



IR #	Comment / Issue Description / Suggested Change	Proponent Response
1	<p>The project would be located within the proposed national marine conservation area of Lancaster Sound. Shipping and cruise ship tourism would be allowed through this area if it were established, however development of the port would be ongoing during shipping and cruise ship operations; recommend clarification be provided on methods to inform vessels and safety procedures during construction.</p>	<p>Since the harbour at Pond Inlet is being constructed in relatively shallow water, construction will not interfere with any shipping through Eclipse Sound. Ships passing through Eclipse Sound will transit Eclipse at least 5 to 10 km offshore of Pond Inlet. Therefore the only traffic that could be impacted by construction of the Small Craft Harbour (SCH) are cruise ships, adventure/pleasure craft, sealift vessels and fuel tankers calling at Pond Inlet.</p> <p>As per the Construction Environmental Management Plan (CEMP), it will be a contractual requirement of the construction contract to maintain access to the beach at Pond Inlet. As described in the PSIR, Section 1, the project is also going through the <i>Navigation Protection Act</i> process and the Government of Nunavut (GN) has already engaged with Transport Canada.</p> <p>Cruise ships and sealift vessels calling into Pond Inlet will continue to anchor some 500 m offshore of construction activities in approximately 30 m water depth and use small shallow-draft equipment for shore access. The area of construction on the beach is relatively small compared to the length of beach that is available for access and the bulk of construction activity is away from the area around the boat ramp that is used for sealift, cruise tenders, and boat launching. The community's fuel receiving manifold is located approximately 500 m northeast of the site, so there is not expected to be any conflict or coordination required with tankers and their fuel delivery hoses.</p> <p>A Notice to Shipping (NOTSHIP) will be issued by the contractor advising mariners of the construction activities, locations and timing that will be undertaken. Contact information will be provided on the NOTSHIP for the contractor's head office to allow mariners to obtain information relevant to the details of the activities at Pond Inlet. Mariners calling at Pond Inlet will be requested in the NOTSHIP to also contact the contractor by VHF radio on arrival at Pond Inlet and prior to deployment from their anchorage. The contractor will then provide up-to-date details on the landing location and timing and any specific procedures that will be required to allow for access to the beach. Further information and a complaints process will be available via telephone and online, as defined in the CEMP.</p> <p>There has already been consultation with the sealift operators and cruise ship companies for the project and this will continue through construction specifically:</p> <ul style="list-style-type: none"> ▪ GN's Community and Government Services, who administer the sealift contracts, will provide updates in the time leading up to construction and advise that a NOTSHIP will be issued. ▪ GN's Petroleum Products Division, who administer the fuel delivery contract, will inform their carrier about the upcoming operations, advise that a NOTSHIP will be issued. ▪ GN's Department of Economic Development and Transportation (EDT), Tourism and Cultural Services will contact the cruise operators and provide updates in the time leading up to construction and advise that a NOTSHIP will be issued.



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2	<p>Potential for increased activity in Eclipse Sound; recommend the Proponent discuss any considerations made during project design and proposed operations to address possible increases to local vessel activity as a result of the project and provide additional detail on any residual or significant adverse effects that may result from the project.</p>	<p>The Small Craft Harbour (SCH) is not being built to increase traffic to Pond Inlet but is being developed primarily to address safe access to the water for local boaters and improve dry cargo re-supply activities while providing improved separation of dry cargo operations from public access. The majority of the harbour has a depth less than 2 m at low tide and the fixed dock only has a depth of 3.5 m. This severely limits the accessibility of the harbour by anything other than small vessels and tenders.</p> <p>It is acknowledged within the PSIR that the community and adventurer/pleasure craft traffic to Pond Inlet is expected to grow. This growth is not related to the construction of the small craft harbour.</p> <p>Re-supply quantities of dry cargo and fuel will increase with the increase in the population of Pond Inlet, but at the present rate, this is not expected to lead to additional voyages for many years. Such traffic is not related to the development of the harbour.</p> <p>It is not anticipated that the construction of the small craft harbour itself will attract marine traffic that already exists in the Canadian Arctic but does not currently stop at Pond Inlet. For example, vessel data from NORDREG confirms that the majority of cruise and adventurer traffic already stops at Pond Inlet. Pond Inlet is commonly the first Canadian port of call for foreign cruise ships originating from Nuuk and undertaking cruises within Nunavut. Based on consultation with one of the cruise ship operators, the presence of a harbour is not viewed as an attraction as using zodiacs to tender to the beach is part of the experience.</p> <p>New commercial operations using the SCH, such as additional cruise ship traffic or the development of commercial fisheries would be subject to its own permitting processes.</p> <p>The small craft harbour has been designed with sufficient capacity for growth in population and marine use in Pond Inlet. As described in the PSIR Sections 1 and 3, a number of options have been considered, including different dimensions and capacity of the harbour. These were discussed during consultation and the concerns of the community regarding the capacity of the harbour were addressed, as described in Section 2 of the PSIR.</p> <p>No issues have been identified regarding an increase in activity in relation to operations. The Department of Economic Development and Transportation (EDT) within the Government of Nunavut (GN) is in the initial stage of planning for the operations of Pond Inlet. This includes the development of procedures and the potential for creating a Harbour Master's position in Pond Inlet that would control local traffic into and out of the harbour and enforce these procedures. As part of the operations plan, GN is considering the lessons learned at the Fisheries and Oceans Canada (DFO) Pangnirtung facility.</p>



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3	Effects of climate change on local use of the port and adjacent waters should be considered for both construction and operations of the small craft harbour; recommend the Proponent outline any considerations made during project design and proposed operations to address impacts from climate change.	<p>Climate Change – Small Craft Harbour Design:</p> <p>Three effects of climate change considerations were considered in the design of the Small Craft Harbour (SCH); sea level rise, reduced ice cover and increased storm intensity.</p> <p>Allowance is made in the design for 0.4 m of sea level rise, which is based on the 95th percentile for emissions predictions over a 50-year period, and accounts for a modest amount of land subsidence that is predicted for the Pond Inlet area. The small craft harbour is expected to be in use beyond the 50-year period identified. Eventually sea spray overtopping of the structure may become unmanageable as sea level rises. When this occurs, the crest elevation of the breakwater structures can be raised to continue to maintain the use and performance of the harbour as originally designed. Geotechnical investigations have demonstrated that the sediments will be able to support the additional weight and the fixed wharf structure can be readily raised without large-scale reconstruction.</p> <p>There will be a benefit of the SCH in terms of shoreline protection and reduced erosion, which may increase through more intense or frequent storms and sea level rise. The location of the harbour fronts the entire developed portion of the community shoreline that is low-lying with sand substrate, which is particularly sensitive to sea level rise. The harbour will protect this entire shoreline from storm waves and surge. The remainder of developed shoreline is exposed bedrock or hard till-like soil, which is less prone to erosion. Further, the upper beach area will be covered with a gravel surface, raising this area and providing added protection to the adjacent sheds. It is noted that a particularly severe storm event in August 2016 occurred at high tide and undermined and dislodged several sheds. The harbour design will avoid this happening in the future.</p> <p>Analysis of wind and ice data shows an abnormality within the Canadian Arctic at Eclipse Sound. The navigable portion of the season has not changed in 30 years whereas all other areas of the Canadian Arctic have. Eclipse Sound is also found to have an abnormally high degree of calm weather. The design of Pond Inlet is based on existing statistical data, without allowance for more severe storms. The design storm waves have been taken based on a 1-in-50 year storm event, rather than the more traditional 1-in-30 year event, which governs the height of the breakwater from run-up calculations for sea spray overtopping limits. The size of rock armouring is governed by an ice floe impact at breakup using a conservative thickness of 1.5 m for the ice floe. The rock armouring can withstand substantially greater waves than the design storm waves.</p> <p>Despite the observations of ice coverage over 30 years, it is expected that ice conditions in Eclipse Sound will eventually change statistically as the climate warms. The conservative approach in selecting the ice thickness and allowing in the design for very large ice floe (over 5 km in diameter) impact is sufficient to allow for future potential trends.</p> <p>The construction of the harbour will not affect ice cover in Eclipse Sound. However, it is expected that the ice inside the harbour will thaw later and freeze up earlier than the existing nearshore conditions, reducing the overall accessibility period of boats from the harbour. The community is aware and accepting of this</p>

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		<p>inevitable limitation. These ice effects within the harbour were considered within the impact assessment within the PSIR (Section 5) and no impacts were determined.</p> <p>With the site being near shore and influenced by the relatively warm seawater temperature, it is expected that there is no permafrost that can affect the facility. Geotechnical drilling over the sea ice in early 2017 encountered only compact to dense sands and dense till-like sediments, with no evidence of subsea permafrost encountered in the deepest (18 m below mudline) hole. Relic offshore permafrost likely exists (based on experience at Nanisivik and Milne Inlet) but is below the deepest hole and likely within bedrock, and not within the zone of influence of the harbour.</p> <p>Climate Change – Small Craft Harbour Operations:</p> <p>An expanding open water season as a result of climate change will likely see the harbour used for a comparative increased length of time, as subsistence fishing throughout the accessible season is important to the community. No additional impacts from an increased period of use have been identified.</p> <p>It is not clear how a longer open water season will affect the cruise industry over the longer term, as cruise duration is critical to controlling costs and attracting business. The cruise industry normally meets demand and a longer open water season does not mean more passengers will come. It is expected that there will need to be a significant increase in open water season before a single vessel is able to add an additional voyage, beyond those already in place, in a single season. Over the longer term, and expanded Arctic season may permit more cruises to be undertaken. While the existing expedition fleet uses ice capable vessels under 500 passengers, larger non-ice class vessels could become economically feasible. Again no additional impacts are expected due to the use of the harbour.</p>
4	<p>Reference to emergency response plan but no detail provided on what types of emergencies would be considered during response planning for either construction or operations which leads to uncertainties in understanding possible impacts of the project; recommend the Proponent provide an overview of the types of emergencies that may arise from the project and the types of mitigation or plans that may be employed to address the impacts.</p>	<p>Human health and safety and environmental protection are paramount considerations for CGS during construction of the Small Craft Harbour (SCH) project.</p> <p>Section 3.2.2 of the Construction Environmental Management Plan (CEMP) discusses the Emergency Response Plan (ERP) that will be prepared for the project by the Contractor that outlines the protection of personnel, the public, and the environment in the event of an emergency scenario during construction.</p> <p>The scope of the Construction ERP will encompass a range of incidents during the construction phase of the project that may require the initiation of an Emergency Medical or Environmental Response. The ERP will also consider the possibility that more than one type of response may be required for any one incident.</p> <p>Possible emergency situations at the SCH project site during construction include:</p> <ul style="list-style-type: none"> ▪ Fire/explosion ▪ Vehicle and mobile equipment incidents ▪ Marine vessel/equipment incidents ▪ Hydrocarbon spill ▪ Security breach ▪ Wildlife encounters

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		<ul style="list-style-type: none"> ▪ Natural disasters and severe weather events ▪ Major first aid/medical emergencies <p>Specific emergency response procedures are an important part of the overall emergency management system. Response procedures will be developed for the above scenarios and will be clear, simple, practical and achievable. They will describe the steps to be undertaken, the precautions, the protective clothing and equipment to be used, any special conditions, and the responsibilities and duties of people undertaking these procedures. The ERP must be prepared by the contractor(s) who will be responsible for construction.</p> <p>The ERP at a minimum will include:</p> <ul style="list-style-type: none"> ▪ Emergency response flow chart and communication protocols ▪ Emergency alarm signal ▪ Designated safe assembly areas ▪ Posted emergency phone numbers ▪ Directions and contact information for the health clinic ▪ A continuously available telephone ▪ Site plan with locations of fire response equipment, first aid equipment, spill kits, muster stations etc. ▪ Specific emergency response procedures and responsibility for first response to a range of identified emergency scenarios ▪ Evacuation and headcount procedure ▪ Site first aid and medical services requirements ▪ Training requirements for employees and response team members, including emergency drills <p>Section 3.2.2 of the CEMP provides further information on the contents of the construction ERP to be developed by the contractor.</p> <p>The Department of Economic Development and Transportation (EDT) within the Government of Nunavut (GN) is responsible for the development of the ERP for the Operations phase of the project. As described in Section 7 of the PSIR, there is a clear commitment from EDT to prepare an Operations Environmental Management Plan (OEMP), Health and Safety plans for operations and the ERP for operations. Emergency Response Plans for existing operations and other Government of Nunavut operated facilities in Iqaluit will be used as a basis. The possible emergency situations for operations will be similar to those provided above for construction.</p>



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5	<p>Concerns regarding impacts to the marine environment as a result of onshore erosion, sediment control, and water management during construction and lack of clarity on the monitoring programs to be implemented; recommend the Proponent clarify mitigation measures to address these potential impacts and provide additional detail on its monitoring programs.</p>	<p>It was acknowledged within Section 5 of the PSIR that it will be necessary to manage storm water run-off during construction to protect marine water quality. However, the substrate in the vicinity of the Small Craft Harbour (SCH) is low sloped sandy beach and therefore the stormwater run-off to the marine environment is expected to be low.</p> <p>As per the CEMP, the Contractor will be required to apply applicable sediment and erosion control best management practices (BMPs) to meet water quality criteria. Sediment and Erosion Control and during construction are provided in Section 3.5 of the CEMP. Mitigation measures are as follows:</p> <ul style="list-style-type: none"> ▪ Run-off will be visually monitored and if there is evidence of flow reaching the marine environment, perimeter controls shall be applied to act as a barrier, preventing sediment or contaminants from reaching the beach or the ocean (i.e. sediment/silt fence). ▪ Temporary sediment control measures shall be applied at the base of any soil or rock stockpiles (specific to temporary storage in laydown area, as blasting will occur at the quarry). ▪ Water quality in the marine environment shall be monitored for sediment run-off. If visual monitoring identifies sediment run-off, turbidity will be measured and compared to the Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life. ▪ Material shall be stockpiled in such a way that debris/sediments will not enter the marine environment. Material will not be stockpiled on the ice. ▪ Stockpiling and storage of material must occur in upland designated areas and controlled in a way that debris and sediment will not enter the marine environment. <p>As per the PSIR and CEMP, marine monitoring is planned and will cover precipitation events and the tidal cycle. Monitoring measures specific to monitoring of water quality, and effects to fish and marine mammals have been provided in the CEMP (see Sections 3.5, 3.6). Additional measures may be added through the <i>Fisheries Act</i> process.</p> <p>As per the CEMP and at a minimum the following monitoring is committed to, in relation to erosion and sediment control:</p> <ul style="list-style-type: none"> ▪ Visual monitoring during all in-water activities and activities that could result in turbid water entering the marine environment ▪ Minimum daily monitoring of turbidity/ total suspended solids (TSS) in marine waters surrounding construction using handheld monitor with laboratory analysis to verify results. ▪ Comparison against CCME guidelines for the protection of aquatic life and background conditions to ensure mitigation is effective.



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6	<p>Concerns regarding 4 possible archaeological sites in the proposed project area and the sites would be protected by law; recommend that the Proponent hire a professional to conduct an archaeological and palaeontological assessment of the project area to ensure sites are identified and appropriate mitigation applied; recommend the Proponent undertake an assessment and provide information on its mitigation measures to preserve these sites.</p>	<p>As described in the PSIR, a registered professional archaeologist from Lifeways of Canada Limited has been working on the project since fall 2016. An Archeological Overview Assessment (AOA) has been completed and the findings are described in the PSIR Section 4. The registered professional archaeologist is currently conducting an Archaeological Impact Assessment (AIA) under a Class 2 Nunavut Territory Archaeological Permit secured from the Government of Nunavut, Department of Culture and Heritage (Culture and Heritage).</p> <p>The AIA includes: a field assessment and inventory of archaeological sites within the project area; an assessment of the potential impacts of the project on those sites; and mitigation plans for the sites. The AIA covers all project components including the quarry and the potential haul routes.</p> <p>The AIA includes visual inspection of the project area, and shovel testing if warranted, to identify archaeological sites such as stone cache pits, house or tent rings, standing or collapsed buildings, and exposed pre-contact cultural materials such as stone tool making debris and tools. The study also includes visiting the previously recorded archaeological sites identified in the AOA. It also incorporates available Inuit Qaujimajatuqangit. All field studies include a community member to assist in identifying and interpreting archaeological sites.</p> <p>The results of the study will be presented in a final report that will be submitted to Culture and Heritage, Inuit Heritage Trust, Mittimatalik Hunter and Trappers Organization (HTO), and Hamlet of Pond Inlet to review. Mitigation plans will be agreed with these groups through additional consultation, as required.</p> <p>A review of the database of significant palaeontological sites that the Canadian Museum of Nature maintains on behalf of the Territory of Nunavut did not result in any previously identified palaeontological sites in conflict with the proposed Pond Inlet Marine Infrastructure project. Based on a review of the geology of the project area impacts to unrecorded significant paleontological sites is not anticipated.</p>