



Appendix W

Mitigation Measures

Appendix W: Mitigation Measures

Table W-1 Mitigation Measures.

Item	VC ¹	Potential Interaction and Rationale	Mitigation Measures	Project Phase ²	Applicable Area ³	Examples of Successful Mitigation Use on Other Projects ⁴	Effectiveness (1-3) ⁵
1	All VCs	Fragmentation or alteration of wild land which has inherent value to wildlife and people.	Project footprint and disturbed areas will be minimized and limited to the space required to accommodate necessary infrastructure. Existing roads, trails, and disturbed areas will be used wherever feasible.	C, O, D	AB, PIL	WEGH2, VBWEP, BLWPP	1
2	All VCs	Hydrocarbon and/or chemical leak or spill.	A) Maintain inventory of oil spill response equipment. B) Deploy resources to minimize the effects of the spill or leak, such as using absorbents or neutralizing agents. C) Personnel on-site will be trained to use firefighting equipment. D) Deploy firefighting equipment to extinguish fires, if applicable. E) All spills will be reported and cleaned up as soon as feasible, with contaminated soils removed from site for disposal at an approved/licensed location. F) Follow the Emergency Response/Contingency Plan (and Hazardous Materials Response and Training Plan, which specify the actions required both to prevent and respond to any release of chemicals to avoid water and soil contamination.	U	ALL	A) VBWEP, HIW B),C) WEGH2 D) HIW E) WEGH2, VBWEP, HIW	1
3	All VCs	Mismanagement of waste (general to all types of wastes) presenting a hazard to human health and the environment.	A) All waste storage areas will have appropriate signage. B) Incompatible materials will not be stored near each other. C) All waste containers must be labeled. The waste management vendor will provide the labels. D) Waste storage area is fenced and gated as applicable, to prevent public access. E) All hazardous waste is stored below eye level. F) Adequate ventilation is provided via normal airflow. G) Heavy containers are stored on lower shelves and with sufficient space between containers. H) Waste containers must be in good condition and compatible with the waste stored therein. I) Waste containers must be inspected at least monthly for labeling, condition, leaks and/or spills. J) Waste containers must not be opened, handled, or stored in a manner that may rupture the container or cause the containers to leak. K) Waste containers must be always closed during storage, except when waste is being added. In the case of liquid chemical hazardous waste, regulations do not permit funnels to remain in waste containers after filling. L) Secondary containment is required for containers of liquid waste when the waste is stored in quantities of greater than 45 L or when necessary to separate incompatibles or high hazard waste. M) Follow the Transportation of Dangerous Goods regulations. N) Fire detection and protection systems will be installed in high-risk areas such as fuel and hazardous material storage. O) A suitable fire extinguisher is present. P) Hazardous products will be stored according to industrial requirements and standards, and safely secured so that access is limited to authorized personnel. Q) Project staff and contractors will adhere to the waste management procedures to be included in the EPP and the Waste Management Plan.	C, O, D	ALL	A) WEGH2 C) VBWEP D) WEGH2 H) VBWEP I) VBWEP M) VBWEP N) WEGH2 O) VBWEP P) WEGH2 Q) WEGH2, VBWEP	1
4	All VCs	Dislodging of wind tower or turbine blade.	A) Perform routine inspections. B) Isolate the wind turbine or tower from the power grid to prevent electrical accidents. C) Implement lockout/tagout procedures to ensure that the turbine is de-energized and cannot be accidentally restarted during the dislodging process.	U	AB, AP	A) WEGH2 B) HIW	1
5	All VCs	Improper use or management of explosives and blasting activities.	A) Blasting activities (if required) will be included under a contract service agreement with the explosives supplier. B) Blasters will have a valid blasters certificate issued by the NL DECC. C) An Explosives and Blasting Management Plan will be developed by the blasting contractor to provide direction for the safe storage, handling and use of explosives and explosive components at the Project site, to address the safety of the public and Project personnel, and protection of both the environment and Project components. D) Blasting patterns and procedures will be used to reduce shock or instantaneous peak noise levels. E) Blasts should be designed to meet the required noise and vibration limits.	C	ALL	A) WEGH2 B) WEGH2, VBWEP C) WEGH2 D) WEGH2, VBWEP E) HIW F) WEGH2, VBWEP, HIW G) WEGH2, VBWEP H) WEGH2, BLWPP	1

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			F) Time delay blasting cycles or blast mats will be used, if necessary, to control the scatter of blasted material. G) Blasting will not occur in the vicinity of fuel storage facilities. H) Nearby residents will be notified of any blasting activities.				
6	All VCs	Mismanagement of sewage.	Regular checks of sewage levels to ensure they are not overfilled.	C, O, D	AP	WEGH2, BLWPP, HIW, VBWEP	1
7	All VCs	Improper function of Argentia Green Fuels Facility.	A) The Project will be designed and constructed to meet applicable engineering codes, safety standards, and best management practices. B) The Argentia Green Fuels Facility will be routinely inspected, and regular maintenance will take place to ensure proper operation.	ALL	AP	A) WEGH2	1
8	AqE	Project development affecting the aquatic environment.	Adhere to the Environmental Protection Plan (EPP) when conducting any work that affects or may affect components of the aquatic environment (e.g., lakes, streams, groundwater table).	C	AB, PIL	HIW	2
9	AqE	Project development affecting the marine environment.	Ensure adherence to all applicable legislation and regulations governing the marine environment.	ALL	AP	WEGH2	1
10	AqE	Long term effects to local water resources.	A) Develop water level monitoring thresholds and adaptive water management strategies for the Placentia PPWSA ponds to increase the system resilience. B) Further investigate regional hydrology to evaluate what drawdown value should be considered 'critically low' for the ponds. C) Based on consultation with NL DECC, bathymetry studies will be completed of water resources to refine baseline water resource data in advance of construction and operations. D) If it is determined based on water monitoring during Operations that Project drawdown of available water could cause a temporary water shortage or any material water quality changes to the Placentia municipal water supply, Project consumption of water affecting the Placentia municipal water supply would be curtailed until this condition is no longer met.	O	AP, AB		3
11	AqE	Potential change in fish health, survival, and habitat from in-water work and construction.	A) Any in-water work will be limited. B) In-water work will be planned to respect DFO timing windows to protect fish in NL. C) If fording is required, follow DFO's temporary ford code of practice. D) Ensure proper installation of crossing structures. E) Ensure road, shoulder, and crossing structures are well maintained. F) Standard and approved methodology will be applied to construction practices when culverts and bridges are being installed.	ALL	AB, AP	B) HIW C) VBWEP D) VBWEP E) HIW F) VBWEP	1
12	AqE	Potential change in fish health, survival, and habitat from runoff during use of roads.	Ensure site and access roads will be maintained in good condition.	C, O, D	AB		1
13	AqE	Potential change in fish health, survival, and habitat from Project activities.	A) Monitor fish populations for change in community structure, abundance/biomass, and growth. B) Monitor fish habitat conditions.	C, O	AB		2
14	AqE	Potential change in American eel health and survival from Project activities.	Monitor American eel populations for change in abundance and biomass.	C, O	AB		2
15	AqE	Potential water quality effects from effluent discharge.	Ensure effluent and wastewater comply with applicable regulatory approvals and discharge criteria.	O	AP	VBWEP	1
16	AqE, TE	Changes in water quality as a result of Project activities in or near water.	Monitor water quality.	C, O, D	ALL		2
17	AqE, TE	Change in wetland and waterbody quantity and function due to Project construction.	A) Maintain undisturbed buffer strips more than 30 m wide surrounding waterbodies and wetlands, except for where access roads are close to such crossings. B) Permanent infrastructure will be sited outside of wetlands to the extent feasible. Otherwise, a Permit to Alter a Body of Water will be sought from NL DECC Water Resources Division. C) Store any stockpiled materials at least 30 m away from wetlands, woodlands, wildlife habitats, and waterbodies. D) Site maintenance, vehicle maintenance, and fueling will be done in specified areas more than 30 m away from wetlands and waterbodies. Such locations will include drainage control features.	C, O, D	AB, PIL	A) VBWEP, HIW B) HIW C) HIW D) HIW E) BLWPP, HIW F) WEGH2, VBWEP, HIW G) WEGH2	1

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			<p>E) Where construction activities occur within 30 m of a wetland, install and maintain construction fencing to clearly define the construction footprint area to prevent damage to vegetation.</p> <p>F) Erosion and sediment control measures will be implemented prior to and during construction near wetlands and waterbodies to prevent siltation and disturbance.</p> <p>G) Maintain erosion and sediment control measures until re-vegetation of disturbed areas is complete.</p> <p>H) Remove as little riparian vegetation as feasible.</p> <p>I) Access road runoff will be diverted through drainage ditches into vegetated areas or through sediment barriers to prevent exposed soil or road materials from entering waterbodies or wetlands.</p>			<p>H) HIW</p> <p>I) HIW, BLWPP</p>	
18	AtE	Diminished sound quality due to increased noise generation and increased vibration levels.	<p>A) All employees, contractors and subcontractors are to receive an environmental induction training related to Project-specific and standard noise and vibration mitigation measures.</p> <p>B) A noise monitoring program may be carried out for the duration of the works in accordance with a prepared Construction Noise and Vibration Management Plan, and any approval and license conditions.</p> <p>C) Where feasible, use quieter equipment, using only the necessary sized and powered equipment for Project activities.</p> <p>D) Maintain vehicles and equipment in good working order, ensuring that mufflers are functional.</p> <p>E) Use quieter and less vibration emitting construction methods where reasonable and feasible.</p> <p>F) Where feasible, construction should be carried out during the standard daytime working hours.</p> <p>G) Work generating high noise and/or vibration levels will be scheduled during less sensitive time periods. If the work cannot be undertaken during the day, it will be completed before 11:00 pm.</p> <p>H) Avoid or minimize out of hours movements where feasible.</p> <p>I) Where additional activities may only result in a marginal noise increase and speed up works, the duration of the effect will be limited by concentrating noisy activities at one location and moving to another as quickly as feasible.</p> <p>J) Non-tonal reversing beepers (or an equivalent mechanism) must be fitted and used on all construction vehicles operating past outside normal working hours (11:00 pm to 6:00 am).</p> <p>K) Plan traffic flow, parking, and loading/unloading areas to minimize reversing movements onsite.</p> <p>L) Delivery vehicles to be fitted with straps rather than chains for unloading, wherever feasible.</p> <p>M) Stationary noise sources should be enclosed or shielded whilst ensuring that the occupational health and safety of workers is maintained.</p> <p>N) Those employed by the Project will take measures to reduce personal noise on the jobsite (e.g., no loud stereos/radios).</p>	C, O, D	ALL	<p>A) WEGH2, BLWPP, HIW, VBWEP</p> <p>D) WEGH2, VBWEP, HIW, BLWPP</p> <p>I) WEGH2</p>	1
19	AtE	Increased noise and vibration levels affecting sensitive or residential receptors.	<p>A) The offset distance between noisy equipment and adjacent sensitive receptors is to be maximized where feasible.</p> <p>B) Equipment that is used intermittently will be throttled down or shut down when not in use.</p> <p>C) Only necessary equipment will be kept on site.</p> <p>D) Loading/unloading of materials/deliveries will occur as far as feasible from sensitive receptors.</p> <p>E) Dedicated loading/unloading areas are to be shielded if close to sensitive receptors.</p> <p>F) Select site access points and roads as far as feasible away from sensitive receptors.</p> <p>G) Locate compounds away from sensitive receptors and discourage access from local roads.</p> <p>H) Use structures to shield residential receptors from noise (e.g., shed placement).</p> <p>I) The use of noisy equipment (e.g., mulchers, jack hammers) in very close proximity to receptors should be limited where feasible to standard construction hours.</p> <p>J) Maintain a minimum setback distance of 600 m between the Argentia Wind Facility wind turbines and sensitive receptors (e.g., occupied residences).</p> <p>K) Maximize offset distance between Argentia Green Fuels Facility and adjacent receptors.</p>	C, O, D	AB, PIL		1
20	AtE	Increased vibration levels affecting adjacent buildings.	<p>A) Attenuated vibration measurements are required at the commencement of vibration generating activities to confirm that vibration levels are within the acceptable range to prevent cosmetic building damage.</p> <p>B) Undertake building dilapidation surveys on all buildings located within the buffer zone prior to commencement of activities with the potential to cause property damage.</p>	C, D	AP		1
21	AtE	Project noise exceeding the Health Canada Noise Guideline.	In particular, 27 Power Street, Dunville, NL requires temporary hoarding to adhere to the Health Canada Noise Guideline.	C	AB		3

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22	AtE	Facility emissions contributing to a reduction in air quality and an increase in atmospheric GHG levels.	A) Implement control measures such that emissions generated from flare stacks are reduced. B) Emission control devices will minimize emissions to remain within industry standards.	O	AP	A) WEGH2 B) BLWPP, HIW	1
23	AtE, LRU	Vehicle and equipment emissions contributing to a reduction in air quality and an increase in atmospheric GHG levels. Engine noise diminishing sound quality.	A) Where feasible, use mobile equipment with Tier 4 engines. B) Vehicles and equipment are to be turned off when left stationary for extended periods. C) The idling of engines will be avoided whenever possible.	C, O, D	ALL	B) WEGH2 C) WEGH2, BLWPP, HIW	1
24	AtE, TE	Project lighting diminishing ambient lighting levels and causing disturbance to wildlife.	A) Project lighting will be limited to that which is necessary for safe and efficient Project activity. B) Install the fewest number of site-illuminating lights feasible in the Project Area. C) Utilize flashing warning lights that turn off completely between flashes. D) Use only flashing lights at night at the lowest intensity and fewest number of flashes per minute as required by Transport Canada. E) Where feasible, construction, maintenance, and decommissioning activities will be conducted during daylight hours for increased visibility and to avoid light and noise pollution effects at night. F) Should nighttime work be required, lighting to be limited to what is necessary for safety and efficiency. G) Minimize pilot warning and obstruction lighting on all tall structures as feasible. H) Wind turbine and meteorological tower lighting levels will be at the minimum allowed by Transport Canada for aeronautical safety and white or red strobe lights may be used with the minimum intensity and flashes per minute allowable. I) Ground-level external lights on buildings and wind turbine bases will be pointed downward and shall use motion or heat sensors when possible and permitted. J) Engage in a wildlife-friendly lighting plan.	C, O, D	ALL	A) WEGH2, BLWPP, VBWEP B) VBWEP, BLWPP C) WEGH2, HIW D) HIW E) WEGH2, HIW, BLWPP F) BLWPP G) HIW, BLWPP H) WEGH2, VBWEP, BLWPP, HIW I) WEGH2, HIW J) WEGH2	1
25	AtE, HHQL, TE	Dust generation resulting in a reduction in air quality.	A) Implement speed limits and, where necessary, speed bumps to limit dust generation. B) Implement control measures such as road watering, application of approved chemical suppressants, or physical barriers, where appropriate, to reduce fugitive dust generation on exposed surfaces (e.g., unpaved roads, laydown areas, stockpiles). C) Specific stockpiles of topsoil, overburden, and other potentially dust-generating materials will be kept covered, where practical, and used as soon as practical, or will be appropriately temporarily vegetated. D) The Explosives and Blasting Management Plan will include design measures to reduce dust generation.	C, O, D	AB, PIL	A) WEGH2, BLWPP HIW B) WEGH2, VBWEP C) WEGH2, BLWPP	1
26	HHQL	Waste management may be of concern to residents.	Contractors will adhere to EPP guidance regarding the use and storage of hazardous materials, waste disposal, and vegetation clearing.	C, O, D	ALL		1
27	HHQL	Shadow flicker of 30 hours per year is exceeded at one receptor.	A) The wind farm developer will work with the dwelling owner to reduce the incidence of shadow flicker to meet the 30-hour threshold. B) Where applicable a turbine-specific curtailment schedule may be implemented.	O	AB	A) WEGH2 B) HIW	3
28	HHQL	Shadow flicker during the daytime causing visual nuisance.	A) Implement a curtailment schedule to minimize duration of shadow flicker effects. B) Where feasible, install screening (e.g., trees, fence) to reduce shadow flicker effects.	O	AB, AP		2
29	HHQL, TE	Ice throw and ice fall hazard posing a risk of injury to people and animals, or property damage.	A) Equip turbines with ice throw mitigation technology (e.g., heated blades, low friction coatings). B) Restrict site access to authorized personnel only. C) Use Anti- and De-Icing Technologies such as blade heating technology. D) Use an ice detection system, which can stop the turbine when ice build-up reaches a critical point. E) Shutdown the turbines during rotor icing periods. F) Equip turbines with ice protection devices to provide safe worker access. G) Educate and train employees in potential risks in accordance with best practices and guidelines. H) Add public education and warning signage that explain hazards to prevent members of the public from entering maximum ice throw areas during periods of rotor icing. I) Follow best practices detailed by CanREA.	O	AB, AP	A) HIW E) WEGH2 G) WEGH2 H) WEGH2	2

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30	HHQL, LRU	Effects to nearby landowners, wind projects commonly developed with minimum setbacks from sensitive receptors	Project wind turbines will be set back at least the greater of 600 m or 3.0 times the blade tip height of the wind turbines. Furthermore, the Project will micro-site wind turbines to further minimize visibility to nearby landowners to the extent practicable and reduce turbine heights (e.g., from 120 m to 99 m) where feasible.	C	AB, AP		2
31	HCR	Physical disturbance of archaeological materials or sites causing a loss of integrity and/or quality.	A) Avoid registered archaeological sites and resources situated within the Project Area. B) Avoid any other structures or features eligible for registration with the PAO, Heritage NL, or the Town of Placentia as a Municipal Heritage Site.	C, O, D	AB, PIL	A) VBWEP	1
32	HCR	Accidental damage to archaeologically significant materials or sites.	Complete a Historic Resources Impact Assessment (HRIA) prior to conducting any Project activities that may alter or disturb any existing structural remains or terrain identified in the HROA as having High potential for existing and/or as-of-yet undiscovered historic and archaeological resources.	C, O, D	AB, PIL		1
33	LRU	Project activities being incompatible with designated land use.	The Project will apply for the appropriate rezoning under the Municipal Plan.	C	AB		1
34	LRU	Land tenure and quarry accessibility issues.	The Project will consult and work with the Mineral Lands division of NL DIET to ensure that project site safety is maintained while mitigating any issues from the mineral licences and their holders. Agreements will be made with existing quarries.	C, O, D	AB		1
35	LRU	Interactions with Canadian Coast Guard radar installation at Pearce Peak.	In order to reduce potential effects to CCG radar activities in the general area of Placentia and the Port of Argentia, the Project will continue to work with the CCG to minimize potential effects that wind turbines may pose to radar activities. This will include the micro-siting of wind turbines and may also include other mitigations such as funding software upgrades to utilize existing radar capabilities, based on direct consultation with the CCG.	C	AB, AP		3
36	LRU	Alteration of recreational and/or subsistence land use along Project Interconnect Line	Plan to route electrical infrastructure and access roads along existing rights-of-way wherever feasible to reduce infrastructure footprint.	C, O, D	AB, PIL		1
37	LRU	Project traffic resulting in traffic congestion or increased risk of traffic accident.	A) All appropriate traffic control signage and controls will be in place as described by the Traffic Control Manual 2018 from the NL DIET. B) All drivers will be familiar with Project rules and measures related to pedestrian safety.	C, O, D	ALL	A) WEGH2, BLWPP	1
38	LRU	Project traffic during ferry-related traffic surges resulting in traffic congestion or increased risk of traffic accident.	Work with Marine Atlantic schedule to avoid traffic congestion during the arrival and departure of the marine ferry.	C, O, D	AP, AB		2
39	LRU	Transportation of oversized and overweight loads resulting in traffic congestion or increased risk of traffic accident.	A) Movements of oversized and overweight loads will be limited in number and scheduled based on arrival of components to the Port. B) Oversized and overweight traffic will be scheduled to avoid known peak traffic periods.	C, O, D	AP, AB		2
40	LRU	Project activities impeding or restricting future land development.	The project will apply for the appropriate permits within the Municipal Planning Area of Placentia.	C	AB		1
41	LRU, SE	Visual interactions with local tourism.	A) Facilitate hiking trail development in the Argentia Backlands through identification of viewing areas and coordination of trail route selection. B) The Project will collaborate with local tourism stakeholders. C) Design and install Project infrastructure to avoid, or maximize safe distances to, the RV Park and existing / proposed hiking trails.	C, O, D	AB		1
42	LRU, SE	Concerns from public related to the increase in heavy equipment operation or increased risk of collision with heavy equipment.	Employees and contractors who operate any motorized vehicle as part of this Project, including heavy equipment, will adhere to the following policies: A) Ensure all licenses and permits are up to date. B) Follow all vehicle and roadway rules and regulations. C) Respect the road space and its use by other drivers and pedestrians of the local communities. D) Follow all designated traffic control measures, both inside and outside the Project access routes.	ALL	AB, AP	A) BLWPP B) WEGH2, HIW	1

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			F) Exercise courtesy towards others. G) Turn off all flashing and rotating warning light beacons when on public roadways, unless required. H) Maintain a safe following distance from other vehicles and avoid traveling in convoys, unless required. I) Drive in full compliance with the Traffic Management Plan.				
43	LRU, SE, TE	Concerns from public related to the removal of vegetation. Habitat loss and/or fragmentation.	Project micro-siting, including the twinning of lines along existing linear corridors such as transmission lines and roads, where practicable, will be done to reduce the volume of vegetation removal and limit damage associated with construction and maintenance activities.	C, O, D	AB, PIL	WEGH2	1
44	TE	Project development affecting the terrestrial environment.	Adhere to the EPP when conducting any work that affects or may affect components of the terrestrial environment (e.g., soils, flora, fauna).	ALL	AB, PIL	HIW	1
45	TE	Change in quantity and function of sensitive areas due to Project construction.	Sensitive areas (e.g., wetlands, rare plant occurrences) will be identified prior to construction and appropriate buffers will be flagged and maintained around these areas where feasible.	C	AB, PIL	WEGH2, VBWEP	1
46	TE	Possible mortality, disturbance, and/or displacement of nesting birds. Loss and/or degradation of nesting habitat.	A) Vegetation clearing will be conducted outside the temporal window of the bird breeding season where feasible. B) A qualified Avian Biologist will be present during clearing activities to supervise vegetation removal and carry out nest surveys. C) If an active nest is discovered, activities will be halted, and setback buffers will be established. No vegetation clearing will occur within 800 m of a bald eagle or osprey nest during the nesting season (March 15 to July 31) or within 200 m during the remainder of the year. The 200 m buffer also applies to all other raptor nests (e.g. Northern Goshawk, Sharp-shinned Hawk, Merlin, American Kestrel, Great-horned Owl, Boreal Owl, Northern Saw-whet Owl). The location of all raptor nest sites will be reported to the Wildlife Division. For other bird nests, setback distances will be established according to ECCC's Guidelines to Avoid Harm to Migratory Birds. Generally, most songbirds will be given a 50 m buffer around any nests, but this buffer will often vary according to species, landscape context, and degree of disturbance. SAR will be given setbacks according to consultations with NL WD and ECCC.	C	AB, PIL	A) WEGH2, VBWEP, HIW B) WEGH2, BLWPP, HIW C) WEGH2, VBWEP, HIW	1
47	TE	Reduced habitat availability for bats, disturbance from anthropogenic activity.	Bat roosting surveys will be conducted on any structures within the Project Area and preventative measures will be implemented to ensure bats do not occupy buildings. Any bats detected within buildings will be left undisturbed until after the maternity season (in the case of maternity roosts) and Canadian Wildlife Health Cooperative guidelines will be followed.	C, O	AB	HIW	1
48	TE	Disturbance to bat maternity roosts from anthropogenic activity.	During the bat roosting season, any trees proposed for removal and any suitable rock crevices or caves in areas proposed for blasting will be searched for signs of maternity roosts by a qualified Biologist. A buffer will be established around any active roosts found within the construction footprint site, in consultation with NL WD.	C	AB, PIL	HIW	1
49	TE	Direct mortality of bats or birds caused by collision with moving wind turbine blades.	A) Install bird flight diverters in areas of relatively high risk of collision with infrastructure. B) Curtail turbines below a cut-in speed of 3.5 m/s during the autumnal bat migration period. C) Curtail turbines during Year One at wind speeds below 6 m/s, from dusk to dawn, when ambient air temperatures are above six degrees Celsius, between July 1 and September 30.	C, O, D	AB, AP	A) WEGH2, BLWPP, HIW B) WEGH2, VBWEP, HIW C) VBWEP	3
50	TE	Bird and bat population decline as a result of wind turbine mortalities.	A) A post-construction mortality monitoring program will be established in consultation with NL WD. Carcass searches will be conducted at all turbines between April and October for at least the first year, with thermal camera and/or acoustic monitoring occurring at least in the first, second, fifth, and seventh years of operations. Surveys will be designed to account for searcher efficiency and scavenger rates. C) An adaptive management framework will be used to introduce new mitigation measures if high fatality rates are observed as per the EPP.	O	AB, AP	A) WEGH2, VBWEP, HIW B) WEGH2, VBWEP, HIW C) WEGH2, VBWEP, HIW	3
51	TE	Loss and fragmentation of rare plant habitat.	Project infrastructure will be micro-sited to avoid rare plants where feasible.	C	ALL	WEGH2	1
52	TE	Loss and fragmentation of rare lichen habitat.	A) Before any clearing of suitable habitat types for rare lichen species, or habitat adjacent to such suitable habitat types, surveys should be conducted to identify any existing thalli. B) Where boreal felt lichen exist within or adjacent to proposed construction sites, thalli should be translocated outside of the construction zone and beyond associated buffers. C) Other rare lichen species like the observed blue felt lichen, require a buffer as the crustose form of the species will not as easily survive transplanting. An appropriate buffer will be established for this species through consultation with NL WD.	C	AB, PIL	A) WEGH2 B) BLWPP C) HIW	1

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			D) As Project planning advances, further information can be collected through field surveys in areas identified for Project construction and containing habitat suitable for blue felt lichen. E) Project infrastructure will be micro-sited to avoid rare lichen occurrences where feasible.				
53	TE, HHQL	Human hazard or injury due to interaction with wildlife.	A Wildlife Response Protocol will be developed and implemented. Project personnel must record and report all wildlife sightings and human-wildlife interactions and conflicts.	ALL	ALL	HIW	2
54	TE	Increased wildlife activity.	The work area will be kept clean and free from leftover foods which can attract wildlife.	C	ALL	WEGH2, VBWEP	1
55	TE	Disturbance and/or harm to terrestrial wildlife due to noise and vibration from blasting activities.	A) Limit the affected area of blasting to minimize disturbance to wildlife while carrying out blasting operations, in accordance with relevant Federal and Provincial guidelines and standards. B) Prior to blasting (or other noise-elevated activity), a qualified biologist is to undertake an area search of the intended blasting area to determine whether wildlife is present on the day on blasting. C) If wildlife is encountered in the blasting zone, deterrence measures are to be employed, up to implementation of a delay in blasting until the wildlife have vacated the area. D) Time delay blasting cycles or blast mats will be used to control debris generated from blasting. E) Develop suitable blasting timing windows and standard best management practices to minimize the extent of noise, vibration, and slope instability from blasting. F) Blasting will only occur in areas that have been cleared of vegetation. G) The Environmental Monitor will check the site prior to and during blasting activities to ensure compliance with the Explosives and Blasting Management Plan.	C	AB, PIL	A) VBWEP, HIW B) WEGH2, VBWEP, HIW C) WEGH2, HIW D) WEGH2, VBWEP, HIW E) HIW F) HIW G) HIW	1
56	TE	Mortality to wildlife as a result of vehicles using access roads.	A) Establish Project speed limits that are protective of wildlife (e.g., 30-50 km/hr). B) Post signage and monitor for adherence to the limits set. C) Instruct all staff to obey speed limits and traffic laws and to remain vigilant for wildlife while driving. D) Roadkill will be removed from Project roads to reduce vehicular collision risk. E) Include speed limit requirements in construction and operations wildlife trainings.	C, O, D	ALL	A) BLWPP, HIW B) BLWPP, HIW C) WEGH2, VBWEP, HIW D) VBWEP	1
57	TE	Loss and/or fragmentation of wildlife habitat due to vegetation clearing.	A) Vegetation removal will be minimized to the extent feasible. B) The area of disturbance will be limited to the construction footprint area. C) Minimize the size of cleared areas to limit the area of exposed soil. D) Clearing, grubbing, and topsoil overburden removal will be clearly identified in the field using flagging and survey stakes. E) If clearing is necessary during spring and summer, a qualified biologist will conduct a survey and identify any significant areas for setbacks (e.g., bird nests, potential bat roost trees or structures). Setback distances will be species-specific, but at least 30 m will be applied. F) Consideration should be given to the use of suitable local vegetation as part of any revegetation programs associated with the Project.	C, O, D	AB, PIL	A) VBWEP, HIW B) HIW C) HIW D) WEGH2, HIW F) WEGH2, BLWPP, VBWEP, HIW	1
58	TE	Possible mortality, harm, disturbance, and/or harassment to wildlife due to construction activities.	As per the Construction EPP, Environmental Monitors will be present during construction activities such as clearing vegetation, dewatering, and blasting to ensure adherence to environmental regulations.	C	ALL	HIW	1
59	TE	Possible harm, harassment, and/or mortality of SAR.	A) Monitoring and mitigation for SAR will be conducted as per the Draft SAR IMMP and PCMP. B) Staff will receive formal training on how to recognize SAR that may be present in the Project Area and the proper procedure to follow if SAR are encountered as per the EPP. C) Any SAR involved in a vehicle collision will be reported to NL WD. D) Upon discovery of a previously unknown SAR, work will be stopped until NL WD can be consulted.	C, O, D	ALL	A) WEGH2, BLWPP B) WEGH2, VBWEP, HIW C) BLWPP, HIW D) HIW	1
60	TE	Possible destruction and/or fragmentation of avian SAR habitat. Possible harm, harassment, and/or mortality of SAR.	Construction work must stop immediately within 10 m of a SAR observation until a qualified biologist can confirm the species has vacated the construction disturbance footprint. If the species is not present within the vicinity of the previous observation after a 24-hour period, work can resume.	C	ALL	HIW	1
61	TE	Loss and fragmentation of sensitive habitat due to Project construction.	Buffer areas will be created where feasible around any environmentally sensitive areas, such as those identified in baseline surveys (i.e., yellow birch stands for blue felt lichen).	C	AB, PIL	VBWEP	2
62	TE	Damage to vegetation due to soil or water contamination by	Vehicles, heavy equipment, and machinery will be properly maintained and regularly inspected to reduce the risk of fluid leaks.	C, O, D	ALL	WEGH2, VBWEP, HIW	1

Item	VC ¹	Potential Interaction and Rationale	Mitigation Measures	Project Phase ²	Applicable Area ³	Examples of Successful Mitigation Use on Other Projects ⁴	Effectiveness (1-3) ⁵
		oils, gasoline, grease, and other materials.					
63	TE	Herbicide use resulting in damage to ecological community.	The Project will refrain from using herbicides on the regrowth of the understory along the Project Interconnect Line and in any cleared areas within the Project Area.	C, O, D	AB, PIL	HIW	1
64	TE	Reduction in soil quality due to mixing of topsoil and subsoils.	Strip and store topsoil (where present) from temporary work areas separately from subsoils and maintain for reclamation use after construction.	C	AB	HIW	2
65	TE	Reduction in soil quality due to the release of contaminants.	Construction sites are to be kept tidy; waste and debris will be collected and stored in appropriate containers on-site and disposed of off-site to an approved facility.	ALL	ALL	WEGH2, VBWEP, HIW	1
66	TE, AqE, AtE	Reduction in soil and surface water quantity/quality from erosion, sedimentation and compaction.	A) Ensure erosion and sedimentation control measures are in good repair and properly functioning prior to conducting daily work. B) Repair erosion and sedimentation control measures as required prior to commencing daily construction activities. C) Construction sites will be routinely monitored to identify areas of potential erosion and the necessary erosion and sediment control measures will be implemented. D) Ensure roadway culverts are designed and installed to maintain existing drainage patterns. E) Grade disturbed/remediated slopes and soil stockpiles to compact the soil, reduce erosion, and prevent slope instability. F) Geotechnical field assessments shall be done to identify unstable conditions such as high erosion potential, slope instability, and rock fall hazards. G) To protect exposed and/or sensitive soil and to avoid compacting or hardening of natural ground surface, mobile construction equipment is to travel on designated vehicle access roads.	C, O, D	ALL	A) HIW, BLWPP B) HIW, BLWPP C) WEGH2, VBWEP, HIW D) VBWEP, HIW E) HIW F) WEGH2 G) HIW	1
67	SE	Lack of awareness of respectful workplace policies and health and safety policies.	Workforce training will be provided to address topics such as Pattern's Equity, Diversion and Inclusion Commitment statement and health and safety policies.	C, O, D	ALL	WEGH2	1
68	SE	Employees and contractors engaging in unsafe work practices.	Ensure all employees and contractors comply with workers' health and safety regulations.	C, O, D	ALL		1
69	SE	Employment opportunities and contracts are given to non-local residents resulting in a lack of community support for the project.	Work with the Province, educational and training institutions, Indigenous Peoples and stakeholders to identify skilled trade shortages relative to the Project, and to identify training needs and opportunities to contribute to a sustainable Project workforce. Hire locally/regionally as much as feasible to the extent that labour force with appropriate training and skills is available.	C, O, D	ALL	WEGH2	1
70	SE	Local communities not benefitting from increased economic activity in the region.	Procure goods and services locally/regionally or provincially as much as feasible to the extent that they are available.	C, O, D	ALL		1
71	SE	Community benefits not resulting in long-lasting, meaningful positive effects.	Create a Regional Community Benefits Program to ensure that benefits to municipalities and Local Service Districts in the region have a lasting effect.	C, O, D	ALL		2
72	SE	Influx of temporary workers causing strain on local health and social services.	Institute worker health and safety programs to promote the health, safety, and wellbeing of workers, to avoid or reduce use of local health and social services.	C	ALL		1
73	SE	Influx of temporary workers causing strain on local tourism infrastructure.	Include local cultural venues and events in sponsorship programs to help alleviate any effects due to lack of availability of tourist accommodations.	C	ALL		2
74	SE	Influx of temporary workers causing a strain on local transportation options.	Develop incentives to encourage worker carpooling and/or bussing options.	C	ALL		2
75	SE	Underrepresentation of women and minorities in Project workforce.	Institute policies and programs to facilitate the inclusion and success of women and other groups typically underrepresented in heavy industry, such as a gender equity and diversity plan for the Project. Inclusion of procurement and retention policies will be included in the plan.	C, O, D	ALL	WEGH2	1
76	SE	Town of Placentia unprepared to accommodate the Project in	A) Enter into a shared services agreement with the Town of Placentia. B) Work with the Town of Placentia to increase training and capacity in emergency response infrastructure	C, O, D	ALL	B) WEGH2	2

Item	VC ¹	Potential Interaction and Rationale	Mitigation Measures	Project Phase ²	Applicable Area ³	Examples of Successful Mitigation Use on Other Projects ⁴	Effectiveness (1-3) ⁵
		scope of municipal services for emergency response and water supply.	and services. C) Work with the Town of Placentia to ensure equitable allocation of community water supplies that can satisfy local needs.				
77	SE	Lack of engagement with the public and other stakeholders, which has the potential to delay the project.	A) Provide meaningful two-way engagement with the public. B) Ensure timely information sharing and responses. C) Tailor engagement efforts to meet the various interests and needs of stakeholders. D) Provide informed decision making based on feedback gathered.	C, O, D	ALL	A) WEGH2 B) WEGH2	2
<p>NOTES</p> <p>¹ AtE (Atmospheric Environment), AqE (Aquatic Environment), HCR (Heritage and Cultural Resources), HHQL (Human Health and Quality of Life), LRU (Land and Resource Use), TE (Terrestrial Environment), SE (Socio-economic Environment).</p> <p>² C (Construction), O (Operations and Maintenance), D (Decommissioning and Rehabilitation), U (Unplanned Events), ALL (All Phases).</p> <p>³ AB (Argentia Backlands), AP (Argentia Peninsula), PIL (Project Interconnect Line), ALL (All Areas).</p> <p>⁴ WEGH2 (Port au Port-Stephenville Wind Power and Hydrogen Generation Project [Project Nujio'qonik GH2]), VBWEP (Voisey's Bay Wind Energy Project), HIW (Henvey Inlet Wind), BLWPP (Bear Lake Wind Power Project).</p> <p>⁵ Level of Effectiveness rated using a 1-3 range scale, where 1 = Regulatory requirement/standard condition; 2 = Industry Standard Practice; 3 = Customized to the Project/Location or is Innovative, Requires Effects Monitoring.</p>							