Clyde River Small Craft Harbour Development

Nunavut Research Institute

Summary Report for License # 02 024 21R-M

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002	Final Report	Kelly MacDougall	February 1/2022	Loretta Hardwick
001	Draft Report	Kelly MacDougall	January 18/2022	Loretta Hardwick
Issue or Revision		**Reviewed By:**	**Date**	**Issued By:**

Report: 200235.00

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February 1, 2022

Mr. Mosha Cote
Manager, Research Liaison
Nunavut Research Institute
Building 959
Box 1720
Iqaluit, NU X0A 0H0

Dear Mr. Cote:

RE: Clyde River Small Craft Harbour Development – Nunavut Research Institute Summary Report

Please see attached our report for a brief summary of field programs completed under License #02 024 21R-M in the spring of 2021 as part of the Clyde River Small Craft Harbour Development Project.

If after your review you have any questions, please contact us at your convenience.

Yours very truly,

Canadrill-CBCL

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Chapter 1 Summary of Field Surveys

The Canadrill-CBCL Joint Venture was retained by Public Services and Procurement Canada (PSPC) on behalf of Fisheries and Oceans Canada-Small Craft Harbours (DFO-SCH) to design a proposed small craft harbour development in Clyde River, Nunavut (the Project). To inform the design, a field program was conducted in 2021 by the Canadrill-CBCL Joint Venture on behalf of DFO-SCH. A license for the 2021 field program was received from the Nunavut Research Institute (Scientific Research License 02 024 21R-M).

This summary report presents a brief overview of field surveys completed in Clyde River in the spring of 2021. The field surveys for both programs were conducted in conjunction and are briefly described below.

1.1 Geotechnical Drilling Program

The geotechnical drilling program was completed between April 30 and May 6, 2021. Thirteen boreholes were drilled in the harbour area and five boreholes were drilled in the upland area. A drill with drill shack was mounted on a skid and dragged over the harbour ice surface to each borehole location using a front-end loader. The marine boreholes were advanced to depths between 4.4 and 30.2 metres below seabed (mbsb) The upland boreholes were advanced to depths between 1.5 and 4.6 metres below grade (mbg). Marine sediments primarily consisted of silty sand and sand with silt. Upland soils were predominantly silty sand, with gravel. Cobble and boulder were encountered frequently in the nearshore boreholes and at greater depth in the boreholes further offshore. Nearshore sediments were mostly frozen.

1.2 Environmental Site Assessment Sampling Program

The environmental site assessment sampling program was completed in concert with the geotechnical drilling program between April 30 and May 6, 2021. The environmental site assessment field program involved the collection of soil samples from five upland boreholes, the installation of monitoring wells at three of the five upland locations, and the collection of sediment samples from a subset of the geotechnical marine boreholes.

Twelve upland soil samples and 23 marine (harbour) sediment samples were collected and submitted for laboratory analysis to characterize contaminant concentrations in soils and

sediment in the planned harbour construction area and characterize the sediments that may be disposed at sea.

All inorganic parameters, metals, and polychlorinated biphenyls were reported below the applicable human and ecological health guidelines for residential and commercial land use the submitted soil samples. Six soil samples had petroleum hydrocarbon concentrations that exceeded their respective Canadian Council of Ministers of the Environment (CCME) Canada Wide Standard values and five soil samples had polycyclic aromatic hydrocarbon concentrations that exceeded their respective CCME soil quality guidelines.

The analytical results of the sediment samples collected from the marine boreholes indicated that the sediment is primarily uncontaminated sand with no reported exceedances of relevant Disposal at Sea Regulations and CCME sediment and soil quality guidelines. As such, based on ECCC's Guidance for Atlantic Region Disposal at Sea Permit Applicants, these results indicate that sediments within the water lot are chemically suitable for open water disposal during dredging activities.

Chapter 2 Sharing Results with Community

A meeting was held with the community to continue to present the harbour design, upcoming activities, and project progress, and to listen to and consider feedback from the community. Community participants included representatives of the Hamlet, Hunters and Trappers Organization, and Qikiqtani Inuit Association. The meeting was held on September 17, 2021, at the Hamlet Office between 10 am and 12 pm (EDT). The Canadrill-CBCL Team presented on the results of May 2021 field programs and investigations, update on the design, estimated construction sequence, and update on the permitting.

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