



November 10, 2023

Government of Nunavut  
Department of Community and Government Services  
P.O. Box 1000, Stn 700  
Iqaluit, Nunavut X0A 0H0

Attention: Gord Marinec, Municipal Engineer/PM/Baffin Region

***Kimmirut Sewage Lagoon Project***

Included in this letter (Pages 2 & 3) is the response from Dillon Consulting Limited regarding question #1 posed by Environment and Climate Change Canada (ECCC) related to the design report for the planned lagoon project at Kimmirut, Nunavut. We trust that the response from Dillon clarifies any concerns regarding the use of a planned wetland treatment area as part of the treatment system.

Should you require and any additional clarifications or responses, please let me know at your convenience.

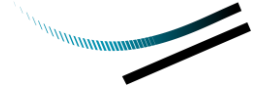
Best Regards,

**DILLON CONSULTING LIMITED**

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## 1. Topic: Wetland Treatment Area

### Reference(s)

- Design Development Report: New Wastewater Treatment Facility – Hamlet of Kimmirut (Dillon Consulting; January 2023)

### Comment

Sections 1.0 (Introduction) and 6.2 (Wetland Treatment Area) of the design report indicate that other secondary treatment options will be considered in addition to wetlands. Per Section 6.2, Dillon Consulting has identified concerns with the feasibility of wetland treatment. An update should be provided to clarify whether these concerns have been resolved.

### ECCC Recommendation(s)

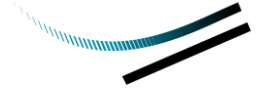
Regarding the Design Development Report for the new Wastewater Treatment Facility, ECCC requests that the Licensee:

- i) Clarify whether any other secondary treatment options are currently being considered in addition to wetlands and, if so, describe any such current options.

**Response:** Dillon Consulting Limited identified in the Design Development Report that there were concerns related to the feasibility of a conventional wetland treatment option. These concerns were related to the ability to construct sufficient wetland area to meet the effluent performance targets proposed by the board, including a fecal coliform limit of  $1.0 \times 10^4$  CFU/100 mL.

The feasibility issue is related to the availability of land area along the proposed wetland flow path, and the required number of constructed berms to develop the necessary ponded area. Dillon developed an option (“15-berm option”) that represents the maximum feasible wetland area development in the proposed discharge flow path; however, although this wetland area would satisfy proposed BOD and TSS effluent limits of 100 mg/L and 120 mg/L, respectively, it was still insufficient to achieve the required  $1 \times 10^4$  fecal coliform effluent limit.

Dillon has developed an option (“11 berms”) that will meet all of the proposed effluent limits from the Water Board, except fecal coliform; TSS is the limiting effluent parameter for this option, and the projected fecal coliform effluent level is  $3.6 \times 10^5$



CFU/100 mL. As long as the fecal coliform effluent limit is increased to the requested  $1 \times 10^6$  CFU/100 mL, then a wetland treatment option remains feasible.

Dillon will further refine the wetland design as part of detailed engineering, including number of berms, berm locations, and flow path, for optimized constructability.

- ii) Describe whether and how concerns raised in the report regarding the feasibility of wetland treatment have been resolved.

**Response:** As long as the effluent fecal coliform limit is increased to the requested  $1.0 \times 10^6$  CFU/100 mL, then wetland treatment remains feasible, and concerns regarding the feasibility of wetland treatment are resolved.