



New

Scientific Research

Period of operation: from 2024-06-27 to 2025-05-28

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ᖃᓪᐸᓂᓄᑦ: Worley Canada Services Ltd., operating as Worley Consulting, has been retained by the Government of Nunavut – Community & Government Services (GN-CGS) to support the detailed design of Community Harbour facilities in Grise Fiord and Resolute Bay in Nunavut. To inform the detailed design phase, several field programs will be undertaken over the next few years, initiating in the 2024 open-water season. This Project Description (PD) is specific to the field programs. The intention of the field programs, will be as below:

- Conduct environmental, geoscience, geophysics, and archaeological baseline studies in each location.
- Perform a geotechnical program to confirm seabed and quarry rock conditions.
- Topographic and bathymetric surveys.
- Existing conditions or effects studies during or post-construction of the CH's.

Surveys will be conducted in two Study Areas: the Community Harbour and the Haul Road and Quarry. Maps depicting the Study Areas for each community are provided in Appendix A, Figure A-1 and Figure A-2 in the attached Application Letter. Field programs will largely be undertaken in open-water seasons, with the exception of the Geotech Drilling Program which may occur during the iced ocean condition. The initial 2024 existing conditions field program will be undertaken between July and September. Consultations on the Community Harbour facilities have been ongoing since the feasibility phase and have included six separate community visits from 2018 to 2022 to conduct meetings with the Hamlet, design workshops with the Hunters and Trappers Associations/Organizations (HTAs/HTOs), Inuit knowledge (Inuit Qaujimajatuqangit [IQI]) workshops with elders and active hunters, and community open houses. Meaningful consultation will be continued throughout the 'life cycle' of the Projects, including during the design and construction phases so that issues of concern can be identified and responded to in a timely manner and design and construction planning can be adjusted where possible to avoid and mitigate any adverse social or environmental effects. The next round of consultations is being planned for July 2024, before any field programs, and will focus on providing the communities with a Project update and general overview, confirming preferred options for the Community Harbour layouts, Quarries, and Haul Roads and discussing the field program activities including coordinating with the community for local support of workers and equipment for the field programs.

▷ ΔΑΝΩ: NA

[illegible]

Inuinnaqtun: NA

Personnel on site: 7

Days on site: 22

Total Person days: 154

Operations Phase: from 2024-06-27 to 2025-05-28

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General location for Grise Fiord, located on the southern shore of Ellesmere Island in Jones Sound.	Scientific/International Polar Year Research	Municipal	Project area is an established longstanding community.	Archaeological field study is a component of the field program.	Community harbour located along 1.4 km of shoreline directly fronting the Grise Fiord community. Haul road: 14 km north of community. Quarry: 3 quarries of varying size.
General location for Resolute Bay, located on the south shore of Conwallis Island in Parry Channel.	Scientific/International Polar Year Research	Municipal	Project area is an established longstanding community.	Archaeological field study is a component of the field program.	Community harbour (CH) 1: 500 m along shoreline SW of the Resolute Bay community. CH 2: 1 km along shoreline fronting the community. Haul road: 3.3 km SE of CH 1 & 1.3 km SE of CH 2. Quarry 1: 7 km NW of CH study area. Quarry 2: 3.3 km SE of CH study area. Quarry 3: 1.7 km SE of CH study area

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ᐱᓄᑎ ᐱᓚᓇᑭᑭᑭᑭᑭ	Amon Akeeagok	Iviq Hunters and Trappers' Organization	2024-05-27
ᐱᓄᑎ ᐱᓚᓇᑭᑭᑭᑭᑭ	Meeka Kigukta, Mayor	Hamlet of Grise Fiord	2024-05-27
ᖅᓴᓴᑐ ᐱᓄᑎ ᐱᓚᓇᑭᑭᑭᑭᑭ	Aziz, Mayor	Hamlet of Resolute Bay	2024-06-18
ᖅᓴᓴᑐ ᐱᓄᑎ ᐱᓚᓇᑭᑭᑭᑭᑭ	Nancy	Resolute Bay Hunters and Trappers' Organization	2024-06-18

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ᐸᕐᑕᐅᕐᑕ ᐸᕐᑕᐅᕐᑕ ᐸᕐᑕᐅᕐᑕ	Research Permit	Not Yet Applied		
Indigenous and Northern Affairs Canada	Land Use Permit	Not Yet Applied		
ᐸᕐᑕ ᐸᕐᑕᐅᕐᑕ, ᐸᕐᑕᐅᕐᑕ	Land Use Permit- to be confirmed if required.	Not Yet Applied		
ᐸᕐᑕᐅᕐᑕ ᐸᕐᑕᐅᕐᑕ ᐸᕐᑕᐅᕐᑕ	License to Fish for Scientific Purposes	Not Yet Applied		
ᐸᕐᑕ ᐸᕐᑕᐅᕐᑕ, ᐸᕐᑕᐅᕐᑕ	Wildlife Research Permit	Not Yet Applied		
ᐸᕐᑕ ᐸᕐᑕᐅᕐᑕ, ᐸᕐᑕᐅᕐᑕ	Vegetation (wildlife) export permit. (Local conservation officer)	Not Yet Applied		
Government of Nunavut, Department of Culture, Language, Elders, and Youth	Class 2 Permit	Not Yet Applied		

Project transportation types

Transportation Type	ᐸᕐᑕ ᐸᕐᑕᐅᕐᑕ	Length of Use
Air	field crews will travel to the project area by plane from Vancouver	
Land	field crews will travel by foot or local truck within the communities	

Project accomodation types

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$\Lambda^{\epsilon_d C} \triangleleft^{a_f r^{\epsilon_b}} \triangleleft D^{\epsilon_b} C \triangleright \sigma \triangleleft h^{\epsilon_b}$ $\Delta \subset^{\epsilon_b} b \triangleright n \triangleright r^C$ $\Delta j C \Delta^C$, $r^C \triangleright \triangleleft p \dot{n}^C$, $b^{\epsilon_b} \in C r^{\epsilon_b}$, $m \triangleright \triangleright^C \triangleleft r^{\epsilon_b} r^C \triangleright$

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Sample Preservative	hazardous	1	1	1	Liters	Preservatives such as formalin, ethanol, and hydrochloric acid are required to preserve water and sediment quality samples for the marine-based Field Program components. Less than 1 millilitre of preservative will be

						required per sample bottle.
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$\triangleleft \nabla \cap \Gamma \triangleright C \dot{\sigma}^C \supset^C \triangleleft^b \supset^{cb} C \triangleright \gamma L \dot{\gamma}^C$

Environmental impacts associated with the field programs are expected to be minimal. Potential impacts to terrestrial and marine habitat and wildlife may occur, however, all personnel will be accompanied by a local field assistant to confirm minimal disturbances. Minor disruptions to traditional land use may occur in the proposed study area, however, arrival of the research team will be advertised on local social media prior to arrival. There may be temporary sediment suspension in marine habitats due to grab sampling but the footprint of this activity is small and sediment disturbance will be minimal. Disturbance to heritage resources is possible, but unlikely. Measure to mitigate impacts are described in the Class 2 archaeological permit which was submitted to the C&H department. There will be an increase in anthropogenic presence in the Study Area but the research team is relatively small and are conducting non-invasive short term studies. Please see attached application letter Table 10-1.

Additional Information

SECTION A1: Project Info

SECTION A2: Allweather Road

SECTION A3: Winter Road

SECTION B1: Project Info

SECTION B2: Exploration Activity

SECTION B3: Geosciences

SECTION B4: Drilling

SECTION B5: Stripping

SECTION B6: Underground Activity

SECTION B7: Waste Rock

SECTION B8: Stockpiles

SECTION B9: Mine Development

SECTION B10: Geology

SECTION B11: Mine

SECTION B12: Mill

SECTION C1: Pits

SECTION D1: Facility

N/A

SECTION D2: Facility Construction

N/A

SECTION D3: Facility Operation

N/A

SECTION D4: Vessel Use

SECTION E1: Offshore Survey

SECTION E2: Nearshore Survey

SECTION E3: Vessel Use

SECTION F1: Site Cleanup

SECTION G1: Well Authorization

SECTION G2: Onland Exploration

SECTION G3: Offshore Exploration

SECTION G4: Rig

SECTION H1: Vessel Use

There will be a small vessel used for fish habitat, water quality, sediment quality, drogue, and bathymetric surveys.

SECTION H2: Disposal At Sea

N/A

SECTION I1: Municipal Development

[illegible]

Baseline studies of the physical environment were conducted in 2019 and will be conducted as a component of this field program. This will include surveys of the marine (subtidal and intertidal) and terrestrial habitats within the Study Areas.

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Baseline studies of the biological environment were conducted in 2019 and will be conducted as a component of the field program.

[illegible]

Consultation programs have been ongoing since the feasibility stage of the project. Consultation program will be undertaken in each community prior to arrival of the field team to confirm local support and gather traditional knowledge to support the baseline assessments.

Miscellaneous Project Information

N/A

[illegible]

Potential impacts to terrestrial and marine habitat and wildlife may occur, however, all personnel will be accompanied by a local field assistant to confirm minimal disturbances. Minor disruptions to traditional land use may occur in the proposed study area, however, arrival of the research team will be advertised on local social media prior to arrival. There may be temporary sediment suspension in marine habitats due to grab sampling but the footprint of this activity is small and sediment disturbance will be minimal. Disturbance to heritage resources is possible, but unlikely. Measure to mitigate impacts are described in the Class 2 archaeological permit which was submitted to the C&H department. There will be an increase in anthropogenic presence in the Study Area but the research team is relatively small and are conducting non-invasive short term studies. See Table 10-1 in application letter.

Cumulative Effects

Limited cumulative effects are anticipated, as most project components have mitigation measures in place that will limit impacts.

Impacts

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[illegible]
$$(P = \langle b \rangle_{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}}, N = \langle b \rangle_{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}}, M = \langle b \rangle_{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}}, U = \mathcal{P}^{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}} \cap \mathcal{P}^{\mathcal{A}})$$

