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Boat Harbour Remediation Project: December 2020

NS Government

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Memo

To: Bridget Tutty, EA Officer,
NSE Fr: Environmental Health,
NSE Date: December 16, 2020
RE: Boat Harbour EIS Comments

Bridget,

The following comments are provided by Environmental Health, NSE, on the Boat Harbour EIS documents.

General Comments

- Information provided in the EIS is presented in a manner that challenges readers to navigate among a number of different documents to develop an understanding of the report's findings. This creates a time-consuming and cumbersome review process for readers. The information contained in the EIS is primarily comprised of general statements, with no supporting evidence, data, or rationale. The data and the detail are primarily contained within supporting documentation. Providing greater overlap of information among the various documents would make the review process less burdensome.
- The review period was very time-limited considering the volume of information presented in the EIS and supporting documentation and the manner in which information is presented.

Air Quality and Odours

- The reviewer was unable to find information on what work was undertaken to identify COPCs for both the IAAMP and the real-time monitoring program. It is unclear how those identified COPCs were selected. Typically work of this nature would include establishing inclusion/exclusion criteria for identifying COPCs, and then screening all contaminants against the criteria to determine those deemed COPCs.

Please describe the rationale/process for selecting COPCs.

- The real-time monitoring program is not well described in terms of specific actions to be taken when action levels are approached/reached/exceeded. The plan currently does not provide specific direction for response. Describing in greater detail mitigations to be undertaken related to operations, monitoring and reporting will allow for a timely and coordinated response to such events.

- The EIS makes clear the potential for odours to be generated from site activity, though odour is not being separately monitored. Odour causing substances may have low olfactory thresholds, and individual perceptions of odours can vary dramatically among people. In anticipation of odour complaints related to project activity it is advised that a plan be developed to identify, monitor, mitigate and report on odours originating for the work site.

The EIS makes passing mention of the potential use of odour suppression processes for reducing odours leaving the work site. It is recommended that responsibility for activating odour suppressing materials is maintained by the proponent, rather than the contractor.

Noise

- The baseline noise monitoring work was undertaken in 2017, when the Pulp Mill was in operation. The EIS does not address what level of background noise measured at Boat Harbour in 2017 may have been attributed to the mill operations, if any.

Please clarify and confirm whether mill operations would have impacted baseline noise levels measured in 2017, and if so, please justify why the 2017 observed noise levels would represent baseline conditions now that the mill is not operating.

- Data for the predicted/modelled noise impacts arising from site activities are not provided for review. Provide supporting data for the report's findings.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review : NS Office of Aboriginal Affairs

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
OAA-1	OAA Reviewer 3	Office of Aboriginal Affairs – Consultation Division	Part 6 Impacts to potential or established Aboriginal or Treaty Rights	Page 11, section 3.1.3 Wetland Management	The EIS notes that a risk-based remedial approach (used for wetlands) is a scientific method widely accepted by regulators but does not cite a source or include which Canadian regulators widely accept this approach. Since this approach is used to estimate adverse health impacts on humans it may be of concern to the Mi'kmaq.	Provide additional information to support the claim that a risk-based remedial approach is a scientific method widely accepted by regulators.
OAA-2	OAA Reviewer 3	Office of Aboriginal Affairs – Consultation Division	Part 6 Impacts to potential or established Aboriginal or Treaty Rights	Page 27, section 3.1.7 Remediation Infrastructure	The EIS notes that temporary water supply service to PLFN would be required during causeway removal and bridge construction activities. Permanent water supply would not be reinstated until the proposed bridge is constructed. Relying on a temporary water supply for an undetermined period of time may be of concern to the PLFN.	Does this water supply include drinking water for PLFN? Provide more details on how this temporary service will operate including the estimated timeframe PLFN will rely on temporary water supply.
OAA-3	OAA Reviewer 3	Office of Aboriginal Affairs – Consultation Division	Part 6 Impacts to Potential or Established Aboriginal and Treaty Rights	Pages 8-9 section 6.2.3.1 Land Transfers Undertaken	The EIS notes “known areas of burial grounds and areas of high potential as historical burying grounds have been identified through the baseline Archaeological Study. All lands confirmed and in question in this regard are being examined by NSLI for transfer of ownership to PLFN.” In 2019, NSLI advised PLFN that their recommendation on remediating the section of pipeline where known and potential burying grounds are located would be respected and accommodated.	Provide additional details as to how this accommodation was reached ie. through formal consultation. The Mi'kmaq of Nova Scotia are interested in lands where known and potential burying grounds may be located. It is good that this has already been accommodated and that an agreement has been reached with PLFN.

General comments on the EIS:

Table 6.6-1 provides a good summary of potential impacts and associated accommodations to Aboriginal and Treaty Rights. Wherever possible, it is beneficial to clearly show how specific accommodation measures have been implemented to address any potential adverse impacts to Aboriginal and Treaty Rights.

Date: December 16, 2020
To: Nova Scotia Environment
From: The Department of Business
Subject: Boat Harbour Remediation Project

The mandate of the Department of Business (DOB) is to lead and align provincial government efforts behind a common agenda for inclusive economic growth. This mandate focuses on strategic priorities and opportunities that encourage Nova Scotia's innovation, competitiveness, entrepreneurship, and export orientation.

Fulfilling this mandate involves working collaboratively with our Crown corporations (Develop Nova Scotia, Halifax Convention Centre Corporation (Events East Group), Innovacorp, Invest Nova Scotia, Nova Scotia Business Inc. and Tourism Nova Scotia), key partners in other levels of government, entrepreneurs, large businesses, post-secondary institutions, venture capital investors and Nova Scotians.

After reviewing the information submitted on the Boat Harbour Remediation Project, the proposed project was deemed to be consistent with the mandate of the Department of Business.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1 – NSE Water Resources Engineer - Sustainability and Applied Science Division

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
1	WRE	NSE	N/A	Figure 7.1.25	Clarity of submission	Request figure include topography for confirmation of drainage boundaries
2	WRE	NSE	N/A	7.1.4.2.1	Clarity of submission	Request this section include a figure that shows the location and details of the watercourses included in text
3	WRE	NSE	N/A	7.1.4.2.1	Clarity of submission – various information is provided that seems to contradict itself later in the submission	<p>The submission is lacking a level of clarity surrounding the approach and results. Results are provided throughout the section, but are challenging to follow, with seeming contradictions in several statements, including those summarized below.</p> <ul style="list-style-type: none"> On page 7-82, it outlines that low flows were modelled for June and October, where on 7-83 it outlines that minimum flows occurred during the month of August and are generally low from May until August? If the flows are indeed for June and October, what is driving the low flows? What is driving the lack of variability in the results – is it the restriction at the bridge and the consistency in Point C inflows which make up the majority of the flow through the system? The current level of information is light on analysis of what these results mean and how they should be considered. It is stated that “...effluent discharge (Point-C observed) coming from the BHETF constitutes a major portion of flows simulated at the outfall of the study area (Estuary)” (7-83). It is then stated that “The effluent discharge was 8 to 9 percent of the total annual flow measured at Point-C during all months.” (7-83) – this seems to contradict the previous statement, and is confusing? Through reading the section, it is

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						<p>difficult to understand the connection and/or differences between effluent discharges and Point-C flows</p> <ul style="list-style-type: none"> The subcatchment delineations on Figure 7.1.26 are difficult to follow in certain cases, with titles of the subcatchments apparently missing from a few of the subcatchments? Could this figure be made more clear?
4	WRE	NSE		7.3.7.4, 7-357	Clarity and justification of information presented in submission	<p>No justification is provided for the assumptions provided. For example, why was a Chicago 3 hour storm distribution with a 5 minute intensity chosen to drive the model?</p> <p>How do the Charlottetown and Caribou Pt. IDF curves compare, and is Charlottetown a fair analogue station?</p> <p>The approach to generating the hyetograph as presented in the document is not clear.</p> <p>Figure 7.3.8 does not show the pipeline discussed in text, and without this information it is unclear as to what is being proposed. Additional information that is provided in text in this section should be on this figure.</p> <p>Information related to the design of ditches and settling ponds is provided in text – this would be more effectively communicated through drawings.</p>
5	WRE	NSE		Appendix Z, Table of Contents		The Boat Harbour Hydrogeology Assessment is incorrectly listed as a hydrology assessment

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
6	WRE	NSE		Appendix Z, Water Quality (Total Suspended Solids) Effects Assessment	Clarity and justification of information presented in submission	<p>Reference to modelling and a report completed in 2004 (ENSR International and Jacques Whitford). This assessment is 16 years old – is the work referred to in that document still relevant and trustable? Are the approach, model, inputs, and assumptions still acceptable in the context of the information collected since this report was completed, and the advancements in modelling and otherwise that have occurred during that time?</p> <p>This report refers to previous modelling of maximum TSS concentrations completed by Jacques Whiteford and ENSR International. What, if any, connection is there between these results and those presented as part of the Coastal Hydraulic Modeling report later in Appendix Z, which appears to recreate much of the same modelling?</p> <p>The mitigations presented for aquatic life in this document include ‘Conduct construction and major operations outside critical periods for the protection of aquatic life’, among others that have more of a focus on acute management of TSS releases. Results of TSS modelling in the Coastal Hydraulic modeling report highlight that TSS loadings will be elevated over the long-term – how effective are these proposed mitigations with that in mind?</p> <p>In Table 5, Reintroduction of Tidal Influences is listed as a positive effect. What about the significant TSS loadings projected to be caused by this activity at the beginning? This is not addressed in this table. There may be validity in calling the long-term reintroduction of tidal influences as a positive, but the short-term impacts should have their own Project VC interactions entry, as this is occurs after the activity of decommissioning the dam. This</p>

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						<p>entry should be linked to the results of the Coastal Hydraulic modeling report/Jacques Whitford/ENSR reports.</p> <p>How is 'regional area' defined? This is not shown on a map or otherwise described in this report.</p> <p>In general, this report does not provide enough level of detail to support any recommendations or determination of significance related to TSS and the proposed project activities.</p>
7	WRE	NSE		Appendix Z, "Preliminary Bridge Design Coastal Hydraulic Modelling"	Clarity of approval requirements	It is outlined that the proposed design for the bridge is not in line with the watercourse alteration standard – please be aware that an application for watercourse alteration is required, if wasn't already intended.
8	WRE	NSE		Appendix Z "Coastal Hydraulic Modeling"	Justification of assumptions	<p>It is stated that "the objective of the study was to estimate the equilibrium TSS concentrations within the re-naturalized Boat Harbour, rather than the project-related change in TSS over baseline conditions"</p> <p>Could this be clarified? In saying baseline conditions, do they mean baseline conditions downstream of the boat harbour discharge location? If yes, why wasn't understanding this a part of the objectives?</p>
9	WRE	NSE		Appendix Z "Coastal Hydraulic Modeling"	Connection to main report	Where is this information and proposed mitigations in the main report found? Appendix Z provides significant detail surrounding projected TSS loadings post-dam removal – where is this summarized and discussed in main report, with plans for mitigations? Beyond highlighting general approaches such as the installation of silt curtains, I see no clear connection between these results and the information provided in the main report.

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						The 25 mg/L requirement is mentioned briefly in this appendix and report, but the feasibility of meeting this criteria is not discussed – where is this discussed? I see a proposed mitigation on page 8-18 as “Control effluent discharge to estuary at the outlet control structure to respect the TSS CCME criteria (< 25 mg/L from background level)...” – what about when the outlet control is removed and the system is working to equilibrium, what will be done to limit TSS loading into the Northumberland straight, if anything? What are the potential risks and impacts to the downstream environment associated with a TSS discharge of this duration and magnitude?
10	WRE	NSE		Volume IV of V, Table of Contents	Readability	The current table of contents is very difficult to read and understand. Recommend using a different format that makes the specific sections (e.g., “7.3.9 – Wetlands”) much more easily found within each page.

General comments on the EIS:

‘WRE’ refers to Water Resources Engineer, who has reviewed under the lens of impacts to surface water quantity. The following must be noted in consideration of these comments and the related review that took place:

- The submission includes a substantial amount of content (~20,000 pages).
- The timelines provided for provincial review and comment were limited – the 12-14 weeks afforded to the federal technical review were not provided to provincial staff as part of the review that informed the comments above.
- As such, this review was required to be of much tighter scope – sections clearly marked as being specific to surface water quantity were considered, but there was limited (if any) review of any other sections and Appendices for other items related to surface water quantity (e.g., fish and aquatic habitat, wetlands, groundwater). As a result, these comments should not be viewed as comprehensive remarks on the project or its impacts on surface water quantity.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1 – NSE Hydrogeologist - Sustainability and Applied Science Division

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-1	SAS Hydrogeologist	Nova Scotia Environment		Vol II, Page 2-10, Section 2.2.1.2.2	The proponent seems to be referring to “natural attenuation” as an unspecified remedial treatment method for surface water and presumably groundwater contamination which amounts essentially to “flushing”, or in other words, dilution. More science-based information and site application would be helpful in the reference to monitored natural attenuation as an actual remediation technology that uses biological, chemical and physical processes to reduce contamination in a quantifiable way.	If planning to continue to use the term “natural attenuation”, the proponent should likely refer to USEPA methods (or other) and explain how they will be applied to the site (i.e. Monitored Natural Attenuation as a multi-faceted and quantifiable remedial technology). Otherwise, it will be appropriate to use another more applicable term such as “dilution”.
NSE-2	SAS Hydrogeologist	Nova Scotia Environment		Vol II, Section 1 and Section 2	It is not entirely clear the options/process/rationale for determining groundwater clean-up criteria that the proponent worked through. There are a number of chemical parameters in soil, sediment, water and groundwater that exceed generic or risk-based provincial and federal criteria, whereas it appears these may be not ultimately used.	What is the rationale for using HHRA and ERA to determine the only clean-up criteria for the site? Would it not make sense to use a combination of criteria? Otherwise it appears there are only two clean-up parameters for the site (Vanadium and D/F), is that correct? In addition to applying to sediment, do these two parameter clean-up criteria apply to other media such as groundwater?
NSE-3	SAS Hydrogeologist	Nova Scotia Environment		Vol II, Section 1 and Section 2, Appendix A HHRA/ERA	Not clear how the remediation management approach, in particular for groundwater, has been apparently already been determined for the site	Why is it assumed that a risk-management approach for groundwater impacts is the best approach to be applied across the site? Are assumptions about future-use consistent with the needs and wishes of the current and future landowners?
NSE-4	SAS Hydrogeologist	Nova Scotia Environment		Vol IV, p. 7-45	The report references preliminary information for water wells: “The Nova Scotia Well Log Database lists approximately 200 wells in the community of Pictou Landing. There is only one dug well reported, the others are drilled wells completed in bedrock.” (p. 7-45). Note that the online Nova Scotia Groundwater Atlas tool was used by the reviewer to identify the presence of over 350 water wells within a 2 km buffer radius and 140 water wells within 1 km buffer radius of the approximate Boat Harbour Study Area boundary. This	The proponent is requested to conduct more in-depth locating and field-truthing study of verified water wells within a 2 km distance of the Site Study Area boundaries. In addition, determine and present the criteria for conducting a pre-construction Baseline Residential Water Well Survey, including determinant radius from site study area (i.e buffer distance from site study area boundary within which water wells will be surveyed); and

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					tool uses the NS Well Logs Database data. All well locations from the Well Logs Database require field verification for reliance purposes.	information to be collected (well info, water quality, water quantity).
NSE-5	SAS Hydrogeologist	Nova Scotia Environment		Vol II, Page 3-44 and Appendix A HHRA/ERA	SSTL's for sediments are reduced in the HHRA/ERA to Vanadium and Dioxins/Furans only.	The proposed sediment SSTL is 49 mg/kg Dioxins/Furans. Why is the lower NSE EQS Tier 2 value of 39 mg/kg not used?
NSE-6	SAS Hydrogeologist	Nova Scotia Environment		Vol IV, p 7-331	Assumption that "...the future use of the Site will be non-potable for groundwater"	How has future non-potability for this site been determined? This is counter to the Nova Scotia Environment requirements that in general, groundwater outside of municipally serviced boundaries be all considered as potentially potable. The assumption of non-potability at this site has huge implications to future use, generations from now. It also potentially conflicts with the present use of groundwater by PLFN at the wellfield(s) located in the study area. Please provide a rationale for this assumption.
NSE-7	SAS Hydrogeologist	Nova Scotia Environment		Appendix A, p 217 Appendix Z, p. 239	It is stated in several places that water levels in the estuary and lagoons are expected to decrease, at least during remediation and perhaps permanently. This also affects groundwater levels and should be quantified. Appendix Z also notes that predicted groundwater level declines in the lagoons etc. could also have minor effects on the PLFN well field of almost 1 m. Appendix Z , p. 239	Provide the estimate of water level decline expected during remediation and indicate the duration and whether there is permanent declines also anticipated and to what degree.
NSE-8	SAS Hydrogeologist	Nova Scotia Environment		Vol III, page 4-20 and Vol IV, page 7-73, Appendix Y and others	Conflicting statements in these sections say: - " We have tested groundwater at different points in the pre-remediation process and there are no signs of contamination. Best practices will be in place to ensure groundwater remains clean." (p. 4-20); and on the other hand	Please clarify the degree, parameters and extent of groundwater contamination and clarify current understanding of different information presented on Page 4-20 (Vol III) and Page 7-73 (Vol IV). What are the groundwater quality clean-up criteria for the site?

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					- the groundwater contamination exceeded criteria for “some metals and general chemistry parameters” (p. 7-73)	
NSE-9	SAS Hydrogeologist	Nova Scotia Environment		Vol II, page 2-72	Unknown status of overall drinking water resource strategic planning regarding use of PLFN Wellfield wells (on and off peninsula) and other community water wells	What is the status of the “on-peninsula” wellfield groundwater supply for the PLFN? There is a new off-peninsula supply, but is the former wellfield being kept as a back-up supply in any way? Is the wellfield decommissioned or are the wells being managed for potential future supplementary or back-up use? If being kept as back-up, are there additional concerns regarding planning for the remediation construction as proposed?
NSE-10	SAS Hydrogeologist	Nova Scotia Environment		Appendix Z – two studies 1. Boat Harbour Hydrogeology Assessment (AECOM 2016), p. 208 2. Well Field Evaluation Report (GHD 2018), p. 300 and Vol IV, p. 7-53 and Vol IV, P. 7-329	In Appendix Z, two different studies seem to provide different views on the source of water and impacts of construction to groundwater for the PLFN Wellfield. The Appendix Z AECOM 2016 groundwater modelling work provides a hydrogeological conceptual model supported by observations. This work indicates that the PLFN off peninsula wellfield source capture zone extends approximately 500 m or so to the east, upgradient of the wells. The source zone is hydraulically connected in the model to precipitation recharge which transmits through the overburden, shallow bedrock to deep bedrock layering. So hydraulic connection of layers is implicit in the model. Conclusions are made that changes in wellfield groundwater levels due to the remediation dewatering will be present, although relatively small. Vol IV reports (p. 7-53) that “there is a downward vertical gradient between either the overburden or shallow bedrock and the deep bedrock” at the PLFN wellfield The Appendix Z GHD 2018 report however states categorically that here is no hydraulic connection between groundwater in the upper shallow bedrock/overburden layers and the deeper bedrock wellfield source zone. Geological layer information does not seem definitive, but the proponent does not seem to indicate stratigraphic	Provide a consistent summary for the PLFN wellfield operations that uses all available information to best evaluate: <ul style="list-style-type: none"> - the PLFN off-peninsula wellfield source capture zone - a description of model layer infiltration, vertical and horizontal conductivity and flow that matches a conceptual hydrostratigraphic model - confirm potential BH lagoon/estuary water level lowering effect potential on groundwater levels and the significance of this. Should consider effects at locations of both on-peninsula and off-peninsula wellfields. The proponent does not state that the deeper groundwater zone is a confined aquifer. However, given the statements about non-hydraulic connection, what would be the effective confining layer that they have assumed? Finally, is there a Source Water Protection Plan for the PLFN wellfield supply that outlines areas to be protected and, if so, can this be referenced?

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					layering is a cause for confining layers. However, regardless of whether true aquifer confinement is present, it must be asked – where is the source origin for groundwater in the fractured deep bedrock zone of the wellfield?	
NSE-11	SAS Hydro-geologist	Nova Scotia Environment		Vol IV Figure 7.3-16, p. 406 and p. 7-246	Pipeline Decommissioning and construction effects concerns for nearby adjacent residential water wells along Pictou Landing Road Hwy 348	Does the proponent plan to conduct pre-construction water well surveys to assess well construction, water quantity and water quality for residential water wells located adjacent to construction areas?
NSE-12	SAS Hydro-geologist	Nova Scotia Environment		Appendix A, p. viii	Conclusion that ERA showing no required remediation in any environmental media (including groundwater) for Uplands, Freshwater Wetlands and Estuary seems questionable.	Clarify this finding – does it apply to all environmental media (soil, sediments, surface water, groundwater)? This finding of the ERA concludes that no remediation is required from an ecological perspective. This bold statement has significant implications and should be thoroughly evaluated by others with more specific Environmental Risk Assessment science expertise.
NSE-13	SAS Hydro-geologist	Nova Scotia Environment		Vol IV p. 7-198	Statement of no residential potable wells of concern from project areas. What if potable wells are developed on private land adjacent to site in the future, are these potentially at risk?	Is future land use a scenario that presents any risk regarding groundwater use, in particular through the water well drinking water ingestion pathway?
NSE-14	SAS Hydro-geologist	Nova Scotia Environment		Vol IV – P. 7-341	Clarify commitment to groundwater remediation to meet health criteria based on statement on p. 7-341: “Should groundwater impacts above applicable criteria for the Site be detected during monitoring the effects would be further evaluated by a re-sampling and if found to be indicative of an effect, mitigation measures would be employed in consultation with appropriate regulatory agencies as per the draft PEPP. Mitigation measures based on Site conditions would include source identification and removal, groundwater removal and treatment or containment by hydraulic or physical methods until impacts were within appropriate limits.”	With regards to the statement on p. 7-341, what are the applicable groundwater criteria that are anticipated to be applied as indicator and mitigation criteria during remediation?

General comments on the EIS:

The following must be noted in consideration of these comments/request for information and the related review that took place:

- The Boat Harbour EIS submission includes a substantial amount of content (~20,000 pages)
- The timelines provided for this provincial review and comment were limited
- Focus for this review was regarding aspects that may be of most relevance to groundwater and water wells
- The objective was not a full and comprehensive review, but rather identification of groundwater issues of note requiring additional information, from a provincial regulatory and technical perspective.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1 : NSE Climate Change Unit

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-CCU 1	CCU-	NSE-CCU	Part 7 – Effects assessment 7.6 Other things to consider 7.6.2 Effects of the environment	7.1.2.3	Executive Summary refers to Climate Change Resilience Assessment provided in Appendix V. This section summarizes the historic climate and the impact a changing climate on the remediation project and the infrastructure that would remain.	Please provide a summary of future climate projections and not only historic climate in the text of this section. Please provide sources for climate factor trends referenced in this section
NSE-CCU-2	CCU-	NSE-CCU	Part 7 – Effects Assessment 7.1.1 Other changes to the environment	7.4.1.1	Climate Change and Extreme Weather This section outlines how the different phases of the project – construction and post-remediation monitoring will be impacts by climate change. Project is relatively short in duration from a construction perspective. Longer-term monitoring of the containment cell will be required from a climate change interaction perspective.	Please include discussion on how natural wetland restoration will be monitored Please provide information on how long term monitoring of the containment cell will take place, what measures might be taken to adapt to unanticipated climate change impacts, such as storm water overflow or ground water impacts.
NSE-CCU-3	CCU-	NSE-CCU	Part 7 – Effects Assessment 7.1.1 Other changes to the environment	7.1-10	Climate Resilience assessment table The table summarizes climate and infrastructure interactions for the construction and post construction phases. The bridge across the estuary is designed using the predicted sea level for the year 2100, including the current 1-in-100-year storm surge and precipitation intensity-duration-frequency (IDF) \ <ul style="list-style-type: none"> • _Potential effects of rising sea level on bridge maintenance are being modeled and will be addressed through armoring. • The containment cell is located at a point approximately 8 m higher above sea level than the current high-water mark at the nearest point in the Boat Harbour estuary, it is unlikely that sea level rise will be a factor for this facility. 	What is the numeric value for the 2100 sea level rise projections used in this table? What is the rationale for using the current 1-100 storm surge, and iDF curves? Please explain how these will change under 2050 and 2100 climate projections. Please include the modelling for future sea level rise and how it will effect bridge maintenance and natural wetland restoration. Please describe the proposed armoring at bridge and dam removal site and how it will protect bridge from sea level rise and storm surge

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					<ul style="list-style-type: none"> The dredged estuary will be allowed to return to a natural state, rising sea levels will raise water levels in the estuary. Armoring will be used to address erosion along the shoreline following removal of the dam. <p>Stormwater runoff at the sludge disposal facility will be managed in accordance with provincial regulations for similar waste management facilities. The stormwater management system includes stormwater runoff ditches, sized to accommodate a 1-in-25-year storm event (under post-closure/capping conditions), and a stormwater management pond, sized to accommodate a 1-in-100-year storm</p>	<p>Please provide rationale for why storm water management ditches and storm water management pond sized for 1:25 year storm event rather than 1:100</p> <p>Please include specification for storm management ditches and pond sized for 1 in100 year storm event for 2150 and 2100.</p>
NSE-CCU-4	CCU-	NSE-CCU	7.2.3 - changes to riparian habitat and waterways	Table 7.1-8	Lyme Brook Climate indices for 1971-2000 and 1981-20	Please include climate projections for time per of 2050 and 2100 as they will be most appropriate for bridge design
NSE-CCU-5	CCU-	NSE-CCU	Part 7 – Effects Assessment 7.1.1 Other changes to the environment	Table 7.1-9	Table of monthly Global Climate Models (GCM) data for mean temperature and total precipitation. For the purpose of this assessment, climate factors assessment included: <ul style="list-style-type: none"> _Changes to rainfall _Changes to temperature _Extreme events (e.g., storms) Sea level rise 	Please include monthly or seasonal changes in temperature and precipitation rather than only annual mean or average
NSE-CCU-6	CCU-	NSE-CCU	Greenhouse Gases	Volume IV Pg. 12 – 15 Section 7.1.2.2 Greenhouse gases Pg. 255 -289	<ul style="list-style-type: none"> Emission reduction, mitigation and project benefits <p>Emission mitigation best practices for diesel and mobile equipment emissions such as no-idling-policies are usually satisfactory in the absence of alternatives. There is a notable increase in transport emissions in the project scenario compared to the baseline scenario, however the overall effects of the project seem to justify the need for this aspect of the operation.</p>	The proponent should incorporate the most recent electricity emissions projections for Nova Scotia Power over the given timespan into the estimation of the emissions from purchased electricity for the baseline scenario.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
				<p>Section 7.3.2.1 Predicted Changes to Greenhouse Gas Emissions</p> <p>Section 7.3.2.6 Greenhouse Gas Significance of Residual Effects</p>	<p>From the estimates provided for the baseline and project scenarios, decrease in purchased electricity and reduced emissions from the containment cell over the timespan, stand out as the key drivers of the GHG reductions expected after project implementation. Though this is expected, it is important to show how changes in Nova Scotia's electricity generation emission intensity over the 25-year span would affect the emissions of the baseline scenario in order to ascertain a true picture of the project benefits in terms of GHG reduction.</p>	

General comments on the EIS:

Appendix 5 - Greenhouse Gas and Climate Resilience Assessment document

This document summarizes the findings of the Climate Change Resilience Assessment

A qualitative assessment of future climate trends and impacts is provided based largely on Warren, F.J. and D.S. Lemmen. (2014). Synthesis in Canada in a changing Climate: Sector

While the general trends in climate projections remain similar to the 2014 references, using more up-to-date climate projections would strengthen the document and perhaps allow more detailed adaptation planning. CCU recommends the proponent should also look to the following sources for more up-to-date projections for key variables, including monthly and seasonal averages

Climate Atlas of Canada. www.climateatlas.ca

Canadian Climate Data Portal. Climatedata.ca

These sites include data from 2016 Canadian climate scenarios, including seasonal and monthly break down for temperature and precipitation in reference sites near the project site. CCU recognizes the data on these sites is not broken down to the level of Pictou County.

- Scenarios, sources and scope

The proponent has identified both direct and indirect emission sources that fall within scope 1 and scope 2 for GHG estimation of the proposed project. According to accepted guidelines such as the climate lens for estimation and categorization of emission sources, those covered by the proponent are sufficient the purposes of evaluating the project and the baseline emissions. The proponent has also qualitatively estimated the degree to which different aspects of the product affects and interacts with GHG mitigation plans. (construction, operation, waste management etc.).

- Timespan and assumptions for projections

A 25-year time span was used for the projection of emissions from both the baseline and the project scenarios. Specific assumptions were made for any changes in operations regarding the project scenario after the third year. The differences in the operation under both scenarios have been clearly outlined for both the direct and indirect emissions.

- Calculations, equations and references

Calculations of GHG emissions for the activities identified within the scope have been done using acceptable standards which apply such as the Nova Scotia GHG QRV standards. The quantification of Land-fill gas has been done using well outlined models and conservative assumptions % methane and % CO₂. There is also a realistic increase in mobile equipment activity with the introduction of sludge transportation in the operation of the project. These emissions have also been quantified using equations and assumptions allowed by the Nova Scotia Greenhouse gas QRV standards

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1: NSE Wetland Specialist

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-WL-01	Wetland Specialist	NSE SAS Division, Water Branch		2.3.3 Page 2-32	“Construction of access roads into the wetlands to facilitate dewatering and removal activities would be required. Dredging would remove wetland vegetation and root mass as well as sludge. Where practical, vegetation would be segregated, tested and used as a soil amendment, (if it has been determined to be non-impacted).”	Is this material proposed as a soil amendment for on-site reinstatement activities only?
NSE-WL-02	Wetland Specialist	NSE SAS Division, Water Branch		2.3.3 Page 2-34 Table 2.3-3 Regulatory/Compliance/Ease of Obtaining Approvals	“Both Alternative Means were considered to have a generally high level of compliance for ease of approvability. Under Alternative Mean 2, the timeframe needed to completely restore the wetlands following ex-situ remediation activities is very long, and implementation of a compensation plan may be required to ensure approvability “	Compensation will be required by NSE for <u>all</u> wetland losses identified on lands under Provincial jurisdiction.
NSE-WL-03	Wetland Specialist	NSE SAS Division, Water Branch		7.1.5.1 Terrestrial Habitat and Vegetation Page 7-95	“Over 240 vascular and non-vascular species were identified during the botanical surveys completed during the terrestrial habitat surveys, wetland assessments and spring ephemeral surveys. Of these, only one species is classified as a SAR with another two species classified as SOCC. Black ash (<i>Fraxinus nigra</i>) is listed as Threatened under the federal SARA and Nova Scotia ESA (NS ESA). Black ash was observed in localized areas in the southern portion of the Site Study Area and is believed to have been planted and not naturally occurring. Discussions with PLFN indicated that black ash (known as Wisqoq in Mi'kmaw) was planted in the area a few years ago”	Presumably, the black ash is located in a wetland. If so, could be considered a Wetland of Special Significance, regardless of the planted origin of the species.
NSE-WL-04	Wetland Specialist	NSE SAS Division, Water Branch		7.1.5.2 Wetlands Page 7-97 & Table 7.1-29	“Regarding wetland function, it is difficult to pin-point definitive trends or parameters that are uniform throughout the site due to the abundance of wetland area within the Site Study Area, and wide range of wetland sizes encountered. Most of the wetlands identified have a moderate or high value pertaining to sediment retention, and all wetlands on-site have low potential for anadromous fish habitat.	For this statement, it is unclear whether the conclusions are based upon the derived WESP-AC Functions, Benefits, or both. Please clarify.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					<p>After review of the wetland grouped function tables it is possible to generalize the wetland scores as follows:</p> <ul style="list-style-type: none"> • Hydrologic group function Mostly Lower • Water quality support group Mostly Moderate or Higher • Aquatic support group Mostly Moderate • Aquatic habitat group Mostly Moderate or Higher • Transition habitat group Mostly Moderate or Higher • Wetland Condition Mostly Moderate • Wetland Risk Mostly Moderate or Higher” 	
NSE-WL-05	Wetland Specialist	NSE SAS Division, Water Branch		7.1.5.2 Wetlands Table 7.1-29	Wetland Complexes 2,5, 13, 18, 20, 22, 23	Please provide rationale for why the identified wetland areas were complexed together for the purposes of completing WESP-AC. In some cases it is evident on the basis of a shared hydrologic connection, and general proximity (i.e., WL 2abc), but in other cases unclear (i.e., WL 18abc, WL 20abcd, WL 23abc all of which are swamp/marsh complexes located around periphery of BHSL)
NSE-WL-06	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.2 Wetlands Boundaries Page 7-406	“Further wetland protection is provided on a federal level by the Federal Policy of Wetland Conservation (1991).”	Presumably only applicable on Reserve lands, or if Federal money is at play.
NSE-WL-07	Wetland Specialist	NSE SAS Division, Water Branch		Table 7.3-150 Page 7-411	“Compensate for loss of wetland functions that support mammals and wildlife as part of the wetland compensation plan to be submitted to NSE”	Compensation will be required by NSE for <u>all</u> wetland losses identified on lands under Provincial jurisdiction (i.e., non-Federal), not only those containing wildlife.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-WL-08	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.5 Wetlands Monitoring Page 7-430	“In order to verify the accuracy of the environmental assessment and the effectiveness of the mitigation measures proposed, a follow-up monitoring program will be carried out. Monitoring will commence prior to the start of remedial activities until the end of decommissioning activities. The details of the monitoring programs will be determined in consultation with scientific advisors and regulatory agencies.”	Detailed wetland monitoring plan will be a requirement for obtaining Wetland Alteration Application approvals from NSE for the Project.
NSE-WL-09	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.6 Wetlands Significance of Residual Effects Page 7-431	“Sediment release during the operation of heavy machinery and the subsequent remediation of impacted wetlands is the most probable impact to be encountered during the lifespan of the Project. Resulting in alteration, and loss of 31 ha of freshwater wetland habitat.”	Not clear how sediment releases can result in an impact of this magnitude. Please elaborate and provide rationale.
NSE-WL-10	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.6 Wetlands Significance of Residual Effects Page 7-431	“Direct wetland alteration may lead to the loss of macrophyte communities found in a wetland set for remediation.”	Not clear if this loss will be permanent. If wetland hydrology is maintained would plant communities recover in time? This will inevitably vary depending on whether systems are being maintained as freshwater, or are being reintroduced to tidal influence. Please elaborate and provide rationale for this statement.
NSE-WL-11	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.6 Wetlands Significance of Residual Effects Table 7.3-164 Page 7-433	Project Component “Dam” Reversibility of dam removal is indicated as ‘Reversible’, and Significance as ‘Not Significant’.	This determination appears to be made in the context of activities in the dam footprint itself, and is not considering the full upstream effects of dam removal, including reinstatement of tidal flow to the estuary. While it is arguable that the residual effect of reinstating tidal flow (i.e., conversion of freshwater wetlands to brackish/tidal wetlands) is not adverse and could be considered ‘Not Significant’ in that sense, it is nonetheless irreversible. Please elaborate and provide rationale for this determination. This should be provided in the context of the foreseeable changes to wetland characteristics on

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
						the basis of a fundamental change in hydrological characteristics (i.e, freshwater non-tidal, to brackish tidal).
NSE-WL-12	Wetland Specialist	NSE SAS Division, Water Branch		7.3.9.6 Wetlands Significance of Residual Effects Table 7.3-164	A number of occurrences of the following statement: “Compensate for loss of wetland functions that support mammals and wildlife as part of the wetland compensation plan to be submitted to NSE.”	Compensation will be required by NSE for <u>all</u> wetland losses identified on lands under Provincial jurisdiction (i.e., non-Federal), not only those containing wildlife.
NSE-WL-13	Wetland Specialist	NSE SAS Division, Water Branch		6.5.3 Accommodation for Wetlands Page 6-19	“Accommodations for the wetlands restoration after remediation has not yet been fully discussed with PLFN because the final decision on the extent of the wetland areas to be remediated, as documented in the final draft HHERA, which has been presented to agencies and PLFN for review, has not been confirmed. PLFN has reserved their response regarding the impacts to their Aboriginal Treaty Rights of the wetlands removal for when that decision is made. A possible accommodation could be a wetland restoration plan and implementation of that plan with substantive long-term monitoring of recovery that may directly involve PLFN. As well, an approach could be an equal compensatory wetland restoration in another area.”	Final decision on remediation areas in wetlands shall be communicated to NSE. Any wetland restoration plans and monitoring plans shall be provided to NSE, when such plans are available.
NSE-WL-14	Wetland Specialist	NSE SAS Division, Water Branch		6.4.3 Wetlands	“Any destruction of wetland habitat will be subject to compensation through enhancement of existing wetlands on-site and/or creation of new wetlands at least equal in size, in another area near Boat Harbour.”	NSE requirements for compensation are typically at a 2:1 ratio or greater, depending upon functional value, and mode of compensation (e.g., expansion, enhancement, restoration, creation). Restoration of degraded sites wetland sites is favored over wetland creation.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-WL-15	Wetland Specialist	NSE SAS Division, Water Branch		9.2 Monitoring Programs Table 9.2-1	“The specific parameters that will be measured during post remediation monitoring will be confirmed based on the results of the Human Health and Ecological Risk Assessment (HHERA) and through discussions with regulators.”	Potential parameters for monitoring are not mentioned or suggested, despite HHERA results being presented. The HHERA should not be the only consideration in the development of performance indicators for wetland monitoring. What parameters are proposed?
NSE-WL-16	Wetland Specialist	NSE SAS Division, Water Branch		Appendix A – HHERA (Appendix K, Page 4) Freshwater Wetlands	“Risk Management Areas 3 (FSP2) and 5 (FSP5) are located within a densely vegetated cattail marsh. In their existing condition, the presence of the vegetation would act as a sufficient barrier to contact with the underlying impacted sediment (Figures K-3 and K-5). In its existing condition, the presence of the vegetation acts as a sufficient barrier to contact with the underlying impacted sediment. Therefore, two risk management alternatives are recommended for this area: 1) monitor and maintain the existing vegetative cover, and 2) in the case where vegetative cover is absent or its future presence is affected by the BHETF Remediation Project (e.g. change in water levels), removal of the sediment is recommended. If monitoring and maintenance of the existing vegetative cover is undertaken as the preferred risk management measure to prevent contact with sediment, the vegetative mat material should be inspected on an annual basis to ensure that it remains intact and continues to function as a protective barrier for contact. Any observed deficiencies that could result in the underlying sediments being exposed and available for contact should be repaired as quickly as practical or alternative risk management measures implemented.”	What literature is available to support the claim that maintaining vegetative cover (cattails) in Risk Management Areas 3 & 5 is a sufficient barrier against contacting impacted sediments? Such a statement can not be accepted at face value. Provide scientific evidence. Are cattails being suggested simply as being physical barrier, or are they performing a role in phytoremediation? Are cattails in-fact involved in the uptake and incorporation of the contaminants of primary concern into their annual biomass?
NSE-WL-17	Wetland Specialist	NSE SAS Division, Water Branch		Appendix A – HHERA (Appendix H-5 Harvested Traditional Food Consumption – Focus Group Summary, Page 1)	“Based on the exposure assessment in the HHERA, the PLFN resident and/or recreational user are considered the most sensitive receptors who may be exposed to COPCs in sediment by direct contact (incidental ingestion and dermal contact) and COPCs in traditional foods such as plants (cattails, herbaceous and berries), fish, shellfish, and game (organs) through ingestion.”	It seems counter-intuitive that in this statement cattails are identified as a traditional food, yet in the previous comment are identified as an effective barrier against impacted sediment. Is there demonstrated usage of cattails by PLFN as a traditional food?

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
NSE-WL-18	Wetland Specialist	NSE SAS Division, Water Branch		Appendix A – HHERA Freshwater Wetlands Page 24	“Cattails are the dominant herbaceous vegetation in approximately 70% of the Freshwater Wetlands. A large proportion of this area has a free-floating cattail root mat ranging in thickness from approximately 0.2 to 0.5 m. This cattail root mat provides an effective cover from exposure to the underlying sediment.”	Seemingly contradictory statement: If the cattail root mat is free floating, then how can it be an effective barrier against the impacted sediment?

General comments on the EIS:

1. From a wetlands perspective, there is overall concern for the approach of “risk managing” versus remediating in Risk Management Areas 3 (FSP2) and 5 (FSP5).
2. There seems to be little emphasis on the potential ecological effects of the proposed undertaking on those wetlands which will be returned to tidally influenced hydrology.

Limitations of Review by NSE Wetland Specialist:

The following must be noted in consideration of the comments provided on this submission.

1. Provincial review was conducted within a very limited timeframe, and the 12-14 weeks afforded to the federal technical review did not apply to the Provincial review.
2. The submission includes a substantial amount of content (~20,000 pages). As such, a comprehensive review was not possible within the allocated timeframe.
3. In light of 1 & 2 above, the scope of the review was targeted at clearly identified EIS sections and appendices involving wetlands, or portions thereof.
4. Given the reiterative nature of content throughout the submission, the comments provided may also be applicable to other sections not identified in these comments.
5. Given the nature of the limited review within tight timelines, not all concerns of the NSE Wetlands Program are necessarily expressed or otherwise addressed in the attached comments.

Environment

Date: December 16, 2020

To: Bridget Tutty, Nova Scotia Environment

From: Surface Water Quality Specialist, Water Resources Management Unit

Subject: Boat Harbour Remediation Project

Scope of Review:

As Surface Water Quality Specialist with the Nova Scotia Environment (NSE) Sustainability and Applied Science Division, the following review of the EIA and associated documents for the Boat Harbour Remediation Project focuses on surface water quality, and the interaction of project activities / environmental attributes that impact surface water quality (e.g., ground water quality, surface water quantity, erosion, treatment activities, processes, etc.)

The following review considers whether the environmental concerns associated with the above subjects and the proposed mitigation measures have been adequately addressed in the EIA. The recommendations provided below are meant to supplement the actions outlined in the documents submitted by the proponent to the IAAC.

The following must be noted in consideration of these comments and the related review that took place:

- The submission includes a substantial amount of content (~20,000 pages).
- The timelines provided for provincial review and comment were limited – the 12-14 weeks afforded to the federal technical review were not provided as part of the provincial review.
- As such, this review was required to be of much tighter scope – clearly marked sections specific to surface water quality were considered, but there was limited if any review of any other sections and Appendices for surface water quality considerations (e.g., surface water quantity, fish and aquatic habitat, wetlands, groundwater).
- The sheer number of direct references to surface water quality – in the EIS, the appendices, and provided and non-provided references – is of such a high number that it was impossible to review all materials in full, and to adequately synthesize the information in those that were reviewed, in full, within the time horizon afforded for the purposes of this (provincial) review process.

Reviewed Documents

The following documents formed the basis for this review:

1. Boat Harbour Remediation Project. Environmental Impact Statement Volumes I-V.
2. Appendices A, B, Z, & BB of the EIS.
3. Reference Documents provided directly to reviewers (17,

Comments:

- The number of project activities and project components, complexity of the project, complexity of the report, number of individual documents and pages therein, and the relationship of many of these factors to water quality made this an exceptionally challenging report to review.
- Several contaminants of concern have been documented throughout the project site, or at specific locations within the overall site, many of which currently exceed acceptable limits for aquatic life and/or human health. After the entire remediation project is completed, the proponents suggest that the only remaining / residual COCs of concern are dioxins, furans, and vanadium, for human health concerns alone. Despite all the thousands of pages in the report, I find this conclusion hard to believe.
- During the reconstruction / expansion of the Containment Cell, the proponent proposes to temporarily relocate the dredged sediment. The proposed location for this dredged sediment is not disclosed. Significant erosion & sediment control measures are required to protect this stockpile against the impacts of precipitation, runoff, etc., to avoid enabling it to impact the project components and infrastructure located downstream.
- The Water Management Plan presented in Appendix B, section 5.5, indicates that (sludge/sediment) dewatering effluent will be “managed” via natural attenuation. The process of natural attenuation, although identified frequently throughout the EIS, is not defined. This reviewer finds that the implied definition is naturally occurring (physical, chemical, and/or biological) processes in the environment, without other human intervention, and, more specifically in the proposed Project, effectively dilution in the receiving environment. Dilution is not an acceptable water quality treatment process in Nova Scotia.
- Despite the observations, recommendations, and ultimately the conclusions of the Pilot Scale Construction Testing Report, the final, realized, effects of sludge & sediment effluent will depend on the performance of the Wastewater Treatment Facility affiliated with the Containment Cell. The Pilot Testing Construction Report identified that several construction elements under review did not perform as expected (e.g., dredging depth accuracy, dredging solids capture rate, dredging efficiency, operating hours per day, slurry pumping rates). The proponent, contractors, and CMOC will need to develop and achieve highly effective and efficient communication plans to ensure that treatment adapts quickly and appropriately to changing influent conditions, such that the treated effluent continues to comply with regulatory and other performance targets.
- Contingency plans should clearly address the potential for significant project delays associated with time-consuming project activities such as dredging – with

a focus on mitigating perceived risks to the environment undergoing remediation, including but not limited to water quality.

- EIS Volume 2 refers to Cape Breton University's dewatering process, but no further information was found to indicate whether the proponent intends to deploy this process or not, what this process entails, or indeed any further information. In the event that the proponent does intend to deploy this process, in any capacity, through the project, then all associated information must be provided to the regulators to ensure that its operation can satisfactorily protect water quality and all other environmental and human health endpoints while achieving its technical objective.
- On several occasions, the EIS refers to "Geotubes or equivalent technology/ies". At no point, within any of the documents reviewed by this author, were "equivalent technologies" identified or further described. Verified technical and performance characteristics of any "equivalent technologies" must be fully disclosed and accepted by Nova Scotia Environment before they are permitted to be used in place of, alongside, or in any capacity, within the proposed project.
- As specified within the EIS, Volume 2, IAAC should require the Proponent to conduct additional flow verification and water quality testing to validate projected water quality in the BHSL pursuant to the proposed bulk water management process.
- The Temporary Leachate Treatment Facility (TLTF) is proposed to employ four processes to reach acceptable leachate effluent quality. The first of these processes – Coagulation / Flocculation – is proposed to employ at least two if not more products to achieve the process results: polymer, coagulant, lime. The Pilot Construction Test Report identifies the use of products Chemfloc MP2 and Chemfloc AML656. No reports indicate whether these products, their constituents (e.g., Aluminum, a known water quality contaminant), derivatives or by-products, are anticipated to reach Boat Harbour or any associated watercourse or wetland, the projected impacts of these products on water quality, ecological receptors or human health.
- Once constructed, the new and improved Containment Cell is anticipated to receive new sludge and sediment waste for up to five years while these materials are removed from the wetlands, basin, harbour, berms, etc. During this time, the cell is anticipated to receive 1,200mm of precipitation annually, which is anticipated, effectively, to flow through the Cell and associated underground infrastructure back to the ASB. The proponent should consider measures to limit the inflow of precipitation to the cell during its operation to avoid the possibility of additional contaminant loading.
- NSLI identifies the possible use of an interim cover on the containment cell after it has received the final loads of sludge / sediment prior to the installation of its final cover. No decision rules were identified, on which basis, in theory, a decision could be reached NOT to install any interim cover. At a minimum, such rules or 'consideration factors' and their relative weighting should be fully disclosed. It is proposed that water quality protection would be improved if the installation of such an interim cover were made mandatory.
- The Proponent refers to leachate "pre-treatment" on several occasions, but does not clearly specify, to this author's finding, the nature of that pre-treatment, other than dewatering through Geotubes or equivalent technologies. The intended effect, actual means, and verified performance of this pre-treatment process(es)

should be fully disclosed.

- Proposed dust management controls include the use of spraying water on affected surfaces (roads, vehicles, etc.). All such activities should be designed, planned, and conducted in full compliance with site plans, ESC technologies, PPE, etc., to prevent unintended additional contaminant loading to “clean” spaces, places, and watercourses
- The TLTF underground holding tank - beneath the containment cell – must be constructed, maintained, and monitored carefully to ensure that there are no leaks from the facility or attached infrastructure that could affect the nearby groundwater, overlying ground surface, etc.
- EIS Volume II identifies several reports as resources that were not provided to IAAC or associated reviewers (e.g., NSE) for review, and thus the statements backstopped by these reports cannot categorically be verified.
- The project proposes to average the results of sediment water quality tests, using the SWAC method, to confirm that the residual environment meets Site Specific Target Level requirements. The author suggests that this method is not appropriate for SSTL confirmation in the project environment.
- Water Quality Monitoring / Follow-up monitoring plans propose that wet weather events be defined as a minimum 5mm precipitation event within the preceding 24h. This precipitation volume is low compared to several other wet weather monitoring standards and its adequacy is not given for this project, especially given the expected 1200mm annual precipitation volume. The definition of “wet weather” monitoring should be confirmed in consultation with NSE through Industrial Approvals
- Resins and fatty acids (eight total) have been found in the project site and are only proposed for consideration during remedial planning. At minimum, the presence and concentration of these materials should be monitored during initial surface water, groundwater, wetland and marine water monitoring programs, and further considered for remediation planning if required, contingent upon the monitoring results and their comparison to ecological and human health risk considerations – not given in the EIS.
- The EIS report and associated documents identified the use of a stormwater management pond - located to the east of the containment cell – but did not provide evidence to confirm that its volume or other dimensions are adequate for the role for which it has been proposed.
- The report has not provided information required to assess how it will prevent damage to Geotubes being transported from the Pilot Scale Testing Treatment Pad to the final contamination cell by truck (Dredging Management Plan).
- Appendix Z includes a Water Quality Effects Assessment report, focussing on Total Suspended Solids, as prepared by WSP for GHD. The report identifies four project phases and 14 unique project activities that may impact water quality (TSS). Although the project activities causing these impacts are deemed and accepted as necessary, and the Assessment Report classifies 3 of 4 “Project VC Interactions” as Moderately Adverse, all of those are further deemed “Non Significant” and accepted, largely due to the short-term and local nature of the impacts. NS Environment does not accept this conclusion without in the absence of other evidence. Adherence to BMPs, performance of all mitigation and compensation measures, careful and frequent monitoring, and specific, acceptable contingency plans will be required by the Province through any

Industrial Approvals and should be required by IAAC.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1 NS Department of Community, Culture and Heritage

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
CCH 1	CCH	CCH	7.1.2.2	Page 7-11, 7-13, 7-244, and 7-245 of volume IV	<p>The document states that the baseline conditions for GHGs are “the business as usual scenario, with no remediation of the BHETF”. (page 7-11), and the primary source of emissions appears to be the electricity used to power aerators and pumps, which the document states to be “11,000,000 kWh” per year, which is translated (× 25 years) into 275,000,000 in cumulative energy costs (page 7-13). This estimate is problematic in several ways.</p> <p>First, Nova Scotia is currently in the process of converting its electricity grid to be less reliant on coal, with “deep reductions in GHGs by 2050 and a carbon free economy by 2100” (https://energy.novascotia.ca/sites/default/files/files/FINAL%20Our%20Electricity%20Future(1).pdf). So a simple linear extrapolation of future carbon emissions based on historical use is certain to result in an overestimate.</p> <p>Second, this expected electricity consumption assumes a continued need to treat effluent (as stated on page 7-244). This assumption is incorrect. Northern Pulp was legally required to stop discharging effluent into BHETF by the Boat Harbour Act, and capped their pipe on April 26, 2020.</p> <p>Third, this electricity expenditure is the primary reason for the projected reduction in 315,080 tonnes of CO₂, a</p>	<p>Point 1: please provide a revised estimate of baseline GHG emissions, based on an expected reduction in the carbon-intensiveness of the power supply. At the very least, a simple linear reduction in emissions by 1/80th of the current levels per year would be appropriate, given provincial targets of being carbon free by 2100.</p> <p>Point 2: Strictly speaking, it is not a fair comparison to say that GHG-generating activities during the operation of the primary effluent source are a fair baseline for the BHETF decommissioning. A fairer comparison as a baseline would be leaving the effluent on-site. Alternatively, the GHG emissions from previous operations of the BHETF could be compared to the combined emissions of decommissioning AND a modified effluent treatment process. Put another way, the reduction in GHG emissions is a result of stopping the addition of effluent, NOT a result of this reclamation plan. The two mechanisms should not be confused.</p> <p>Point 3: Please revise expected net reductions in CO₂ and other emissions based on</p>

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					clearly unfair comparison given the wide disparity in operational timelines: the expected CO ₂ emissions are covering a 25 year period, whereas the project “schedule has an estimated duration of 4-7 years”(page 1-7, Volume II).	equivalent timelines, or provide two estimates (one over the lifespan of the project, and one over the lifespan of the “business as usual scenario”) with justification of any disparities between them.
CCH-2	CCH	CCH	7.3.17	Vol. IV, section 7.3.17	covers the range of archaeological mitigation measures required for the various phases of the project. Also included, is the opportunity for PLFN community members to be on site during ground disturbance in any of the designated high potential areas. The statement is clear that archaeological work will continue as required through the project components.	

General comments on the EIS:

Volume IV of the report:

Page 7-21: Text states “The Lyons Brook, NS climate station has been in operation since 1984 and, as such, averages from the 1971 to 2000 period are based on 17 years of data, whereas the 1981 to 2010 period is based on the full 30 years of data.” This is technically not true – if the climate station began operating in 1984, then the 1981-2010 Climate Normals data covers 27 years, not 30 years, although I agree that it is certainly MORE compatible with the period during which the climate station was operating than the 1971-2000 climate normal period would be.

Page 7-96 (and elsewhere): The Latin binomial for appressed jellyskin lichen is now *Scytinium subtile* (Schradler) Otálora, P.M. Jørg. & Wedin (2013).

Page 7-99: in the bottom row of the table, a species name is written as “Carex Trisperma” – it should be “Carex trisperma” (lower case first letter on the specific epithet).

Page 7-100: “*Nemopanthus mycronatus*” should be “*Nemopanthus mucronatus*”

7-101: “The dominant herbaceous species is Meadow Sedge (*Carex granularis*)” – I think this must be a mistake. *Carex granularis* is an S1 species that is associated with calcareous soils, and has only been reported once in the province, in Annapolis County.

7-103 (and again on 7-111): The Latin binomial for Smooth Cordgrass (*Spartina alterniflora*) is now *Sporobolus alterniflorus* (Loiseleur-Deslongchamps) P.M. Peterson & Saarela (2014).

7-103: “*Juncus effuses*” should be “*Juncus effusus*”. (autocorrect error)

7-138-139: one of these paragraphs could be deleted (beginning with “Freed from water stress...” and “In open water portions of...”).

7-149: “*Riparia*” should be “*Riparia riparia*”

7-530: “Foal flower” should be “foam flower”.

As with previous EIA reports, there seems to be no mention of the carbon-sequestering function of intact forests, and the impacts of losing intact forests within the footprint of the project. This is relevant to section 7.1.1. (Atmospheric environment). At the very least, the lack of such information could be justified by stating that the area of expected vegetation removal is small (<10 ha), and consequently is not expected to have significant impacts on the overall carbon budget of the project. Planting trees, where vegetation has been removed, after the activities are completed, would improve the speed of the carbon-sequestering function’s return to vegetated land, and should be considered as part of the remediation plan.

Archaeology:

the draft report, specifically Vol. IV, Section 7.3.17, appears to cover the range of archaeological mitigation measures required for the various phases of the project. Also included, is the opportunity for PLFN community members to be on site during ground disturbance in any of the designated high potential areas. The statement is clear that archaeological work will continue as required through the project components.

Palaeontology:

The content discussing geology and/or fossils/palaeontology resources is sufficient. CCH has no further questions or comments.

Date: December 14, 2020

To: Bridget Tutty
Environmental Assessment Officer

From: Resource Management Unit staff within the Sustainability and Applied Sciences
Division of Nova Scotia Environment

Subject: Environmental Impact Statement (EIS) - Boat Harbour Remediation Project

Introduction

The following comments have been developed by technical staff within the Resource Management Unit of NSE based on review of the Environmental Impact Statement for the Boat Harbour Remediation project, November 20, 2020.

Given the length of the EIS submission and the relatively short period of time provided for the review, RMU reviewers acknowledge that further interpretation of information within the submission may assist in addressing comments raised. Notwithstanding, RMU reviewers offer the following comments:

Report layout and Presentation of Information

Generally, RMU reviewers found it difficult to clearly interpret some aspects of the proposed project activities for the following reasons:

- **Organization of report** - Relevant information needed to complete a technical review of key project activities were spread across various sections of expansive reports, appendices and supporting reference documents submitted.
- **Conflicting information** on key issues were presented in various sections of the report, appendices, and reference documents making it difficult to distinguish between what was considered by the proponent versus what was actually proposed (e.g. chemical treatment vs. natural attenuation for bulk water / dewatering effluent / leachate during active remediation).
- **Piecemeal approach to submission of documents** - Commencing a review of draft documents, followed by submission of final versions during the review, and

submission of a key Human Health and Ecological Risk Assessment (HHERA) that had not yet been confirmed to meet EIS Guidelines, created challenges for reviewers. Reviewers were asked to continue their review using the updated EIS to provide comments unrelated to health by Dec 16, 2020.

Although RMU reviewers were advised that comments and information requests related to the HHERA could begin once Health Canada determined the HHERA satisfied EIS Guidelines, RMU reviewers found it necessary to review the HHERA as part of the EIS submission to understand the proposed remediation end points and the potential effects of the project on the environment.

Application of Contaminated Sites Regulations within Provincial Jurisdiction

Although the EIS does acknowledge the Environment Act as a relevant provincial legislative and regulatory requirement, the EIS does not specifically acknowledge the significance of the Nova Scotia Contaminated Sites Regulations. The requirements of the Contaminated Sites Regulations would be applicable to any property undergoing remediation within provincial jurisdiction. The Contaminated Sites Regulations are supported by seven Ministerial Protocols, which prescribe the minimum requirements to assess and remediate sites within Nova Scotia. It is unclear from the EIS, which properties proposed to be remediated are currently within provincial jurisdiction and which properties will reside within provincial jurisdiction following the completion of work. It is important that this be considered to ensure provincial regulations pertaining to the remediation of contaminated sites are met.

Containment Cell Design and Operation

The waste material to be placed within the cell has been defined as hazardous and non-hazardous waste so the default design criteria should be based on hazardous waste. Insufficient information has been provided to demonstrate the cell location and design have been established in accordance with the criteria set out in CCME National Guidelines for Hazardous Waste Landfills. (Issues include depth and permeability of substrate below the cell, thickness of clay and composite layer).

The current cell contains impacted materials which are to be moved to allow the cell to be enhanced. There has been no discussion if the existing clay liner has performed as intended and if it will be adequate to form the base of the new cell that will be built. It is also unclear whether the base of the existing cell will be assessed and remediated if applicable, prior to cell modifications.

It is unclear how much impacted soil and mechanically excavated sludge will be placed within the containment cell and what efforts will be taken to minimize the placement of material outside geotubes or equivalent technology. It is also unclear if allowance will be made for managing methane or other hazardous or noxious materials produced during

anoxic degradation of materials within the stacked Geotubes, particularly before the cell receives final cover.

Dewatering Effluent

It is unclear from the EIS how bulk water, dewatering effluent and leachate generated during the operational phase of the containment cell (i.e. prior to interim cover) will be treated. A detailed sampling/monitoring program to confirm the effectiveness of treatment, prior to discharge to Boat Harbour has also not been presented. As a result, insufficient information has been provided to demonstrate that effective measures will be in place to ensure potential contaminants within the bulk water/dewatering effluent/leachate will be attenuated/treated, instead of being diluted and discharged from BHSL into the Northumberland Strait. Dilution is not considered an acceptable form of treatment.

Suspended Sediments

Concerns remain over the effects of the potential redistribution of contaminants through re-suspension of sediment during dredging/excavation activities, on the overall site remediation. Without providing specific details concerning the monitoring and sampling program that will be used to verify silt curtain effectiveness, it is unclear how confinement of suspended sediments to the area undergoing active remediation will be demonstrated and how areas outside silt curtains, including those remediated, will not be impacted. Likewise, without the details of the effluent discharge sampling program for water being discharged to the Northumberland Strait, it is difficult to assess whether the proposed approach is reasonable. Although the EIS does indicate monitoring will include the enforcement of limits on specific contaminants of concerns (COCs) that may be associated with the suspended solids (i.e., metals, dioxins and furans), the specific details regarding limits, monitoring and sampling are unclear.

Dust

Potential for distribution and exposure to contaminants from dust generated by the project remain a concern. Although the EIS does indicate several mitigations (e.g., water or dust suppressants, paving of roads, etc.) may be applied where applicable, or as required based on regulatory direction and approval, the supporting details and actual plan for mitigations appear limited. The EIS appears to present a reactive approach and does not clearly describe details of how preventative measures will be applied. The EIS also indicates that efforts will be taken to minimize the size/extent of open faces of the containment cell that have potential to emit odours or other contaminants. It is unclear how this will be accomplished, as an interim cover is not being proposed until the cessation of dredging operations.

Risk Management Plan

The Risk Management Plan (Appendix K within HHERA) presents extent/volumes for impacted sediment risk management areas based on both individual sample exceedances and Exposure Point Concentrations (EPC) that rely on area average concentrations. It is not clear which approach will be adopted. Should the EPC (area average) approach be adopted, additional information will be required to support/justify the validity of this approach such as:

- Basis for determining area averaging requiring removal (e.g., based on iso-contouring or block kriging versus single sample concentration removal).
- Clarification/justification of statistical methods used (e.g., iterative truncation, confidence response, geo statistical).
- Clarification/justification of factors used in the decision to adopt area average approach, such as:
 - Exposure: Area average assumes random exposure. If exposure is not random in certain areas, remediating sediment such that average post remediation concentrations achieve SSTL may not be protective of the receptors with non-random exposure.
 - Quality and quantity of site characterization data: If site characterization data is at all uncertain, SSTL should be implemented as not-to-exceed level as it provides more certainty about the protectiveness of cleanup.
 - Community acceptance: Community may not be confident with area average approach.
- Requirement to conduct a separate assessment of potential acute effects to determine the contaminant concentration at which acute effects are likely to occur.

Confirmation of Remediation

The EIS report provided little justification to support the appropriateness of the proposed surface-weighted average concentrations (SWAC) method for determining if the SSTL (or remedial objective) has been achieved following completion of the remedial activities.

It is also unclear from the EIS when confirmation samples will be collected, whether sufficient time will be provided to allow suspended sediments to settle prior to collection of confirmatory sediment samples.

Fisheries and Aquaculture

Date: December 16, 2020

To: Bridget Tutty, Nova Scotia Environment

From: Executive Director, Policy and Corporate Services
Nova Scotia Department of Fisheries and Aquaculture

Subject: Boat Harbour Remediation Project - Environmental Assessment

Thank you for the opportunity to review the Boat Harbour Remediation Project documents.

The Nova Scotia Department of Fisheries and Aquaculture has the following comments respecting the proposal:

- Areas adjacent to the project are important commercial fishing waters for many species. There are three active processing facilities and four active fish buyers operating or located within 25 kms of the proposed project.
- The abundance and safety of seafood is important to the Nova Scotia economy and the harvesters, processors and exporters in the area that rely on the fishery. The commercial industry has expressed concerns with potential implications of this project on water quality. Although the jurisdiction for the safety of marine environment and commercial fish stocks rests with the Federal government through agencies including Department of Fisheries and Oceans, any adverse effects on fish stocks would negatively impact the industry and economic growth of Nova Scotia.
- The Project has identified potential degradation of marine water quality within the Northumberland Strait. The Department would like to see the scope of the described 'fisheries resources' expanded to include aquaculture and land-based seafood facilities' seawater intake.
- There are eleven marine shellfish aquaculture leases identified within a 10km radius of the estuary. Monitoring of the marine environment will be a critical component respecting aquaculture sites in the area.
- The Department requests to be notified should the Project identify any historical, current, or future recreational fishing activities within the footprint of the remediation.

Agriculture

Date: December 16, 2020

To: Bridget Tutty, Nova Scotia Environment

From: Executive Director, Policy and Corporate Services,
Nova Scotia Department of Agriculture

Subject: Boat Harbour Remediation Project– Environmental Assessment

Thank you for the opportunity to review the Boat Harbour Remediation Project documents.

Review of the Project has identified that:

- There are no large-scale agricultural operations in the area.
- The closest agricultural location is 1.4km from the site and agricultural activity is mostly pasture or inactive.
- No dairy or beef operations have been identified in the vicinity of the project.

The Nova Scotia Department of Agriculture has no concerns respecting the proposal.

Date: November 18, 2020
To: Department of Environment
From: Department of Municipal Affairs and Housing
Subject: **BOAT HARBOUR REMEDIATION PROJECT**

As requested, the Department of Municipal Affairs and Housing has reviewed the Draft Environmental Impact Statement (EIS) provided by Nova Scotia Lands for the federal environmental assessment of the Boat Harbour Remediation Project.

Consultation with municipalities is one of the Department's areas of mandate. We would like to ensure that the proponent continues to undertake consultation and with the affected municipalities as the remediation project progresses.

Thank you for the opportunity to review the Draft EIS for the above-noted project. Should you require additional information, please contact the Department.



Lands and Forestry

MEMORANDUM

TO: Bridget Tutty, NS Department of Environment

FROM: Department of Lands and Forestry

DATE: December 16, 2020

RE: Boat Harbour Remediation Project- Environmental Impact Statement
Comments

The Department of Lands and Forestry (herein the Department) provides the following comments on the above project:

Crown Lands:

This project requires the following approvals/permits/authorities from the Department's Land Administration Division:

3.1.2 Dredging/Sediment Removal – Alternative Mean 1A – Removal in the Wet with Geotube® or Equivalent Technology Dewatering

The Proponent may require permissions (permit) from the Land Administration Division of the Department for dredging/sediment removal east of the estuary (PID 65014623) and within any submerged Crown lands determined to be administered by the Department.

3.1.5 Bridge at Highway 348 – Alternative Mean 1

The Proponent may require permissions (permit/easement) from the Land Administration Division of the Department for the installation of the new Bridge (including watermain) and construction and removal of the temporary causeway if the work is determined to be within submerged Crown lands administered by the Department.

3.1.6 Infrastructure Decommissioning (Pipeline)

The Proponent may require permissions (easement) from the Land Administration Division of the Department for the abandonment of the underwater pipeline at East River.

3.1.6 Infrastructure Decommissioning (Dam)

The Proponent may require permissions (permit) from the Land Administration Division of the Department for removal of the dam and dredging/sediment within any submerged Crown lands determined to be administered by the Department.

3.1.7 Remediation Infrastructure (Site Access and Permanent and Temporary Linear Infrastructure)

The Proponent may require permissions (permit/easement) from the Land Administration Division of the Department for temporary power supply, access roads or improvements/widening of existing roads on PID 65014623. Any placement of pipelines (intake/discharge) below the OHWM and determined to be under the admin and control of the Department may require approvals from Land Admin (permit/easement/licence).

Wildlife, Wildlife Habitat and Species-at-Risk:

1. The Department requests that the proponent provide the Department with additional information identified in Table 1.
2. The Department requests that the proponent review and address the errors and omissions in the Environmental Impact Statement identified in Table 2

In addition to addressing the Department's above noted information requirements and comments on the Environmental Impact Statement, the Department offers the following additional recommendations for consideration as conditions for project approval, as the Department responsible for wildlife and species at risk (SAR) on Crown and private lands in Nova Scotia. The proponent must:

- adhere to the provincial *Wildlife Act* and *Endangered Species Act*.
- provide the Department with a plan that describes how it will engage the Department on wildlife and SAR issues and consult the Department on the development of appropriate mitigation measures including buffers for bird species nests.
- provide clear parameters on invasive species management; in particular, prevention and monitoring to prevent introduction and spread of invasive species.
- provide a clear communication structure and reporting plan for when and how wildlife encounters, including SAR, are to be reported to relevant federal and provincial departments.

Table 1

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1

Table for information requests. Comments provided by NS Lands and Forestry (general comments provided in Table 2)

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-1	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, section 1.4 Regulatory framework and the role of government	Volume I, page 1-14, Table 1.4-2 Anticipated Provincial Legislative and Regulatory Requirements	The EIS does not identify the Nova Scotia Endangered Species Act nor the Wildlife Act and its regulations as one of the provincial legislative requirements. Six (6) SAR bird species were identified with the site study area (page 8), all of which are listed species at risk under the NSESA. Species that are listed as Endangered or Threatened, and their associated dwellings, are protected under legislation. In addition, the Wildlife Act protects bird species and their nests, regardless of occupancy.	Provide a row in the table for inclusion of provincial statutes regarding wildlife, or alternative, a rationale or justification for why these are not included.
L&F-2	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 2.2 Alternative means of carrying out the project	Volume II, Page 45, Table 2.3-4 Comparative Evaluation of Alternative Means for Leachate Movement	The Environmental Component does not appear to address the potential adverse effects of ex-situ treatment with respect to accidental leaks or spills during transport of leachate.	Address and acknowledge adverse effects to environmental components with respect to transporting of leachate
L&F-3	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Volume IV, Page 144, Section 7.1.7 Migratory Birds, Common Nighthawk Survey (June 2018)	Saskatchewan Ministry of Environment Common Nighthawk Survey Protocol (which was referenced as a source for the Common Nighthawk survey) recommends two surveys 10 days apart. The Canadian Nightjar Survey Protocol is used to assess trends over time on fixed routes and may not be an appropriate methodology for single-capture survey work.	Substitute the Canadian Nightjar Survey Protocol with a Common Nighthawk Survey Protocol which will includes two surveys 10 days apart (as recommended by the Saskatchewan Ministry of Environment).

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-4	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Volume IV, Page 146, Figure 7.1-43. Avian Survey Locations	No Common Nighthawk survey points located in northern section of the study area.	Provide an explanation of survey point locations in order to assess validity of survey results and associated mitigation measures.
L&F-5	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 214, Table 7.3-1 Mitigation Measures and Best Management Practices	The proposed mitigation measures and BMPs as described here do not adequately address concerns surrounding wildlife, Species at Risk, and management of invasives.	Provide mitigation measures and best management practices that address concerns surrounding wildlife, Species at Risk, and management of invasives
L&F-6	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-393, Table 7.3-134. Mitigation Measures for the Effects of Waste Management Activities on Terrestrial Habitat and Vegetation	Mitigation measures for operations should also include 1) avoiding activities within or near wetlands, were practical, and 2) cleaning of vehicles prior to entering the work site to reduce possible spread of invasives.	Mitigation measures for operations should also include 1) avoiding activities within or near wetlands, were practical, and 2) cleaning of vehicles prior to entering the work site to reduce possible spread of invasives
L&F-7	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-396, Table 7.3-137 Mitigation Measures for Effects of the Dredging on Terrestrial Habitat and Vegetation	No mitigation measures for invasive species management are presented here, despite being identified as an indirect impact of activities under Table 7.3-136.	Provide mitigation measures for invasive species management in Volume IV, Page 7-396, Table 7.3-137 Mitigation Measures for Effects of the Dredging on Terrestrial Habitat and Vegetation
L&F-8	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-404, Table 7.37.3-143 Mitigation Measures for Effects of the Bridge works at Highway 348 on Terrestrial Habitat and Vegetation	No mitigation measures for invasive species management are presented here, despite being identified as an indirect impact of activities under Table 7.3-142.	Provide mitigation measures for invasive species management in Volume IV, Page 7-404, Table 7.37.3-143 Mitigation Measures for Effects of the Bridge works at Highway 348 on Terrestrial Habitat and Vegetation

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-9	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-407, Table 7.3-146 Mitigation Measures for Effects of the Pipeline Decommissioning on Terrestrial Habitat and Vegetation	No mitigation measures for invasive species management are presented here, despite being identified as an indirect impact of activities under Table 7.3-145.	Provide mitigation measures for invasive species management in Volume IV, Page 7-407, Table 7.3-146 Mitigation Measures for Effects of the Pipeline Decommissioning on Terrestrial Habitat and Vegetation
L&F-10	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-412, Table 7.3-150 Mitigation Measures for Effects of Dam and Terrestrial Habitat and Vegetation	No mitigation measures for invasive species management are presented here, despite being identified as an indirect impact of activities under Table 7.3-149.	Provide mitigation measures for invasive species management in Volume IV, Page 7-412, Table 7.3-150 Mitigation Measures for Effects of Dam and Terrestrial Habitat and Vegetation
L&F-12	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-421, Table 7.3-153 Direct and Indirect Impacts of Waste Management Activities on Wetlands	Indirect impacts of invasive species on wetlands resulting from work activities not identified. This has the result of no mitigations provided.	Identify indirect impacts of invasive species on wetlands resulting from work activities and corresponding mitigations in Volume IV, Page 7-421, Table 7.3-153 Direct and Indirect Impacts of Waste Management Activities on Wetlands
L&F-13	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-433, Table 7.3-160 Direct and Indirect Impacts of Wetland Management Activities on Wetlands	Indirect impacts of invasive species on wetlands resulting from work activities not identified. This has the result of no mitigations provided.	Identify indirect impacts of invasive species on wetlands resulting from work activities and provide appropriate mitigations in Volume IV, Page 7-433, Table 7.3-160 Direct and Indirect Impacts of Wetland Management Activities on Wetlands
L&F-14	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-449, Table 7.3-170 Direct and Indirect Impacts of Waste Management Activities on Mammals and Wildlife	Impacts of exhaust from increased vehicular traffic during the construction and operation phase has not been addressed.	Address impacts of exhaust from increased vehicular traffic during the construction and operation phase in Volume IV, Page 7-449, Table 7.3-170 Direct and Indirect Impacts of Waste Management Activities on Mammals and Wildlife

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-20	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Volume IV, Page 530, Section 7.3.14.3 Project Activities and Species at Risk Interactions and Effects and Mitigation Measures	It is unclear based up on the text in the subsection Priority Migratory Birds whether all priority bird species (migratory or non-migratory) are referenced here.	Clarify in subsection Priority Migratory Birds whether all priority bird species (migratory or non-migratory) are included
L&F-39	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-3, Table 8.1-1 Mitigation Measures and Best Management Practices	BMPs specific to SAR are lacking throughout the table. For example, education so contractors are aware of SAR species that may occur in the area.	Provide best management practices throughout the table. For example, provide education so contractors are aware of SAR species that may occur in the area.
L&F-40	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-3, Table 8.1-1 Mitigation Measures and Best Management Practices	<i>"Refuel 30m from any identified critical habitat areas"</i> . It is unclear if the proponent is referring to critical habitat as identified under the SARA, or generally speaking of important habitat.	Clarify the use of the words critical habitat
L&F-60	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 9-15, Table 9.1-1 Summary of the Preliminary Follow-up Programs Proposed for the Boat Harbour Remediation Project	Project objective is <i>"To determine if remedial objectives were achieved allowing for the natural re-establishment of habitat suitable for SAR to occur."</i> This may not be an achievable objective, given the uncertainty in SAR habitat requirements. Mitigation measures should have prevented or minimized loss of existing SAR habitat; it is unknown if remediated land supported SAR habitat prior to establishment of the Boat Harbour effluent treatment.	Provide additional information (data or research) to support the project objective that remediation will allow for successful re-establishment of habitat suitable for SAR species.
L&F-61	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 47, 4.2.5.2 Sampling Methodology	<i>"Three composite berry samples from the Freshwater Wetlands. Berries were present on Canada holly (Ilex verticillata) shrubs at two locations (FSP3-HOL-1, FSP3-HOL-2). In addition, berries were present on nightshade (Solanum dulcamara) at one location (FSP1-NIG-1). These berries are not considered to be edible, but were collected to serve as surrogates for potential edible traditional foods that may be present at the Site now or in the future."</i> Further	Provide further explanation and clarify why non-edible plants were collected for analysis, as either a) they would not be consumed, or b) the sentence indicates there are edible plants present that were not sampled.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					explanation is required as it unclear why non-edible plants were collected for analysis, as either a) they would not be consumed, or b) the sentence indicates there are edible plants present that were not sampled.	
L&F-62	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 52, 4.2.5.2 Sampling Methodology	It was stated that invertebrate sampling was a bycatch of fish sampling at the freshwater wetland reference site, which is contradictory to the statement that <i>“the same methodologies used at the Site were used as the reference wetland”</i> .	Address contradiction and clarify methodology used
L&F-63	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 117, Section 6.1.1.10 Game Meat (Mammals) COPCs	Game meat focused on wetland species (beaver and muskrat). However, the Mi’Kmaq of Nova Scotia Ecological Knowledge Study (Appendix T) indicated that rabbit (likely snowshoe hare) and deer were food sources, and both species were present within the Study Area (Appendix AA)	Provide information to support the exclusion of terrestrial game mammals from sampling and analysis.
L&F-68	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 171, Section 7.3.2 Potential Species at Risk	Use of the words “close proximity” to describe location of Piping Plover to the Estuary are vague and do assist in determination of effects of the proposed activity.	Provide specifics in terms of distance of nearest locations to the Estuary.
L&F-70	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 210, 7.9.4.1 Freshwater Wetlands, Avian Receptors	<i>“Furthermore, tree swallow, and other avian aerial insectivores they represent, have large home ranges (80 ha).”</i> It is not clear whether the proponent is referring to a minimum, maximum, or average home range size.	Provide a for home range size and reference.
L&F-72	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 3, Section 1.1 Project Overview	<i>“It is expected that all Contractor(s) retained to complete the physical remediation and closure work on the Project will be required to develop Site-Specific EPPs (SSEPPs) for the Project components for which they are responsible. The SSEPPs will detail the relevant Best Management Practices (BMPs) mitigation measures, monitoring requirements and reporting. These stand-alone plans will be</i>	Provide Clarifying statement on the role of federal and provincial agencies in the approval process.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					<p><i>developed prior to the start of construction works and amended throughout the Project when construction works requiring more detailed environmental planning are identified. The SSEPPs and any amendments will be subject to the review by the CMOC and acceptance by NSLI to ensure compliance with the overall plan.</i></p> <p>Clarity in the development and acceptance of these plans, and role of federal and provincial agencies in the approvals, is required as on the surface these statements seem contradictory to statements within the mitigation measures proposed.</p>	
L&F-73	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 6, Section 2.2 Provincial Government of Nova Scotia	Failure to acknowledge both the provincial Wildlife Act and Nova Scotia Endangered Species Act.	Identify all relevant Acts and provide context.
L&F-74	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 7, Section 3. Environmental Management Team Organization, Structure, and Responsibilities	It is unclear in this section how engagement with regulatory agencies will occur, the timing of engagement, and how that information will be distributed as changes or amendments to the EMP.	Provide further clarification of regulatory involvement in the EMP process moving through project stages.
L&F-79	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	No justification provided for 25m buffer for surveys of the project footprint during breeding season. Is the proponent referring to the entire project footprint, or just the area where work is expected to occur?	Provide references or justification for only surveying within 25m of the project footprint.
L&F-83	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	Although annual reporting is expected generally, specific issues or concerns that arise (such as breeding bird surveys during the breeding season) may require more frequent reporting.	Provide specific reporting requirements for unique situations that may arise during the course of work.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-85	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Section 8.2 Construction/Mitigation Monitoring	There is no mitigation provided for during the construction phase for general wildlife, or species at risk.	Provide for mitigations during the construction phase for general wildlife and species at risk.
L&F-91	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 29, Section 5.2.3 Species at Risk Management	Black Ash was located at two sites in the vicinity of wetland WL-10 and watercourses WC-6 and WC-4 (refer to Appendix AA Wildlife and Wildlife Habitat Baseline Review). The species is protected under the NSESA regardless of whether it was assumed to be planted. Measures to protect the species are required. Permits under the NSESA may be required depending on whether the activities will impact either the species or its habitat.	Provide mitigation measures specific to Black Ash to prevent harm or disturbance to the species and its habitat.
L&F-93	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 9. Follow-up and monitoring programs	Appendix B, Project Environmental Protection Plan, Page 69, Section 7.5.5 Terrestrial Habitat and Vegetation	Unclear how timing for surveys was determined. Monitoring protocol (parameters and methodology) should be provide to NS DLF prior to commencement of work for approval.	Provide references to support the timing of twice-annual surveys to capture spring and fall blooming plants.
L&F-94	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 9. Follow-up and monitoring programs	Appendix B, Project Environmental Protection Plan, Page 69, Table 7.5 Mammals and Wildlife Survey Times	Unclear how timing for surveys was determined.	Provide references to support the timing windows for surveys as part of monitoring.
L&F-97	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 74, Section 7.5.10.1 Nest Surveys Protocols	Justification for different size buffers depending on habitat type surveyed has not been provided.	Provide references to support justification for varying buffers depending on habitat type.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
L&F-100	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 75, Section 7.5.10.2 Non-Forested Habitats	Reference to support the nest survey methodology is missing.	Provide reference for nest survey protocol.
L&F-101	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 77, Section 7.5.11 Species at Risk	Failure in this section to acknowledge the provincial role in the protection of wildlife and species at risk through the application of the Wildlife Act and the NSESA. With the exception of Piping Plover, there is a lack of specific measures to protect other SAR.	In this section acknowledge the provincial role in the protection of wildlife and species at risk through the application of the Wildlife Act and the NSESA. Provide specific measures to protect SAR.
L&F-102	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 78, Section 7.5.11 Species at Risk	Refer to the provincial recovery plan for guidance on how to protect Black Ash and its habitat.	Provide for the protect Black Ash and its habitat (refer to the provincial recovery plan for guidance on how this is done).
L&F-103	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 78, Section 7.5.11 Species at Risk	Barn swallow species and nests were discovered in the treatment buildings. Specific measures to address this should be identified.	Identify specific measures to protect barn swallows and nests in the treatment buildings.
L&F-104	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 83, Section 8.2 Wildlife Encounter	In addition to general wildlife parameters, measures for SAR encounters should be provided in this section.	In addition to general wildlife parameters, provide measures for SAR encounters in this section.
L&F-105	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Wildlife Habitat Baseline Review, Page 1, Section 1.2 Priority Species List	Priority species should also include any species assessed as an at risk species by COSEWIC.	Add under priority species: include any species assessed as at risk by COSEWIC.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
				Methodology and Desktop Evaluation		
L&F-106	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Wildlife Habitat Baseline Review, Page 1, Section 1.2 Priority Species List Methodology and Desktop Evaluation	Discrepancy in timing of personal communication with DLF staff. Consultation occurred in 2018 to use ACCDC rankings instead of general status to determine priority species list; consultation occurred in 2017 to narrow the list to geographic area.	Clarify timing of personal communication with DLF staff with respect to desktop review.
L&F-107	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Wildlife Habitat Baseline Review, Page 5, Section 2.2.3 Lichen Survey	Lichen survey information as presented is confusing and incomplete. It appears that two surveys were conducted: one incidental and the other a targeted survey for priority species. No information was provided on methodology for the priority survey. Lichen surveys are conducted only by pre-approved provincial experts in lichen identification in order to ensure standard and quality of surveys.	Provide information on lichen methodology, including lichen surveyor information and qualifications.
L&F-108	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Habitat Baseline Review, Page 14, Section 3.2.1 Herptofauna	The section fails to discuss the NSESA listing for species.	Discuss the NSESA listing for species in this section
L&F-110	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Habitat Baseline Review, Page 20, Section 3.3.1 Turtle Surveys	Survey parameters are not described adequately. Turtle surveys are required to be done twice a year (once in spring, once in fall) to capture peak activity periods for the species.	Provide additional information on survey methodology for turtles for the project. Additional surveys or mitigations may be required pending further review.
L&F-113	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 3, Section 2.1 Desktop Review	Baseline work should have addressed, at a minimum, all SOCI bird species (COSEWIC, SARA, NSESA, and ACCDC ranked S1-S3 species) as priority species. Avian species were not specifically mentioned in Appendix AA (Wildlife Habitat and Baseline Review), but were captured in the ACCDC report and in a subsequent section of this appendix. This information could affect baseline surveys in a number	Additional information is required to adequately address deficiencies in the desktop review and survey efforts.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					of ways: targeted surveys for specific species; timing of surveys, additional surveys in specific habitat types.	
L&F-114	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 3, Section 2.3 Baseline Program Methodology	Justification for survey methodology has not been provided for some of the surveys identified here, with the exception of Common Nighthawk, Nocturnal Owl, and breeding bird surveys.	Provide references to support survey methodology.
L&F-115	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 3. Table 2.2: Avian surveys conducted as part of the baseline monitoring program.	Common Nighthawk, according to Saskatchewan protocols (Saskatchewan Ministry of Environment. 2015. Common Nighthawk Survey Protocol. Fish and Wildlife Branch Technical Report No. 2015-15.0 3211 Albert Street, Regina, Saskatchewan. 7pp.), requires two surveys approximately 10 days apart. The other survey protocol identified is likely not appropriate, given that it is designed to estimate trends over time from fixed points in subsequent years.	Additional surveys are required. In the absence of surveys, Common Nighthawk mitigation measures are to be applied across suitable habitat type for the species in the absence of additional surveys.
L&F-116	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 4. Table 2.3: Transect locations and habitat descriptions	According to Appendix AA Section 2.1 Desktop Review, BHETF contains approximately 22.5% of forest stands as softwood. No line transects were conducted in this habitat type. This may result in under-representing species diversity on site.	Provide justification for not conducting surveys in all habitat types. Additional surveys may be required.
L&F-117	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 5, Section 2.3.2 Late Winter and Early Spring Raptor Surveys	A complete list of priority bird species targeted in these surveys should be provided.	Provide a complete list of priority bird species targeted in these surveys.
L&F-119	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 9, Section 2.3.4 Breeding Bird Surveys	Common Nighthawk, according to Saskatchewan protocols (Saskatchewan Ministry of Environment. 2015. Common Nighthawk Survey Protocol. Fish and Wildlife Branch Technical Report No. 2015-15.0 3211 Albert Street, Regina, Saskatchewan. 7pp.), requires two surveys approximately 10 days apart. The other survey protocol	Additional surveys are required. In the absence of surveys, Common Nighthawk mitigation measures are to be applied across suitable habitat type for the species in the absence of additional surveys.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
					identified is likely not appropriate, given that it is designed to estimate trends over time from fixed points in subsequent years.	
L&F-122	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review, Appendix B Figures	Location of priority bird species is not easily determined from the appendices of the report, and not mapped. Locations are critical in order to both assess validity of survey efforts and to target mitigation approaches.	Where species are not considered data sensitive, provide figures and GIS/GPS for locations of priority species.
L&F-123	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review, Appendix B Figures, Figure B3: Breeding Bird and Common Nighthawk Survey Stations	Survey area appears incomplete.	Provide justification for lack of Common Nighthawk surveys in the northern section of the Study Area between the stabilization lagoon and Fisher's Grant Indian Reserve No. 24.
L&F-124	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review, Appendix E, Table E-1. All priority species observed across all survey periods (September 2017 to July 2018)	SARA listing has not been provided for priority species.	Provide SARA listing for priority species.

Table 2

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1

EA Errors and Omissions- Comments provided by Lands and Forestry

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-11	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-413, Section 7.3.8.5 Terrestrial Habitat and Vegetation Monitoring	Addition mitigation and monitoring, if required, should be developed in consultation with appropriate regulatory agencies.	Consult with appropriate regulatory agencies to provide additional mitigation and monitoring measures if required in Volume IV, Page 7-413, Section 7.3.8.5 Terrestrial Habitat and Vegetation Monitoring
L&F-15	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-519, Table 7.3-221 Mitigation Measures for the Effects of Waste Management Activities on Migratory Birds	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Migratory birds fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate re. migratory birds: <i>“Work with ECCC and NS Department of Lands and Forestry to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i>
L&F-16	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-522, Table 7.3-224 Mitigation Measures for	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on</i>	Change the wording to reflect Lands and Forestry’s mandate re. migratory birds:

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
				Effects of the Dredging on Migratory Birds	<i>stockpiles or exposed areas.</i> ” Migratory birds fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	
L&F-17	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-526, Table 7.3-227 Mitigation Measures for Effects of Wetland Management Activities on Migratory Birds	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Migratory birds fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate re. migratory birds
L&F-18	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-532, Table 7.3-234 Mitigation Measures for Effects of Treatment Buildings on Migratory Birds	Mitigation measures as proposed may not be sufficient for the proposed activity. Nests are protected for migratory bird species regardless of occupancy under the MBCA and the provincial Wildlife Act. Consultation with regulatory agencies on appropriate measures would be required if nests are discovered.	Add: Nests are protected for migratory bird species regardless of occupancy under the MBCA and the provincial Wildlife Act. Consultation with regulatory agencies on appropriate measures would be required if nests are discovered.
L&F-19	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Volume IV, Page 7-535, Table 7.3-237 Mitigation	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting</i>	Change the wording to reflect Lands and Forestry’s mandate re. migratory birds- remove NSE reference

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Measures for Effects of the Dam on Migratory Birds	<i>species initiate breeding activities on stockpiles or exposed areas.</i> Migratory birds fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	
L&F-21	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 7-535, Section 7.3.13.4 Migratory Birds Monitoring	<i>“Should Project activities occur during the breeding bird season, a nest survey will be conducted within 10 days of any Project activity occurring. Should an active nest be identified, a buffer must be established, and the active nest will be monitored.”</i> Current provincial guidelines are that nest surveys conducted during the breeding season are valid for only 3-5 days (depending on early or late breeding season timing windows).	<i>Change the time frame for nest surveys: “Should Project activities occur during the breeding bird season, a nest survey will be conducted within 3 to 5 days of any Project activity occurring. Should an active nest be identified, a buffer must be established, and the active nest will be monitored.”</i>
L&F-22	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 532, Section 7.3.14.3.1 Waste Management – Project Activities and Species at Risk Interactions and Effects and Mitigation Measures	<i>“It is noted that Piping Plover (Charadrius melodus melodus) habitat is located north of the Site Study Area. Should any Piping Plover be seen or heard within the Site Study Area ECCC will be notified.”</i> Piping plover is a listed species under the NSESA; the Department of Lands and Forestry should be contacted with respect to Piping Plover.	Notify the Department of Lands and Forestry if Piping Plover are seen or heard within the Site Study Area

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-23	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 534, Table 7.3-237 Mitigation Measures for the Effects of Waste Management Activities on SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-24	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 534, Table 7.3-237 Mitigation Measures for the Effects of Waste Management Activities on SAR	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate.
L&F-25	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 537, Table 7.3-240 Mitigation Measures for Effects of the Dredging on SAR	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-26	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 537, Table 7.3-240 Mitigation Measures for Effects of the Dredging on SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-27	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 540, Table 7.3-243 Mitigation Measures for Effects of Wetland Management Activities on SAR	<i>“Maintain riparian wetland and watercourse buffers (where practical) to reduce adverse effects to wetlands, watercourses, and downstream receiving environments by clearly defining the limits of work.”</i> If it is not possible to maintain riparian wetland and watercourse buffers, consultation with NSE and Department of Lands and Forestry should occur to develop mitigation options.	Add: If it is not possible to maintain riparian wetland and watercourse buffers, the proponent will consult with NSE and Department of Lands and Forestry to develop mitigation options.
L&F-28	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 540, Table 7.3-243 Mitigation Measures for Effects of Wetland Management Activities on SAR	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-29	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 540, Table 7.3-243 Mitigation Measures for Effects of Wetland Management Activities on SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-30	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 542, Table 7.3-246 Mitigation Measures for Effects of the Bridge at Highway 348 on SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-31	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 544, Table 7.3-249 Mitigation Measures for Effects of Pipeline Decommissioning Activities on Marine Environment	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	Change the wording to reflect Lands and Forestry’s mandate.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-32	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 544, Table 7.3-249 Mitigation Measures for Effects of Pipeline Decommissioning Activities on Marine Environment	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-33	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 546, Table 7.3-252 Mitigation Measures for Effects of Treatment Buildings on SAR	Mitigation measures as presented are incomplete. If there are no birds currently present on site, best course of action would be to prevent access, thereby avoiding potential issues of nest loss or bird mortality during decommissioning. If nests are found during the course of work, work should halt and consultation initiated with ECCC and Department of Lands and Forestry, and can only continue subject to departmental approval of mitigation measures and issuance of permits as prescribed under the NSESA.	Add mitigation measures: If there are no birds currently present on site, the proponent will prevent access, thereby avoiding potential issues of nest loss or bird mortality during decommissioning. If nests are found during the course of work, the proponent will halt work and consult with ECCC and Department of Lands and Forestry. The proponent will only continue work subject to Lands and Forestry's approval of mitigation measures and issuance of permits as prescribed under the NSESA.
L&F-34	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Volume IV, Page 549, Table 7.3-255 Mitigation	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management</i>	Change the wording to reflect Lands and Forestry's mandate.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Measures Effects of Dam on SAR	<i>should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	
L&F-35	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 549, Table 7.3-255 Mitigation Measures Effects of Dam on SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-36	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 549, 7.3.14.4 Species at Risk Monitoring	Monitoring program for SAR should be developed in consultation with Department of Lands and Forestry.	Add: The monitoring program for SAR should be developed in consultation with Department of Lands and Forestry.
L&F-37	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 550-554, Table 7.3-256 Residual Environmental Effects for SAR	<i>“Work with ECCC and NSE to develop buffer and non-disturbance distances and zones that incorporate adaptive management should any ground- or burrow-nesting species initiate breeding activities on stockpiles or exposed areas.”</i> Species at Risk and other wildlife issues fall under the	Change the wording to reflect Lands and Forestry’s mandate.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
					mandate of the Department of Lands and Forestry, not Nova Scotia Environment.	
L&F-38	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume IV, Page 550-554, Table 7.3-256 Residual Environmental Effects for SAR	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-41	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-6, Table 8.1-1 Mitigation Measures and Best Management Practices	Cleaning and inspection of vehicles should occur prior to entering the work site to reduce the risk of spread of invasives.	Add: Cleaning and inspection of vehicles should occur prior to entering the work site to reduce the risk of spread of invasives.
L&F-42	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-6, Table 8.1-1 Mitigation Measures and Best Management Practices	Revegetation measures should use natural, native seed sources to reduce the risk of spread of invasives.	Add: Revegetation measures should use natural, native seed sources to reduce the risk of spread of invasives.
L&F-43	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Volume V, Page 8-8, Table 8.1-1 Mitigation	Bird Awareness and Mitigation Measures. If work must occur during the bird breeding season, nesting surveys must be submitted	Address bird awareness and mitigation measures. Add: if work must occur during the bird breeding season, nesting

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Measures and Best Management Practices	to the Department of Lands and Forestry and approved prior to commencing work. If a nest is discovered, mitigation measures are required to be developed in consultation with ECCC and the Department of Lands and Forestry prior to commencing work.	surveys must be submitted to the Department of Lands and Forestry and approved prior to commencing work. If a nest is discovered, the proponent will develop required mitigation measures in consultation with ECCC and the Department of Lands and Forestry prior to commencing work.
L&F-47	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-33, Table 8.1-2 Summary Table of Environmental Impact Assessment	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-48	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-34, Table 8.1-2 Summary Table of Environmental Impact Assessment	Buffer and non-disturbance distances and zones for migratory birds should be done in consultation with the Department of Lands and Forestry, not NSE.	Change the wording to reflect Lands and Forestry's mandate.
L&F-49	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-34, Table 8.1-2 Summary Table of Environmental	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
				Impact Assessment	respect to reducing or eliminating future mortality events.	mitigation work with respect to reducing or eliminating future mortality events.
L&F-50	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-35, Table 8.1-2 Summary Table of Environmental Impact Assessment	Buffer and non-disturbance distances and zones for migratory birds should be done in consultation with the Department of Lands and Forestry, not NSE.	Change the wording to reflect Lands and Forestry's mandate.
L&F-51	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-35, Table 8.1-2 Summary Table of Environmental Impact Assessment	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted. Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-52	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-36, Table 8.1-2 Summary Table of Environmental Impact Assessment	Communication in the event of mortality events of migratory birds or SAR should also be with Department of Lands and Forestry.	Add: Department of Lands and Forestry must be contacted in the event of mortality of migratory birds or SAR related issues.
L&F-53	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Volume V, Page 8-36, Table 8.1-2 Summary	Department of Lands and Forestry should be contacted with respect to any SAR encounter or mortality event. Department	Add: If any SAR encounter or mortality event occurs the Department of Lands and Forestry must be contacted.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Table of Environmental Impact Assessment	of Lands and Forestry should be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.	Department of Lands and Forestry must also be involved in any planning or mitigation work with respect to reducing or eliminating future mortality events.
L&F-54	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-36, Table 8.1-2 Summary Table of Environmental Impact Assessment	Buffer and non-disturbance distances and zones for migratory birds should be done in consultation with the Department of Lands and Forestry, not NSE.	Change the wording to reflect Lands and Forestry's mandate.
L&F-55	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-47, Table 8.1-3 Summary of Key Mitigation Measures Preventing Significant Adverse Project Effects	Buffer and non-disturbance distances and zones for migratory birds should be done in consultation with the Department of Lands and Forestry, not NSE.	Change the wording to reflect Lands and Forestry's mandate.
L&F-56	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-48, Table 8.1-3 Summary of Key Mitigation Measures Preventing Significant	Mitigation measures identified here are identical to those for migratory birds. No species-specific measures are identified with respect to SAR. For example, if Barn Swallows are encountered during the decommissioning phase of buildings is	Provide species-specific mitigation measures for SAR. For example, if Barn Swallows are encountered during the decommissioning phase of buildings is provided; only that inspection for nests will occur.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
				Adverse Project Effects	provided; only that inspection for nests will occur.	
L&F-57	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 8-49, Table 8.1-3 Summary of Key Mitigation Measures Preventing Significant Adverse Project Effects	Buffer and non-disturbance distances and zones for migratory birds should be done in consultation with the Department of Lands and Forestry, not NSE.	Change the wording to reflect Lands and Forestry's mandate.
L&F-58	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 9-16, Table 9.1-1 Summary of the Preliminary Follow-up Programs Proposed for the Boat Harbour Remediation Project	<i>"Should Project activities occur during the breeding bird season, a nest survey will be conducted within 10 days of any Project activity occurring. Should an active nest be identified, a buffer must be established, and the active nest will be monitored."</i> Current provincial guidelines are that nest surveys conducted during the breeding season are valid for only 3-5 days (depending on early or late breeding season timing windows). Reporting should be provided to both ECCC and DLF for review prior approval to commence work as mitigations may be required.	Change timing of nest survey from 10 days before project activity to 3-5 days.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-59	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Volume V, Page 9-15, Table 9.1-1 Summary of the Preliminary Follow-up Programs Proposed for the Boat Harbour Remediation Project	Mitigation measures identified in previous volumes indicated reporting would occur within 24hrs for encounters with SAR or mortality events. This reporting should be reflected here.	Provide for mitigation measures reporting to occur within 24hrs for encounters with SAR or mortality events
L&F-64	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 170, Table 7.2 SAR Reported within 5km of the Site	Barn Swallow (<i>Hirundo rustica</i>) has been incorrectly identified as “no status” under SARA; it is listed on Schedule 1 of SARA as Threatened (2017).	Change to: Barn Swallow (<i>Hirundo rustica</i>) at risk status of Threatened under SARA.
L&F-65	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 170, Table 7.2 SAR Reported within 5km of the Site	Bobolink (<i>Dolichonyx oryzivorus</i>) has been incorrectly identified as “no status” under SARA; it is listed on Schedule 1 of SARA as Threatened (2017). This is a higher at risk level than it is listed as provincially.	Change to: Bobolink (<i>Dolichonyx oryzivorus</i>) at risk status of Threatened under SARA.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-66	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 171, Table 7.2 SAR Reported within 5km of the Site	Eastern Wood-Pewee (<i>Contopus virens</i>) has been incorrectly identified as “no status” under SARA; It is listed on Schedule 1 of SARA as Special Concern (2017).	Change to: Eastern Wood-Pewee (<i>Contopus virens</i>) at risk status of Special Concern under SARA.
L&F-67	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 171, Section 7.3.2 Potential Species at Risk	Replace “Nova Scotia Natural Resources” with “Department of Lands and Forestry”.	Change the wording to reflect Lands and Forestry’s mandate.
L&F-69	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix A, Page 171, Section 7.3.2 Potential Species at Risk	Information on species is provided inconsistently. For example, field observation was provided for Olive-sided Flycatcher but was absent in discussions of other species.	Field observations should be removed as this section was presenting a summary of the desktop review of occurrence records.
L&F-71	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.1 Project setting and	Appendix A, Page 215, Section 7.10	<i>“No avian SAR were observed during the field activities conducted by GHD in 2018 or</i>	Correct statement to reflect that SAR species are present in the Study Area.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	baseline conditions	Uncertainties, Species at Risk	2019.” Field reports in Appendix AA and CC indicated that SAR were observed on site.	
L&F-75	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 22, Section 5.4 Wetland Management Plan	Reestablishment of vegetation should ensure that planting or seeding of terrestrial and aquatic native vegetation are also local and are similar to vegetation occurring in surrounding wetlands.	Add: Reestablishment of vegetation should ensure that planting or seeding of terrestrial and aquatic native vegetation are also local and are similar to vegetation occurring in surrounding wetlands.
L&F-76	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 36, Section 6.8 Terrestrial Habitat and Vegetation	Cleaning and inspection of vehicles for invasives should be done away from any wetlands/watercourses to reduce the risk of spread of invasive species.	Add: cleaning and inspection of vehicles for invasives will be done away from any wetlands/watercourses to reduce the risk of spread of invasive species.
L&F-77	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 39, Section 6.14 Species at Risk	Wildlife Awareness training should be identified under previous section (6.13). SAR specific awareness training should be provided here. In addition, a reporting protocol in the event of SAR observations or encounters should be provided.	Change: Wildlife Awareness training should be identified under previous section (6.13). SAR specific awareness training should be provided here. In addition, a reporting protocol in the event of SAR

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
						observations or encounters should be provided.
L&F-78	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 45, Table 8.1 Summary of the Preliminary Monitoring Programs Proposed for the L&F-79 Boat Harbour Remediation Project	Current provincial guidelines are that nest surveys conducted during the breeding season are valid for only 3-5 days (depending on early or late breeding season timing windows). Additional surveys would be required if work cannot be completed during this window of time.	Ensure that the current provincial guidelines for nest surveys are followed. Nest surveys conducted during the breeding season are valid for only 3-5 days (depending on early or late breeding season timing windows). Additional surveys would be required if work cannot be completed during this window of time.
L&F-80	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	It is recommended by NS DLF that nest surveys during the breeding season are only valid for 3-5 days, depending on whether surveys are conducted early or late in the breeding season. If work is not completed during this time, new surveys would be required. Results of the survey should be provided to ECCC and NS DLF prior to commencing work.	Ensure that the current provincial guidelines for nest surveys are followed. Nest surveys conducted during the breeding season are valid for only 3-5 days (depending on early or late breeding season timing windows). Additional surveys would be required if work cannot be completed during this window of time. Results of the survey should be provided to ECCC and NS DLF prior to commencing work.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-81	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	Buffer size may vary depending on species need and should be developed in consultation with ECCC and NS DLF.	Add: Buffer size will vary depending on the species and will be developed in consultation with ECCC and NS Department of Lands and Forestry.
L&F-82	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	Routine inspections should be recorded and provided to ECCC and NS DLF as part of annual reporting.	Add: Routine inspections will be recorded and provided to ECCC and Department of Lands and Forestry as part of annual reporting.
L&F-84	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Environmental Management Plan, Page 51, Section 8.2.8 Migratory Birds Monitoring	Replace "NS DNLF" with "NS DLF".	Change the wording to reflect the correct provincial government department.
L&F-86	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 17, Table 4.2 Anticipated	Failure to acknowledge the Nova Scotia Wildlife Act and the Endangered Species Act, and their role in protection, conservation, and management of species on provincial lands.	Recognize the Nova Scotia Wildlife Act and the Endangered Species Act, and their role in protection, conservation, and management of species on provincial lands

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
				Provincial Legislative and Regulatory Requirements		
L&F-87	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 25, 5.1.5 In-Water Works	<i>“Equipment may not be clean if it will be used for the same task, provided that it can be properly stored away from the waterbody without depositing mud throughout the Site.”</i> In addition, this option should only be available if the activity is continuing in or near the same watercourse, to reduce risk of spread of invasives.	Ensure that the following option is only available if the activity is continuing in or near the same watercourse, to reduce risk of spread of invasives. <i>“Equipment may not be clean if it will be used for the same task, provided that it can be properly stored away from the waterbody without depositing mud throughout the Site</i>
L&F-88	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 29, Section 5.2.2 Wildlife Management	<i>“The feeding, harassment, hunting or trapping of wildlife by Site personnel is prohibited. Anyone caught feeding, harassing, hunting or trapping wildlife during this Project will lose Site privileges.”</i> These activities are in violation of either the Wildlife Act or Endangered Species Act; personnel engaged in these activities should be reported to appropriate authorities.	Change text to read: <i>“The feeding, harassment, hunting or trapping of wildlife by Site personnel is in violation of the Wildlife Act or Endangered Species Act Personnel engaged in these activities should be reported to appropriate authorities.</i>
L&F-89	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Appendix B, Project Environmental Protection Plan,	There is an error in the list SAR list. The Rainbow smelt found on site is not the Lake Utopia variant that is considered at risk.	Correct error in SAR list: The Rainbow smelt found on site is not the Lake Utopia variant that is considered at risk.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Page 29, Table 5.1 Species at Risk Observed on Site		
L&F-90	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 29, Section 5.2.3 Species at Risk Management	Species at risk on site are also protected under the Nova Scotia Endangered Species Act if found on provincial crown or private land.	Add: Species at risk on site are also protected under the Nova Scotia Endangered Species Act if found on provincial crown or private land
L&F-92	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 51, Table 7.1 Summary of the Preliminary -Monitoring Program Proposed for the Boat Harbour Remediation Project	“Nest survey conducted during breeding bird season within 7 days of any project activity occurring.” This is inconsistent with previous discussions of 10 day window for surveys. NS DLF recommends 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.	Change survey time frame to be: 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
L&F-95	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 72, Section 7.5.10 Migratory Birds	The three day timing window for completing surveys during the breeding season is inconsistent with previous measures identified for migratory birds, but is consistent with current guidance provided by NS DLF.	No action required
L&F-96	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 73, Section 7.5.10.1 Nest Surveys Protocols	NS DLF recommends 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.	Change survey time frame to be: 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.
L&F-98	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.4 Mitigation measures	Appendix B, Project Environmental Protection Plan, Page 74, Section 7.5.10.2 Non-Forested Habitats	NS DLF recommends 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.	Change survey time frame to be: 3-5 days for nest surveys during the breeding bird window, with shorter time period earlier in the nesting season.
L&F-99	Species at Risk Biologist	Lands and Forestry	Part 2, Section 7.4	Appendix B, Project Environmental Protection Plan,	Compliance is required for both the MBCA and the provincial Wildlife Act. If the species	Ensure that there will be compliance for both the MBCA and the provincial Wildlife Act. Ensure that If the species encountered is a SAR, that federal

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
		Wildlife Division	Mitigation measures	Page 75, Section 7.5.10.2 Non-Forested Habitats	encountered is a SAR, the federal SARA and provincial NSESA would also apply.	requirements under SARA and provincial NSESA would be followed.
L&F-109	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Habitat Baseline Review, Page 15, Section 3.2.1 Herptofauna	Under subheading Eastern Painted Turtle, COSEWIC does not use the designation “Vulnerable” in their assessment criteria.	Correction: Under subheading Eastern Painted Turtle, COSEWIC does not use the designation “Vulnerable” in their assessment criteria.
L&F-111	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix AA, Wildlife and Habitat Baseline Review, Page, Figure 4: Plant Species at Risk and Species of Conservation Concern	Black Ash is listed as a Threatened species under the NSESA. Mapped location indicates that this is provincial Crown Land. The NSESA and provisions for protection of species at risk applies, regardless of whether the species is planted or naturally occurring.	Correction: Black Ash is listed as a Threatened species under NSESA. The protection of species apply, regardless of whether the species is planted or naturally occurring.
L&F-112	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and	Appendix CC, Birds and Bird Habitat Baseline Review Page 3, Section 2.2 Rationale for	Failure to recognize the NSESA as legislation protecting at-risk bird species.	Correction: recognize the NSESA as legislation protecting at-risk bird species.

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
			baseline conditions	Valued Components Selection		
L&F-118	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review Page 5, Section 2.3.2 Late Winter and Early Spring Raptor Surveys	Replace "NS SAR" with "NSESAs".	Change the wording from NS SAR to NSESAs
L&F-120	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review, Page 14, Section 3.1 Desktop Evaluation	Priority species list should also include species assessed as at risk by COSEWIC.	Add: Priority species list should also include species assessed as at risk by COSEWIC.
L&F-121	Species at Risk Biologist	Lands and Forestry Wildlife Division	Part 2, Section 7.1 Project setting and baseline conditions	Appendix CC, Birds and Bird Habitat Baseline Review, Page 17, Section 3.3.1 Priority Bird Species	<i>"Observations of the species breeding within the Project Area was noted during a meeting with CWS in December 2017, however no evidence of breeding was observed at any of the buildings in 2018 during the survey periods."</i> Nests were identified in one of the treatment buildings	Correction: 'No evidence of breeding' change to: Nests were identified in one of the treatment buildings slated for demolition. The species shows site fidelity, so there is a reasonable

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Errors/Omissions
					slated for demolition. The species shows site fidelity, so there is a reasonable assumption that Barn Swallow could have re-established nesting at this site in the 2 years between when survey data was collected and the report submitted for review.	assumption that Barn Swallow could have re-established nesting at this site in the 2 years between when survey data was collected and the report submitted for review.

General comments on the EIS:

Volume IV, Page 141, Section 7.1.1 Migratory Birds. Inconsistency in presentation. For example, lack of scientific names for species, no information on at risk status.

Overall, there is a failure by the proponent to acknowledge the provincial role in conservation and protection of wildlife and in particular species at risk. This needs to be addressed at all levels-communication, mitigation measures, BMPs. The Study area contains both federal crown and provincial crown land, and it is unclear from the data as presented where SAR identified during the course of work are located.

Wildlife mitigations are very general and not always specific to SAR/SOCI species that have been found within the Study Area. Location information was not translated through from the baseline data in the appendices to the body of the report. Lack of information makes it difficult to create targeted mitigation specific to location or habitat, or in some cases the effectiveness of proposed mitigations.

Sections 8 and 9 of Volume V are focused on monitoring of mitigation, and not success of remediation. Even if the desire of the project is “remediation, not restoration” (quote from the presentation), how will the proponent know if remediation has been successful?

Appendix A. Plans for sampling post-remediation? Schedule of timing to assess success of remediation?

Date: December 16, 2020

To: Bridget Tutty
Environmental Assessment Officer

From: ICE Division

Subject: Boat Harbour Remediation Project, Pictou Landing, NS

Introduction

Potential impacts to geology, geochemistry, soil, ground and surface water and air quality associated with the Boat Harbour Remediation Project (the Project) were assessed and summarized in the EIS and supporting documentation. It should be noted, due to the size of the document, the difficulty in navigating the information and time constraints, the ICE division was unable to review the document in its totality, as such issues identified may have been addressed in other areas of the report that were not reviewed. Approvals will be required under the Activities Designation Regulations, made pursuant to the Environment Act. Individual construction approvals will be required for the watercourse alterations, wetland alterations, wetland compensation, bridge installations (watercourse alteration approvals) and dam removals. A single Industrial approval can be issued for the activities associated with the reclamation of an industrial wastewater treatment facility (dredging, dewatering, wastewater treatment), re-construction of the landfill (disposal of sludges, temporary storage, leachate collection and treatment, landfill re-design), groundwater and surface water monitoring, and air quality (including dust and noise) as well as any other activity which has or has the potential to have an adverse effect on the environment and/or human health. Mitigation measures must be an integral part of any submission of an application for approval.

Comments

Groundwater

Location	Statement	Comment
Vol IV Section 7.3.6.3 Pg 7-320	The supporting documentation defined a significant adverse effect on groundwater as <i>“an effect on groundwater quality exceeding applicable CCME water quality criteria and NSE EQS for groundwater”</i> .	Groundwater quality criteria for the Project should be established in consultation with NSE. The potability classification of the sites should be determined in accordance with NSE’s <i>Determination of Groundwater Potability Flow Chart</i> (attached).
Appendix B Table 8.1 Pg 44	The Environmental Management Plan (EMP) proposed to maintain the existing groundwater monitoring program, unless directed otherwise by regulatory authorities.	<p>The existing groundwater monitoring program was designed for the Boat Harbour Effluent Treatment Facility; therefore, the program should be re-assessed, and modified as appropriate to ensure it is adequate for the proposed Project.</p> <p>The long-term groundwater monitoring program for the Project should be designed in consultation with NSE. The following items should be considered in the final design of the groundwater monitoring program:</p> <ol style="list-style-type: none"> a. Contaminants of concern (COC) for groundwater, which should be identified in consultation with NSE. b. The additional infrastructure associated with the Project, including, but not limited to the stormwater management pond, leachate treatment and storage area, and temporary sludge storage area.

		<p>c. Expansion of the monitoring well network to incorporate all or some of the additional monitoring wells recently installed on site, such as the monitoring wells installed as a component of the Phase II ESA, the hydrogeologic assessment of the containment cell, and the PLFN wellfield evaluation.</p> <p>d. Increased frequency of monitoring during specific project activities, such as dredging and wetland management, as suggested in the EIS (P. 7-330 and 7-332).</p>
<p>Volume IV Section 7.1.4.1.2 Pgs 4-45 and 4-46</p>	<p>4-45 “Beneath the main infrastructure area of the BHETF overburden groundwater elevations decreased and ranged from 8.89 to 6.60 mAMSL. Groundwater elevations ranging from 0.79 to 2.37 mAMSL were observed surrounding the BHSL (GHD, June 2018)3.”</p> <p>4-46 “Similarly, the groundwater elevations in the overburden adjacent to the containment cell currently range from 3 to 7 mAMSL”</p>	<p>These statements appear to contradict. Should be clarified.</p>
<p>Volume IV Section 7.1.4.1.2 Pg 7-53</p>	<p>The similarity in the pattern of fluctuations in the overburden and shallow bedrock groundwater elevations shown on Figure 7.1-13 indicate they are in the same groundwater flow system.</p>	<p>Overburden groundwater is highly connected to shallow bedrock water and therefore more susceptible to contamination, this should be taken into account.</p>
<p>Volume IV Section 7.1.4.1.3 Pg 7-72</p>	<p>Analytical results for five of the newly installed monitoring wells were consistent with groundwater results from the Phase II ESA; however, additional metal (cadmium) and/or VOC (chloroform) exceedances were</p>	<p>Various impacts were observed as a baseline however these impacts should be addressed as a part of the remediation.</p>

	identified at selected monitoring wells.	
Volume IV Section 7.1.4.1.3 Pg 7-72	Analytical results for the samples indicated that only one sample (SDC-EXISTING-MW-3) exceeded marine groundwater criteria for general chemistry (pH).	Currently, based on the data provided, there do not appear to be many GW issues in the area of the containment cell. The location and construction of temporary sludge storage as well as the re-construction of the cell will be critical to ensure protection of the highly connected shallow groundwater environment.
Volume IV Section 7.3.6.4.1 Pg. 7-323	The existing waste in the containment cell would be temporarily relocated either by pumping or hauling to existing Site infrastructure (i.e., settling basins, ASB) or constructed staging areas	If the ASB/Settling basins are to be utilized, how will the material be kept from interactions with surface water/surficial groundwater that currently discharges to those areas. If a new staging area is to be constructed, details of location, construction and leachate collection must be provided, at a minimum as additional wetland area may be impacted.

Surface Water

Location	Statement	Comment
Volume IV Section 7.1.4.2.2 Pg. 7-89	WL-13a - Amonia N, Lead Alluminum exceed	DO concentrations would be classified as good for the summer period however, fall concentrations would only be considered acceptable, not good.
Volume IV Section 7.1.4.2.2 Pg. 7-90	The wetland encompassing the former settling pond 3 (WL-16) and the channel leading from WL-16 to the BHSL (WC-9) had data available for all seasons	Due to the fact the area was impacted by direct discharge of untreated effluent, the exceedances found would not necessarily indicate elevated background concentrations but instead, historic impacts to the area that require remediation to actual background concentrations.
Volume IV Section 7.1.4.2.2 Pg. 7-90	Fall had exceedances in metals (cadmium, copper, iron, lead and zinc) and PHCs (modified TPH)	Due to the fact the area was impacted by direct discharge of untreated effluent, the exceedances found would not

		necessarily indicate elevated background concentrations but instead, historic impacts to the area that require remediation to actual background concentrations.
Volume IV Section 7.1.6.1.1 Pg. 7-116	Surface water samples from the Estuary showed dissolved concentrations of metals greater than the Nova Scotia Remediation Levels Protocol (Pathway Specific Standards for Agricultural/ Residential Groundwater) screening guidelines for aluminum and sodium. Cadmium, iron and manganese exceeded the Nova Scotia Remediation Levels Protocol (Groundwater Discharge to Surface Water, 0-10 metres from Surface Water Body, Tier 1 EQS for Surface Water).	The submission does not address the impact of the addition of groundwater discharge to surface, which has concentrations in excess of the remediation protocols, on the surface water in the estuary, which is in exceedance of remediation protocols.
Volume IV Section 7.2.3 Pg. 7-203	Clearing may also decrease infiltration and therefore increase runoff from the Site; resulting in a potential indirect effect on surface water quality and quantity.	Approvals will require mitigative measures be employed to ensure flow regimes are not disrupted from pre-project baseline and that water quality is protected.
Volume IV Table 7.3-94 Pg. 7-326	Grade area around the TLTF and leachate loading station to direct any spills to the lined stormwater management pond.	Details have not been provided on the discharge location of this pond. Information regarding the impact of the discharge on the receiving environment has not been discussed.

Sludge Disposal Cell (SDC)

Location	Statement	Comment
Volume II Section 3.1.1 Pg 3-5	As an existing landfill, Canadian Council of Ministers of the Environment standards were not applied. Ontario Regulation (O. Reg.) 232/98 provides the design requirements for landfills in Ontario.	This regulation, according to Section 2(1)(1) and Section 2 (1) (2) of O. Reg. 232/98, is applicable to “only municipal waste for disposal” and therefore is not acceptable for the classification of this waste.
Appendix Z	The Project proposal includes vertical expansion and base liner upgrades to the existing Sludge Disposal Cell (SDC) to accommodate disposal of sludge waste generated during the remediation of Boat Harbour.	It is anticipated the SDC will be in place for the long-term; therefore, it is critical the design, mitigation measures, and long-term and monitoring program put in place are protective of water resources.
		The separation distance between the lowest point of the SDC and the highest seasonal water table elevation should be confirmed. A separation distance of 1 meter is the <u>minimum</u> expected. The seasonally high water table elevation should be determined based on a review of multiple years of data.
Appendix Z Section 6.1.1 Pg 43	Leachate leakage through the containment cell liner was identified as one of the potential mechanisms through which groundwater could be impacted by the Project.	Although the volume of leachate estimated to percolate through the bottom-most layer of the SDC is minimal, the SDC should be designed to prevent the release of leachate to the environment.
Appendix Z Section 1.4 Pg 3		Adequate leak detection should be included in the SDC design upgrades to provide further protection of water resources in the vicinity of the SDC.
Appendix Z WSP Report Pg 2	The sludge currently located within the containment cell is to be temporarily removed to allow for upgrades to the cell.	A detailed plan should be provided, which outlines the location and duration of temporary storage and proposed mitigation measures.
Appendix Z GHD (2020)	Recommended adding the following monitoring locations to the long-term monitoring program for the SDC: a. The new monitoring wells constructed as part of the hydrogeologic and hydraulic assessment of the containment cell (SDC-	These locations should be reviewed with NSE to determine if they are acceptable prior to installation.

	MW3A/B, SDC-MW4A/B, and SDC-MW5A/B); and b. The surface water sampling locations established part of the hydrogeologic and hydraulic assessment of the containment (SDC-SWG-1, SDC-SWG-2, and SDC-SWG-3).	
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Air Quality

Location	Statement	Comment
Volume IV Section 7.1 Pg 47	There are two air quality monitoring stations operated by NSE near the BHETF: downtown Pictou and Granton. The site in Granton monitors 36 VOCs. Of the 36, the level of carbon tetrachloride exceeded the Environmental Protection Agency (EPA) cancer risk threshold for most samples collected.	The monitoring station located at Granton was operated by Environment Canada not NSE.
Volume IV Section 7.1.2 Pg 7-9	Nova Scotia Air Quality Regulations outline maximum permissible ground level concentrations for six of the listed COCs: CO, H2S, NO2, O3, SO2, and TSP. The remaining COCs, including, TRS, VOCs, metals (in TSP fraction), PM2.5, PM10, PAHs, and dioxins and furans do not have thresholds outlined by Nova Scotia Air Quality Regulations. In the absence of Nova Scotia standards for COCs, Ontario Ambient Air Quality Criteria (AAQC) and Canadian Ambient Air Quality Standards (CAAQS) were referenced.	Please note when regulating any activity through Approval, NSE has the ability to include all potential CoC's not just those contained within the Air Quality regulations.
Volume IV Section 7.1.2.1 Pg 7-8	Baseline data collection since early 2020 (after the Kraft Pulp Mill ceased operations) will represent baseline conditions without the Kraft Pulp Mill in operation and the BHETF not receiving new effluent.	Baseline should be established based on current conditions as closure of the Mill and the BHETF have had a significant impact on baseline air quality in the project area. Please note, if the Mill re-opens during the period of this project, baseline will change, so both scenarios should be addressed.
Volume IV 7.1.2.4 Pg 7-17	The baseline noise consisted of the collection of sound measurements at five locations that represent the worse-case	NSE typically regulates noise on a complaint basis. Most of the locations chosen would not represent the

	sensitive receptors over a period of two days under calm weather conditions.	background noise experience of a potential receptor. Monitors should have been located as close as possible to all identified potential receptors.
Volume IV Section 7.1.2.4 Pg 7-20	Monitoring data was collected over a 28-day period, 19 days of data was invalidated due to meteorological conditions, negatively impacting data quality. Of the 9 remaining days, 3 days of monitoring data was recovered as meteorological conditions were considered ideal (partial data was recovered from the other 6 days). A complete summary of the background sound level monitoring results are provided in Appendix W – Noise Baseline	It is unclear if enough valid data was collected to be considered baseline.
Volume IV Table 7.3-1 Pg. 7-217	Cover stockpiles on-site to reduce emissions of particulate matter from wind exposure • Cover all stockpiles of dredged sediment to reduce emissions of contaminants and odour • Cover all impacted sediment being transported by truck and maintain wet condition of dredged material to minimize the exposed area and the odour emissions during transportation of the dredged material	It is unclear how the project plans to cover the sludge stockpiles. This plan will need to be developed in more detail and be acceptable to NSE as a viable mitigation strategy.
Volume IV Table 7.3-1 Pg. 7-217	Implement a noise management plan	NSE was unable to locate a proposed noise management plan.

Sediments

Location	Statement	Comment
Volume IV Section 7.1.3.6 Pg 7-33	During the Phase 2 ESA, Methyl Tert-Butyl Ether (MTBE) was identified in select soil samples but was later considered unlikely to be a COC following resampling and delineation during the Supplemental Phase 2 ESA.	The submission does not provide an explanation as to why MTBE was considered to be an unlikely COC given there were areas identified as being impacted by MTBE.
Volume IV	Value for foc results ranged	Depending on the location of

Section 7.1.6.1.1 Pg. 7-117	from 0.0005 to 0.14 (0.05 to 14 percent). The screening guideline was adjusted based on the mean foc for surface sediment of 0.094 (9.4 percent) by multiplying the #6 heavy oil/lube oil guideline (43 mg/kg) by 9.4. The adjusted value of 404 mg/kg was applied as the screening guideline.	the sampling completed, use of a mean value may not be appropriate.
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Leachate

Location	Statement	Comment
Volume IV Section 7.1.3.7 Pg 7-35	The recommended leachate management option is off-site disposal. A storage tank with a capacity of approximately 20 m3 will store three days of generated leachate. A larger emergency storage tank may also be added to provide extra capacity in case of higher flow rates or other unpredictable circumstances to prevent unauthorized discharges to Boat Harbour. A truck loading station will be constructed to facilitate off-site disposal at a licensed facility. It is estimated that one 10 m3 load will need to be removed per day to manage leachate.	It is unclear if this is a feasible long term strategy.
Volume IV Section 7.3.6.4.1 Pg. 7-324	Once active remediation is complete, the TLTF will treat leachate from the containment cell until the leachate storage and loading station is fully commissioned, the containment cell is completed with final cover, and dewatering has stabilized such that leachate hauling is feasible	It is unclear how effluent/leachate generation will be managed during the remediation project. If the current treatment system is proposed for management of the leachate/effluent, how will that impact temporary sludge storage? How will the volume generated during active remediation? Note: natural

		attenuation is not an acceptable remediation strategy for COCs like dioxins and furans and vanadium.
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Wetlands

Location	Statement	Comment
Volume IV Section 7.1.5.2 Pg 7-97	This data concludes that most of the wetlands in the Site Study Area are in a moderate condition but are moderately or highly prone to degradation due to their risk score, which is an average of the wetland's stress and sensitivity scores.	Additional wetland monitoring may be required as they have been identified as being sensitive to stress. Mitigation measures will be required to address.
Volume IV Table 7.3-1 Pg. 7-220	Wetland Awareness Measures	How will these measures be tracked to ensure all staff are informed and prepared.
Volume IV Table 7.3-81 Pg. 7-306	Minimize handling of impacted sludge/sediment being removed from wetlands through detailed delineation of impacts and tight controls on removal equipment and operations	Detailed delineation of the impacts to wetlands must take place before the Operation Phase of the project and will be required to be provided as supporting documentation for an application for wetland alteration. Detailed SOPs will be required to be developed under any approval.

Impacts

Location	Statement	Comment
Volume IV Section 7.1.6.1.1. Pg. 7-119 – 7-122	Metals detected in tissue of ...	Species that are shown to have impacts should be included in a post-remediation monitoring program.

Dredging

Location	Statement	Comment
Volume IV Table 7.3-75 Pg. 7-302	The effluent conveyance piping will be monitored daily to ensure no releases	If available, continuous monitoring should be employed. Would expect to

	occur	see more robust monitoring program as part of a submission for Industrial Approval.
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Summary

Overall the document was found to be difficult to navigate having information divided between the Volumes and the Appendices, with vague location references.

Environment

Date: December 16th, 2020
To: Bridget Tutty, Nova Scotia Environment
From: Air Quality Unit
Subject: Boat Harbour Remediation Project

Further to your request, the Air Quality Unit provides the following comments in the Environmental Impact Statement and associated documents for the Boat Harbour Remediation Project. Please note that these comments relate to air quality and odour experienced outside of the site boundary and in no way constitute an occupational health assessment.

Key Findings

- Air quality and odour impacts are presented together. Air quality relates to the protection of physical health and it can manifest as acute and chronic impacts. Odour is an issue that can cause loss of amenity and can be detrimental to human health. Air quality and odour impacts would have been more clearly defined if they had been reported separately.
- Elevated concentrations of Benzo- α -pyrene (BaP) are not adequately explained.
- Modelled results demonstrate non-compliance.
- Dust emissions from unpaved roads are underestimated.
- The mitigation of dust emissions is overestimated.
- It is not clear if the containment cell will be covered while it is in operation – 100% mitigation of wind blown impacts is assumed in the modelling assessment.
- Impacts from odour producing compounds are not adequately modelled.
- The potential impacts rationale is not reported.
- The Environmental Management Plan (Draft) is vague.
- Odour management is reactionary rather than preventative.

Detailed Analysis

Environmental Impact Assessment Vol. IV Review

7.1.2.1

The sampling site may not be representative of baseline conditions. BaP is produced in internal combustion engines, principally in diesel engines. The elevated levels observed suggest that the site is heavily influenced by traffic and, potentially, idling vehicles.

The analytical detection limit for H₂S is reported as 14µg/m³ but the criteria reportedly used was 7µg/m³. This suggests that H₂S may not be a suitable measure of odour as it will be underestimated by the analytical technique.

Monitoring results were not presented in Vol. IV as part of this baseline assessment. Limited data are presented in Appendix U.

7.1.10.3 (and 7.1.9.3.2)

The phrase '*potential negative effects are not significant*' is not supported at this stage of the assessment. Also, the project is scheduled to take seven years to complete (March to November work pattern) which could be considered to be a long-term impact. Using the word '*temporary*' is potentially misleading.

7.3.1.1

BaP results, which reportedly exceed the air quality criteria, are not presented, and therefore it is not possible to comment on potential impacts. The opinion of the toxicologist that there is '*no health risk associated with the measured BaP levels*' should be referenced and documented.

The paragraph that begins '*Changes to the air quality and odour levels have the potential to impact the Site Study Area*' is not supported at this stage of the assessment.

Air Quality Impact Analysis

It is not clear why it was necessary to devise scenarios for modelling. It would have been logical to model the activities for each year of the project so that cumulative impacts would have been better represented.

Table 7.3.3 should identify which scenario the highest modelled concentrations occurred under. This detail is included in Table E-1 in Appendix U. It is noted that there are modelled exceedances outside of the site boundary for TSP (24 hour and annual), PM₁₀ (24 hour), H₂S (10 minute) and iron (24 hour).

H₂S Impacts - Scenario 2 and 4/5

H₂S is not the only odorous compound released from anoxic sediments. Odour producing compounds that may potentially be emitted during the proposed activities, should be identified and included as part of the air dispersion modelling. Mitigation and control of emissions of odour producing compounds should be described.

Conclusions

'*These exceedances occur for the small portion of time that both the meteorological conditions (wind direction) and Project activities align*' is not supported in the text as the duration of the exceedances is not provided.

The reference to 'truck traffic' is not supported – the route passes in close proximity to identified receptors.

'There are no exceedances of any of the air quality assessment criteria at any of the residential or other sensitive receptors for any of the worst case scenarios evaluated.' This statement is based on modelled results that used a very low % silt content for unpaved roads surface material and 80% mitigation. Justification of the selection of these two factors should be provided.

7.3.1.3

'A significant adverse effect to air quality is defined as an exceedance of the Assessment Criteria at a residential or commercial location outside the property boundary, where the exceedance is due to emissions from the Project and the event occurs more than 2 percent of the time.' This statement should be referenced to a credible source as it is the basis for the risk assessment. There should be a detailed rationale for why each 'potential significance of effects' level is selected.

Odour Units are discussed but they are not used in the assessment.

7.3.1.4

Project activities are discussed whereas scenarios were modelled. Air quality and odour impacts are risk assessed together for each project activity, yet it is possible to have a negligible air quality impact and a significant odour impact, and vice versa. Assessing air quality and odour in this manner potentially masks significant impacts.

Several of the 'potential significance of effects' could be considered to be conservative. Also, there is no accounting for cumulative impacts.

Demolition of the Treatment Building should be undertaken by a qualified contractor.

7.3.1.6

'These exceedances could occur for the small portion of time that both the meteorological conditions (wind direction) and site activities align.' The use of the phrase 'small portion' is not supported in the text.

'The area of this impact is very small and not near any of the residential receptors.' Three receptors are close to the modelled exceedances of TSP, PM₁₀ and iron.

Several assumptions, that form the basis of the dispersion modelling, have been made which may be inaccurate. This potentially has an impact on the entire air quality and odour assessment. Current modelled results demonstrate non-compliance with air quality criteria. Compliant monitoring, with amendments if necessary, should be presented.

The modelling will be discussed in the Appendix U review.

Environmental Impact Assessment Vol. V Review

8

Various methods of dust and odour control during operational/dredging/waste management activities are mentioned in Tables 8.1-1, 8.1-2 and 8.1-3:

- Table 8.1-1 discusses covering stockpiles and maintaining wet conditions;
- Table 8.1-2 discusses limiting dry conditions and keeping material contained in Geotubes, and limit odour through using odour neutralizing foam; and
- Table 8.1-3 discusses limiting dry conditions and keeping material contained by using dredge piping and Geotubes.

It is not clear if the containment cell will be covered at all times, and if so, what the covering will consist of. The dispersion modelling assumes 100% containment of dust and odour as emissions through wind erosion are not included in the assessment under scenarios 3, 4 and 5.

Further information is required regarding the proposed use of odour neutralizing foam. This aspect of mitigation may require further assessment regarding potential impacts on surface water and contamination of surrounding land.

Table 8.1-1

The measures outlined in Table 8.1-1 may not be sufficient to prevent emissions of VOCs.

9.1.1

The complaint response protocol requires timescales for responding to, and resolving, complaints.

9.2 and Table 9.2-1

The location of the monitoring site should be established in consultation with NSE.

Appendix U – Air Quality and Odour Assessment Documentation

Table 1.1 and Section 1.3

This table could have been used as the basis for modelling the project activities, rather than selecting 'scenarios'.

1.3.1

It is noted that the existing unpaved road surface is gravel.

2.1.2

It is noted that *'it has been assumed that twice-daily watering will be used during dry conditions to suppress the generation of fugitive dust from unpaved roads. The emission controls associated with watering have been incorporated into the emission factors and are expected to achieve 80 percent control over untreated roadways.'* In the Government of Canada's 'Road Dust Emissions from Unpaved Surfaces: Guide to Reporting' ([Road dust emissions from unpaved surfaces: guide to reporting - Canada.ca](#)), it is stated that watering twice per day achieves a control efficiency of 55%. Using 80% as the control efficiency underestimates the impact of all forms of particles and particle associated metals. The use of dust suppressants as an alternative to watering is mentioned in Vol. V Table 8.1-1 of the EIS and section 6.1 of Appendix B. The use of such chemicals (and water as a suppressant) would require further assessment for surface water impacts and contamination of the surrounding land (see, for example [Document Display | NEPIS | US EPA](#)).

5.2

It is not stated which years of meteorological data were used.

5.8

It is noted that particle deposition was modelled and plume depletion was allowed. It is not clear if this was a separate study or if these conditions were included in the modelling study presented in this Appendix. If the latter is true, the modelling of particles in this study would not be representative of a worst case scenario.

6

Metal concentrations are reportedly based on soil sampling but the method of analysis is not presented. The method should be referenced along with certified percentage recoveries.

The output report for concentrations at specific receptors could be included.

Table 6.1 reports exceedances of the air quality criteria for TSP (24 hour and annual) and PM₁₀ (24 hour).

Table 6.2 reports an exceedance of the iron criteria (24 hour).

6.1

Modelling H₂S alone to assess the impact of odour results in an underestimation. Odour impacts from all odour producing compounds emitted during project activities, should be used.

6.2

The mitigation control efficiency was overestimated, based on the reported mitigation method. This will have resulted in underestimated particle impacts (Government of Canada's 'Road Dust Emissions from Unpaved Surfaces: Guide to Reporting' ([Road dust emissions from unpaved surfaces: guide to reporting - Canada.ca](#))).

7

'These modelled exceedances occur for the small portion of time that both the meteorological conditions (wind direction) and site activities align.' No evidence is presented with regard to the duration of modelled exceedances.

'There are no exceedances of any of the air quality assessment criteria at any of the residential or other sensitive receptors for any of the worst case scenarios evaluated.' The output report for the sensitive receptors could be included for reference to confirm this.

'Action levels for monitored parameters such as dust and H₂S will be set to allow for corrective actions in order to minimize impacts.' It is not clear who will benefit from these minimized impacts.

Table A-1-2

'No. of days per year with <0.01 inches precipitation' Incorrect use of <. Should be *'no. of days per year with >0.01 inches precipitation.'* The error is repeated in Table A-1-3, Table

A-2-4, Table A-6-2, Table A-7-2 and Table A-7-3.

Table A-1-3 (Table A-2-4 and Table A-7-3)

The surface material silt content used was 1.6%. This was derived from United States Environmental Protection Agency's (USEPA's) AP-42: Compilation of Air Pollutant Emissions Factors Section 13.2.4 - Aggregate Handling and Storage Piles. 11/06, and refers to crushed lime. This figure does not relate to haul roads.

Watering control effectiveness is reported to be 80% and has been incorporated into the modelling by reducing the emission rates. As discussed earlier, this is an overestimation of dust control based on the proposed mitigation method (Government of Canada's 'Road Dust Emissions from Unpaved Surfaces: Guide to Reporting' ([Road dust emissions from unpaved surfaces: guide to reporting - Canada.ca](#))).

Under 'Controlled Emission Factor', the units for maximum daily E(c) should be g/VKT.

The unit for 'Vehicle Roundtrips per Hour' is stated as 'trucks/day' The same error is repeated in Table A-7-3. In Table A-2-4, the parameter is 'Vehicle Roundtrips' and the unit is 'trucks/day'.

Table E-3

It is noted that the maximum deposition of TSP is modelled to be 11.6g/m².

General notes on Appendix U - Air Quality and Odour Assessment Documentation

It appears that no atmospheric deposition measurements were made during either the baseline assessment or during the pilot phase. Deposition fluxes would have allowed a more accurate assessment of the impacts of contaminants sourced through this route.

Area sources were used to assess the impacts of activities in Areas, A, J and K. This may have underestimated the impacts on sensitive receptors in the vicinity of the northern shore of Area A and the western shore of Area K. Worst case modelling could consider emission sources from dredging as point or line sources, at locations that are closest to sensitive receptors.

The scale on all plots should be logical and clearly show any exceedances. It would be useful to have the sensitive receptors identified on the plots. These are options within the AERMOD program.

Appendix B – Environmental Management Plan (Draft)/Project Environmental Protection Plan (Draft)

6.1

'If odour does become an issue additional mitigative measures will be implemented.' It should not require odour to become an issue before mitigation measures are implemented. Mitigation measures should be preventative rather than reactive.

'Once the mitigation measures are considered, the residual effect will not be significant. A significant adverse environmental effect for air quality and odour has not been predicted for the Project due to the following mitigation measures:

- *Implementation of Geotube® enclosures*
- *Wet suppression controls on all unpaved surfaces*
- *Speed reduction on the Site to keep dust levels to a minimum*
- *Air quality monitoring including dust and ambient-air monitoring, as required*

Several of the parameters that form the basis of the assessment are potentially inaccurate. In addition, not all of the odour producing compounds have been modelled. On this basis, it has not been shown that *'residual effects will not be significant'*.

8.2.2

'Project activities that required additional mitigation measures are identified.' This should be completed prior to the commencement of the project. Again, mitigation measures should be preventative rather than reactive.

8.2.3

'Monitoring data are compared to approved, short term actions levels developed to assist the Contractor(s) and CM in immediately modifying site activities and preventing exceedances of health-based compliance criteria.' This approach should also include preventing exceedances of odour-based criteria.

*'Real-time monitoring will include sampling total volatile organic compounds (TVOCs) particulate matter (TSP, PM₁₀) and **methane (H₂S)** using real time equipment and collected upwind and downwind at fence line perimeters.'* Methane is not H₂S.

Project Environmental Protection Plan (Draft)

Table 7.2

H₂S criteria should be included.

7.5.1.1

Action levels, which are used to avoid exceedances of the air quality criteria, are mentioned but not reported.

General note on the Environmental Management Plan and Project Environmental Protection Plan

This is a draft document, however, there is no content that adequately describes how emissions to air (air quality and odour) would be controlled to prevent impacts on sensitive receptors. There should be specific methodologies that demonstrate specific actions and accountability. It should be possible for external personnel, who are unfamiliar with the site activities, to use the methodologies to audit site practices. Effective site management is achieved by having clear guidance, trained personnel and record keeping. These are key components of an effective Environmental Management Plan.

Environment

Date: December 11th, 2020
To: Bridget Tutty, Nova Scotia Environment
From: Air Quality Unit
Subject: Boat Harbour Remediation Project

Further to your request, the Air Quality Unit provides the following comments for noise impacts presented in the Environmental Impact Statement and associated documents for the Boat Harbour Remediation Project.

Key Findings

- Baseline monitoring was not conducted at sensitive receptors.
- Baseline noise monitoring reported elevated night-time noise levels at monitoring stations around the site, with three stations exceeding the level on at least one occasion.
- Dredging and de-watering activities are proposed to occur through the night.
- It is not clear if background noise levels were included in the modelling.
- It is possible that modelling has not captured the worst case scenario for sensitive receptors close to Area A and Area K.
- The complaint response protocol requires timescales for responding to, and resolving, complaints.
- The Environmental Management Plan requires considerably more detail than is currently presented.

Detailed Analysis

Environmental Impact Assessment Vol. IV Review

7.3.3.2 and 7.3.3.3

These sections have the same title. It is noted that noise attenuation was included in the modelling.

7.3.3.4

'A significant adverse effect is defined as an exceedance of the maximum noise limits, where the exceedance is due to noise from sources associated with any Project component at a fixed dwelling with occupants present, with the event occurring more than twice in the period of time that the standard is based.' Provide a reference for this

definition.

7.3.3.5.1

It is noted that dredging and de-watering activities are scheduled to occur throughout the night. It is not clear where the noise sources were located for the modelled assessment – Figures 7.3-2, 7.3-3 and 7.3-4 in Vol. IV suggest that dredging and de-watering activities were modelled as area sources. This may result in an under-estimation of impacts on sensitive receptors located close to Area A and to the west of Area K. Modelling sources of noise using point or line sources would probably provide a more representative worst case scenario assessment.

7.3.3.6

Further mitigation appears to be reactive rather than preventative.

General notes on Vol. IV Noise Assessment

Baseline monitoring was conducted at sites within the boundary – measurements should be taken at sensitive receptors as the guidelines were written to reflect the impact at sensitive receptors. Figure 7.3-4 does not contain noise contours and it is not clear how noise levels at sensitive receptors were derived. The noise assessment should include contour plots showing impacts during the daytime, evening and at night to reflect the limits stated in the guidelines, for each year of the project, and reflecting the worst case impacts for each activity. It is not clear whether the results presented in Figures 7.3-3 and 7.3-4 include observed background concentrations or are just the modelled results of the proposed activities.

Environmental Impact Assessment Vol. V Review

9.1.1

The complaint response protocol requires timescales for responding to, and resolving, complaints. It is noted that active communication with sensitive receptors is supported by the protocol.

Appendix W - Noise Assessment Documentation

Noise levels at Monitoring Stations 1, 2 and 4 exceeded the permitted night-time level on at least one occasion. It is noted that meteorological factors (rain/wind) may have contributed to this. Monitoring Station 2 recorded elevated night-time levels throughout the monitoring period, with levels either close to or exceeding the permitted night-time level.

Appendix B – Environmental Management Plan (Draft)/Project Environmental Protection Plan (Draft)

There is insufficient detail included in the Environmental Management Plan (EMP) and Project Environmental Protection Plan (PEPP). The PEPP should contain procedures which site activities can be audited against. For example, when, and how, '*regular checks*' will be conducted. Training plans (mentioned in EIS Vol. 5 Table 8.1-1) and the '*Noise Management Plan*' should be included.

Boat Harbour Remediation Project – Federal Impact Assessment Technical Review 1: NSE Air Quality Unit

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
AQ1	AQPA	Air Quality Unit	7.1.1 Atmospheric Environment	7.1.1 p.21	<p>Section 7.1.1 of the EIS Guidelines covers the Atmospheric Environment, including air quality, odour, greenhouse gas emissions and noise. While greenhouse gas emissions and noise were reported in separate sections, air quality and odour were reported together.</p> <p>Air quality primarily relates to health based impacts, both chronic and acute. It also includes nuisance impact from dust. Odour relates to pervasive smells that primarily relate to nuisance impacts, although prolonged exposure to odours can lead to mental health issues and, if the concentrations of particular compounds are high enough, physical health issues.</p> <p>The air quality and odour sections of the report are confusing to read. Joint qualitative analysis of the potential impacts of air pollutants and odour can result in significant nuisance impacts being downgraded where the health impacts are less severe, and yet both health and nuisance impacts should be given their legitimate status.</p>	What was the rationale for combining air quality and odour in one section of the EIS?
AQ3	AQPA	Air Quality Unit	7.2.1 Changes to the Atmospheric Environment	7.2.1 p. 29	<p>The % silt content used for emissions from unpaved roads was 1.6%. This was the average reported for stockpiles of crushed lime in USEPA guidance. The % silt content reported for unpaved roads under a variety of industrial operations tend to be much higher (USEPA guidance). Using a low % silt content could potentially underestimate emissions.</p>	Why was the silt content of crushed lime stockpiles used instead of a percentage for unpaved roads?
AQ3	AQPA	Air Quality Unit	7.2.1 Changes to the Atmospheric Environment	7.2.1 p. 29	<p>Using specific scenarios as ‘worst case’ activities, rather than all activities that occur in each phase, potentially underestimates cumulative impacts.</p>	Why were specific scenarios selected rather than model the activities for each year?
AQ4	AQPA	Air Quality Unit	7.4 Mitigation Measures	7.4 p. 35	<p>Canadian guidance confirms that the dust control efficiency for watering twice per day is 55%. Chemical suppressants would be required to achieve 80%.</p>	Why was 80% control efficiency used when the stated figure in the guidance is 55%?

Comment #	Reviewer	Department	Reference to EIS Guidelines	EIS Section and Page	Context and Rationale	Specific Question/ Request for Information
AQ5	AQPA	Air Quality Unit	7.4 Mitigation Measures	7.4 p. 35	Only vague details are reported for mitigation measures proposed to limit dust, odour and volatilization of VOCs. Accurate details are required to determine if the modelling accurately reflects the proposed activities.	What are the exact details for mitigating dust and odour emissions, and volatilization of VOCs under scenarios 2, 3, 4 and 5?
AQ6	AQPA	Air Quality Unit	7.5 Significance of Residual Effects	7.5 p. 37	An unreferenced statement appears to be the only rationale behind the potential significance of impacts assessment. A more robust method for this qualitative analysis is required.	What was the rationale behind the 'potential significance of impacts' assessment?