutrophication.
KEY CONTEXT: L = Low resilience: occurs in a fragile ecosystem and/or highly disturbed environment M = Moderate resilience: occurs in a stable ecosystem and/or moderately disturbed environment H = High resilience: occurs in viable ecosystem and/or undisturbed environment	MAGNITUDE: N = No measurable adverse effect on the function or use of the habitat; no measurable reduction in size of the fish population L = Measurable effect on habitat function is anticipated but on low quality, marginal or non-critical habitat; anticipated mortality risk to non-sport fish species M = Measurable effect on habitat function is anticipated on moderate or high quality or critical habitat; anticipated mortality risk to sport fish species H = Measurable effect on habitat function is anticipated on limiting habitat for provincially-listed species or SARA-listed species; anticipated mortality risk to provincially-listed species or SARA-listed species EXTENT: PDA —residual effects are restricted to the stream within the specific activity area (i.e., construction in project site or temporary workspaces) LAA —residual effects extend beyond the activity area but remain within the LAA RAA —residual effects extend to RAA (watershed/sub-regional level)	DURATION: ST = Measurable effect restricted to one day to a maximum of one week. MT = Measureable effect extends from one week to a year LT = Measurable effect extends from 1 to 5 years, but not permanent P = Measurable effect is permanent and unlikely to recover to baseline level FREQUENCY: S = Residual effect occurs once MI = Residual effect occurs sporadically at irregular intervals throughout construction, operations, closure and post-closure MR = Residual effect occurs on a regular basis and at regular intervals throughout construction, operations, closure and post-closure C = Residual effect occurs continuously REVERSIBILITY: R = Productive capacity will recover (after disruption) through natural process or restoration; loss of an individual or small number of fish that are part of a secure population I = Permanent loss of productive capacity and destruction of developing eggs or population is at risk	LIKELIHOOD: Based on professional judgment. L = Low probability of occurrence M = Medium probability of occurrence H = High probability of occurrence SIGNIFICANCE: S = Significant N = Not Significant CONFIDENCE AND RISK Based on scientific information and statistical analysis, professional judgment and effectiveness of mitigation, and assumptions made. L = Low level of confidence M = Moderate level of confidence H = High level of confidence										

PACIFIC NORTHWEST LNG - ADDENDUM TO THE ENVIRONMENTAL IMPACT STATEMENT

Freshwater Aquatic Resources
December 12, 2014

12.6 REFERENCES

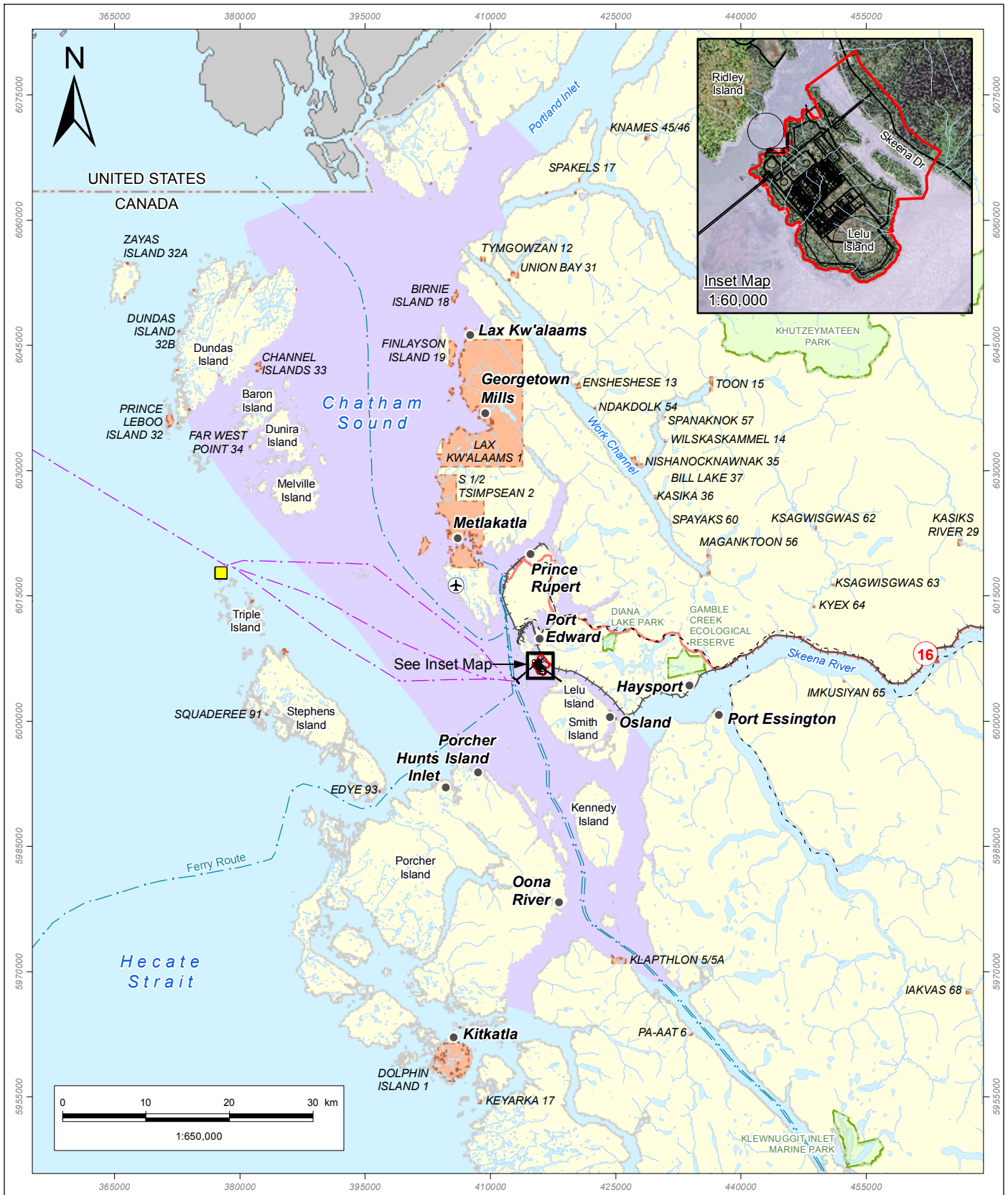
Fisheries and Oceans Canada (DFO). 2013. *Fisheries Protection Policy Statement*. Ecosystems Programs Policy, Fisheries and Oceans Canada, October 2013. Accessed: November 2014. Available at: <http://www.dfo-mpo.gc.ca/pnw-ppe/pol/PolicyStatement-EnoncePolitique-eng.pdf>.

**PACIFIC NORTHWEST LNG - ADDENDUM TO THE
ENVIRONMENTAL IMPACT STATEMENT**

Freshwater Aquatic Resources
December 12, 2014

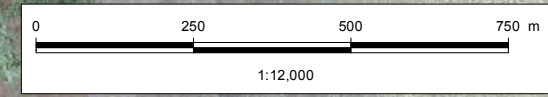
12.7 FIGURES

Please see the following pages.



<ul style="list-style-type: none"> Local Assessment Area Regional Assessment Area Project Component Potential Shipping Route 	<ul style="list-style-type: none"> Airport City or Town Pilotage Station Electrical Power Transmission Line Ferry Route Highway International Boundary Railway 	<ul style="list-style-type: none"> Watercourse Indian Reserve Protected Area Waterbody 	<p align="center">Pacific NorthWest LNG</p> <p align="center">Freshwater Aquatic Resources Local and Regional Assessment Areas</p> <p align="center"><i>EIS ADDENDUM</i></p> <p><small>Sources: Government of British Columbia; Prince Rupert Port Authority; Government of Canada; Natural Resources Canada, Centre for Topographic Information; Progress Energy Canada Ltd.</small></p> <p><small>Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.</small></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DATE: 20-NOV-14</td> <td style="width: 50%;">PROJECTION: UTM - ZONE 9</td> </tr> <tr> <td>FIGURE ID: 123110537-400</td> <td>DATUM: NAD 83</td> </tr> <tr> <td>DRAWN BY: K. POLL</td> <td>CHECKED BY: B. BYRD</td> </tr> </table>	DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9	FIGURE ID: 123110537-400	DATUM: NAD 83	DRAWN BY: K. POLL	CHECKED BY: B. BYRD	<p>PREPARED BY:</p> <p align="center"> Stantec</p> <p>PREPARED FOR:</p> <p align="center"> Pacific NorthWest LNG</p> <p>FIGURE NO:</p> <p align="center" style="font-size: 24pt;">12-1</p>
DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9									
FIGURE ID: 123110537-400	DATUM: NAD 83									
DRAWN BY: K. POLL	CHECKED BY: B. BYRD									

11/20/2014 1:28:19 PM V:\archive\123110537\fig\areaEA_Accendum\Fig_123110537_aa_add_12_01_freshwater_baa_01a.mxd



- City or Town
- Confluence of Watercourse
- Project Component
- +++ Railway
- Road
- Watercourse

Pacific NorthWest LNG
Mapped Watercourses
on Lelu Island
 EIS ADDENDUM

Sources: Government of British Columbia; Government of Canada, Natural Resources Canada, Centre for Topographic Information; Progress Energy Canada Ltd.; WorldView-2 Imagery. Imagery date: 2011.

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

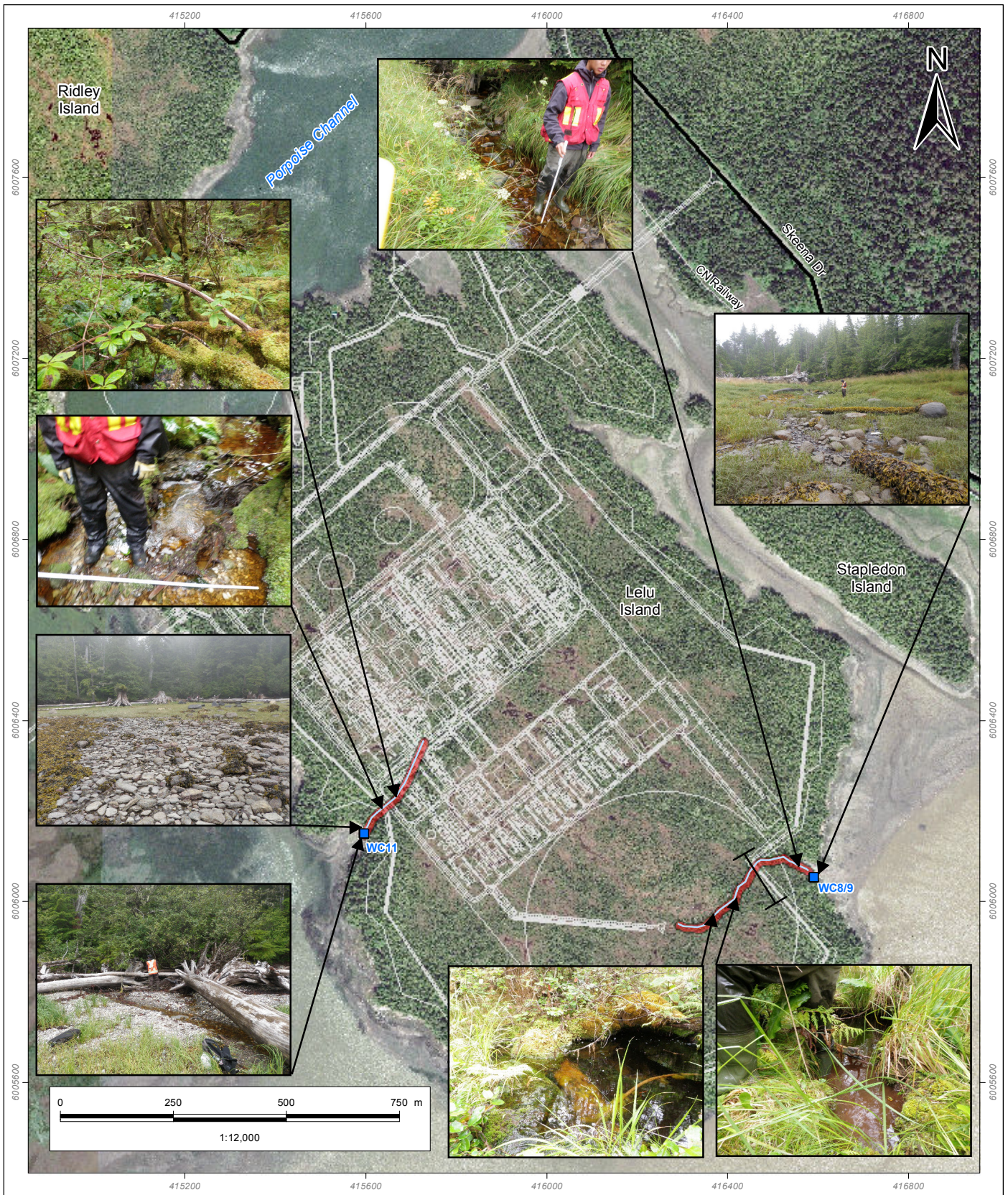
DATE: 20-NOV-14
 FIGURE ID: 123110537-192
 DRAWN BY: K. POLL

PROJECTION: UTM - ZONE 9
 DATUM: NAD 83
 CHECKED BY: A. PARSAMANESH

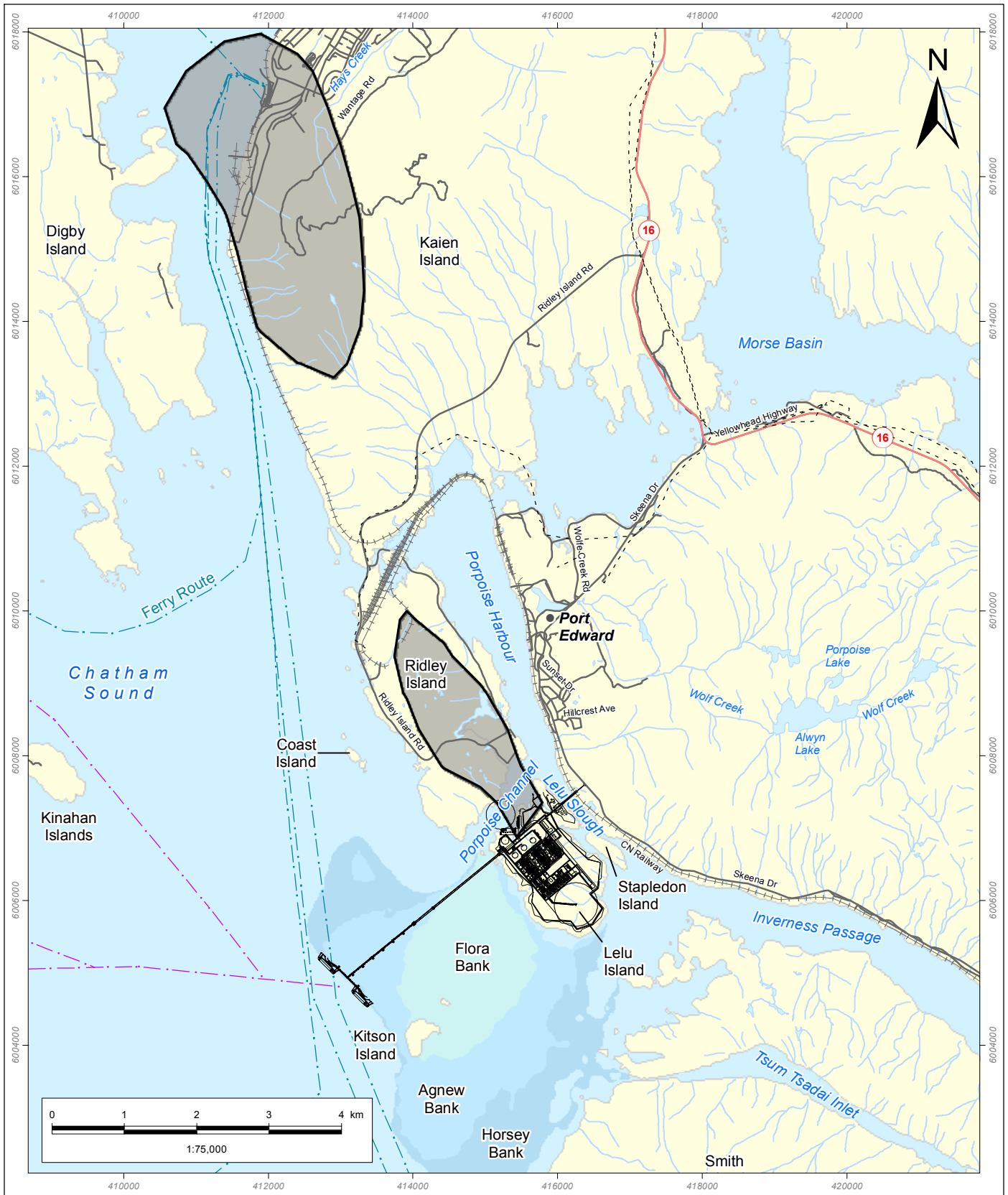
PREPARED BY:

PREPARED FOR:

FIGURE NO:
12-2



<ul style="list-style-type: none"> ■ Confluence of Watercourse Reach Break Potentially Fish-bearing Project Component Railway Road Watercourse 	<p>Pacific NorthWest LNG</p> <p>Potential Fish-bearing Streams</p> <p>on Lelu Island</p> <p><i>EIS ADDENDUM</i></p> <p><small>Sources: Government of British Columbia; Government of Canada, Natural Resources Canada, Centre for Topographic Information; Progress Energy Canada Ltd.; WorldView-2 Imagery. Imagery date: 2011.</small></p> <p><small>Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.</small></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DATE: 20-NOV-14</td> <td style="width: 50%;">PROJECTION: UTM - ZONE 9</td> </tr> <tr> <td>FIGURE ID: 123110537-290</td> <td>DATUM: NAD 83</td> </tr> <tr> <td>DRAWN BY: L.HOPPER</td> <td>CHECKED BY: A. PARSAMANESH</td> </tr> </table>	DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9	FIGURE ID: 123110537-290	DATUM: NAD 83	DRAWN BY: L.HOPPER	CHECKED BY: A. PARSAMANESH	<p>PREPARED BY:</p> <p style="text-align: center;"> Stantec</p> <p>PREPARED FOR:</p> <p style="text-align: center;"> Pacific NorthWest LNG</p> <p>FIGURE NO:</p> <p style="text-align: center; font-size: 24pt; font-weight: bold;">12-3</p>
DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9							
FIGURE ID: 123110537-290	DATUM: NAD 83							
DRAWN BY: L.HOPPER	CHECKED BY: A. PARSAMANESH							



V:\archive\123110537\fig\areaEA_Addendum\Fig_123110537_aa_add_12_04_fisheries_trim_pai_exceedance.mxd

<p>Legend</p> <ul style="list-style-type: none"> Exceedance Area for Acid Deposition Critical Load (PAI ≥ 15 meq/m²/yr) Potential Shipping Route Project Component City or Town Electrical Power Transmission Line Ferry Route Railway Road Secondary Road TRIM Watercourse Waterbody <p>Shoals</p> <ul style="list-style-type: none"> Agnew Bank Flora Bank Horsey Bank 	<p>Pacific NorthWest LNG</p> <p>Mapped Watercourses (TRIM) within PAI Exceedance Areas</p> <p><i>EIS ADDENDUM</i></p> <p><small>Sources: Government of British Columbia; Government of Canada, Natural Resources Canada, Centre for Topographic Information; Canadian Hydrological Service (CHS), 1995.</small></p> <p><small>Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data</small></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DATE: 20-NOV-14</td> <td style="width: 50%;">PROJECTION: UTM - ZONE 9</td> </tr> <tr> <td>FIGURE ID: 123110537-542</td> <td>DATUM: NAD 83</td> </tr> <tr> <td>DRAWN BY: K. POLL</td> <td>CHECKED BY: A. PARSAMANESH</td> </tr> </table>	DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9	FIGURE ID: 123110537-542	DATUM: NAD 83	DRAWN BY: K. POLL	CHECKED BY: A. PARSAMANESH	<p>PREPARED BY:</p> <p style="text-align: center;"> Stantec</p> <p>PREPARED FOR:</p> <p style="text-align: center;"> Pacific NorthWest LNG</p> <p>FIGURE NO:</p> <p style="text-align: center; font-size: 24px; font-weight: bold;">12-4</p>
	DATE: 20-NOV-14	PROJECTION: UTM - ZONE 9						
	FIGURE ID: 123110537-542	DATUM: NAD 83						
DRAWN BY: K. POLL	CHECKED BY: A. PARSAMANESH							