

1. Project Overview

1.1. Introduction

Worley Canada Services Ltd., operating as Worley Consulting (Worley), has been retained by the Government of Nunavut – Community and Government Services (GN-CGS) to support the detailed design of a Community Harbour in Grise Fiord (the Project). Dynamic Ocean Consulting Ltd (Dynamic Ocean) is supporting Worley on the permitting requirements for the Project.

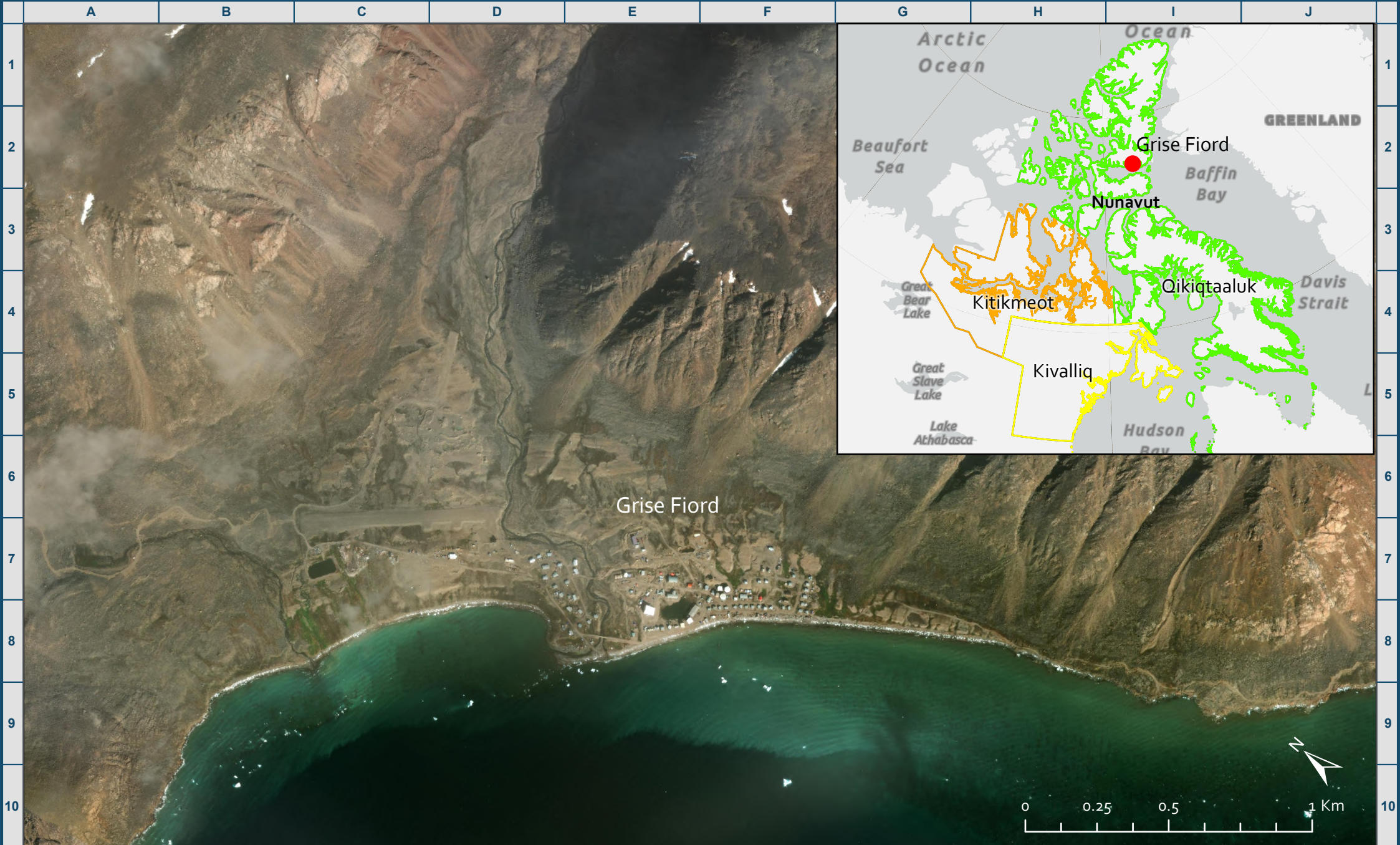
This letter provides details for the Project, fulfilling the requirements of the NPC to determine whether the Project complies with all terms and conditions of any applicable land use plans.

1.2. Project Location

Grise Fiord is located on the southern shore of Ellesmere Island in Jones Sound (76° 25.001'N, 82° 54.935'W) in the Qikiqtaaluk Region (Figure 1-1).

1.3. Project Name

Grise Fiord Community Harbour Project (hereafter referred to as the Project).



Spatial Reference
 Name: NAD 1983 CSRS UTM
 Zone 17N
 GCS: GCS North American 1983
 CSRS
 Projection: Transverse Mercator
 Map Units: Meter

Figure 1-1: Grise Fiord, Nunavut Location

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2. Proponent and Representative Details

Contact information for the proponent and representative are provided in Table 2-1.

Table 2-1: Proponent and Contact Information

Information Request	Details
Applicant: Government of Nunavut	
Applicant's Name	Justin McDonell – Project Manager, Capital Projects
Address	PO Box 1000 Station 200 Community and Government Services Iqaluit, Nunavut X0A 0H0
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Applicant Representative: Dynamic Ocean Consulting Ltd.	
Name	Victoria Burdett-Coutts, MSc RPBio Senior Marine Scientist and Regulatory Professional
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3. Project Description

3.1. Project Scope

The scope of the Project addresses all construction components of the Community Harbour in Grise Fiord.

3.2. Project Purpose and Need

The Tallurutiup Imanga National Marine Conservation Area (TI NMCA) is an important designated area located in the Canadian Arctic, specifically in Lancaster Sound and its adjacent waterways. This conservation area was established to protect and preserve the unique and ecologically important marine environment for Inuit and all Canadians. Establishment of protected areas within Canada's high Arctic basin, such as the TI NMCA, is a requirement of the Inuit Impact and Benefit Agreement (IIBA). A Memorandum of Understanding (MOU) between the Qikiqtani Inuit Association (QIA), the GN, and the Government of Canada has resulted from the creation of the TI NMCA and was signed in the summer of 2021. The purpose of this agreement is to recognize that marine infrastructure is connected to

community wellbeing as well as economic and social development. Through funding from the Government of Canada, the Project aims to address the marine infrastructure deficit in Grise Fiord.

3.3. Study Areas

The Project Study Area includes the footprint of the Project components plus a 100m buffer.

3.4. Project Components

The Project includes construction of the following components:

- Breakwater(s).
- Dredging of a harbour basin and entrance channel.
- Boat launch ramp(s).
- Laydown and storage area(s).
- Small craft floats.
- Laydown area.
- Access roads.
- Slope protection.
- Electrical infrastructure including area and navigational lighting.

Project components are depicted in Drawing 3-1.

The final scope of facilities will be driven by community need and available funding, and will be influenced by residents, Hunters and Trapper Associations (HTAs), small vessel owners, and selected industry (tourism, sealift, refueling) representatives.

Supporting Project activities during construction include quarrying to source rock for fill material, construction of a haul road, laydown / storage areas for materials and equipment, and accommodation facilities.

4. Schedule

The feasibility phase of the Project was conducted from 2019 to 2022 which consisted of field programs, design options studies, and consultation. Permitting and detailed design is planned from 2024 through 2026. Construction is scheduled to begin in the 2026 and will conclude in 2029, with works largely occurring in the open-water season. The Project is expected to be operational in the open-water season of 2030.

5. Personnel

A crew of approximately 30 is anticipated to be at the Project site during construction. Construction is scheduled to start in 2026 and end in 2029 and will largely take place during open water months. Considering this, there will be approximately 125 construction days per year for a total of 500 days over four years.

During the operational phase of the facility, there will be opportunities for the local community to aid in the installation and removal of the small craft floats and ongoing regular facility maintenance.

5.1. Opportunities for Local Participation

For the duration of the Project, it is expected that there will be opportunities for local participation in equipment operation, construction labour, worker camp (e.g., catering, housekeeping and facility management) and environmental monitoring support.

6. Consultation

6.1. Consultation Summary

Consultations have been conducted since the feasibility phase of the Project and are designed to ensure that residents, hunters, fishers, and stakeholders are consulted using a variety of methods and materials. To date, seven separate community visits from 2018 to 2024 have been conducted including meetings with the Hamlet, design workshops with the Iviq HTA, and Inuit knowledge (Inuit Qaujimajatuqangit [IQ]) workshops with elders and active hunters. Additionally, Open Houses were conducted in May 2022 to provide all residents with a chance to learn about the Community Harbour concepts and construction plans and provide their feedback. Community notices were posted in the community, on the radio, and on Facebook 10 days prior to the Open Houses and again on the day of the public meetings. Presentation slides were projected and large-scale posters of the harbour layouts, quarry locations, haul routes, permitting processes, and photos depicting harbour equipment and construction activities were displayed.

The latest round of community consultations took place in August 2024 ahead of the field programs for the detailed design phase of the Project. The consultations provided the community with a Project update and general overview, confirmed their preferred options for the Community Harbour layouts, quarries, and haul roads and discussed the upcoming field program activities, including coordinating

with the community for local support of workers and equipment for the field programs. Consultations also focused on discussing the potential environmental and socio-economic effects, along with proposed mitigations as part of effective construction planning and to support permitting requirements.

The community has been very engaged in the Project and has provided valuable input into the harbour design concepts on numerous occasions. Collaborating with the community has allowed the Project team to gain an understanding of the local site conditions, specific needs, and priorities in Grise Fiord that was critical to the development of harbour concepts and preferred quarries and haul routes. Meaningful consultation will be continued throughout the ‘life cycle’ of the Project, including during the detailed design and construction phases, so that issues of concern can be identified and responded to in a timely manner and design and construction planning activities can be adjusted where possible to avoid and mitigate any adverse social or environmental effects.

The next round of consultations is being planned for December 2024 to share field program results with the community and discuss any refinements made to the harbour concepts based on previous consultations and results from the field programs.

6.2. Proposed use of Local and Inuit Knowledge (Inuit Qaujimajatuqangit – IQ)

Traditional land use and environmental knowledge workshops and interviews with local knowledge holders will guide and complement the overall field baseline study, detailed design and construction planning for the Project. In August 2024, IQ workshops and interviews were conducted as part of the community consultation visit. To better understand the potential interactions between harvesting and Project activities, discussions focused on harvest locations, cultural and archaeological sites, access to water and ice, fishing, the presence marine and land mammals and other wildlife, and the proposed locations of Project components in relation to traditional land use activities such as fishing, hunting, gathering, and camping. Other key topics relevant to guiding the detailed design and construction planning of the Project were discussed and included local site conditions such as wind direction and strength, currents, and seasonal ice changes.

Key knowledge holders in the workshops were determined by engaging with the Iviq HTA and the Naattiqsuqtiit (guardians). Participants represented a cross-section of knowledge holders and included elders, active land users, Iviq HTA board members and guardians. Verification meetings will be conducted in December 2024 during the next round of community consultations to discuss the baseline results and verify that local knowledge has been accurately and appropriately interpreted and presented in the study.

7. Project Map

See Figure 1-1.

8. Land Use and Licensing

8.1. Land Use

The Project will occur within the land use areas described in Table 8-1.

Table 8-1: Land Use and Ownership

Administrative Boundary	Qikiqtaaluk Region
Planning Region	North Baffin
Land Use	Construction of marine infrastructure which by NPC's descriptions would be most closely categorized as permanent structures
Land Ownership	Crown

8.2. Permitting

A summary of permits expected to be required based on construction activities is provided in Table 8-2.

Table 8-2: Licenses and Permits Relevant to the Program

Permit	Regulatory Authority	Construction Activity
Quarry permit	Hamlet	Quarry (stockpiling, blasting etc.)
Determination of referral to the Nunavut Inspection Review Board (NIRB)	NPC	Development of land and water resources within Nunavut. All aspects of Project construction.
Screening Decision Report (SDR)	NIRB	Any development of land and water resources within Nunavut as determined by NPC's conformity determination.
Type B, or if permanent alteration a Type A is required	Nunavut Water Board (NWB)	Approval will be required if river diversion occurs.
Land Use Permit (LUP)	Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)	Construction below Ordinary High Water Line (OHWL) for land tenure under Commissioners or Untitled Municipal lands.
<i>Fisheries Act</i> Authorization (FAA)	Fisheries and Oceans Canada (DFO)	In-water or near-water works associated with the construction of the Community Harbour that have the ability to result in the harmful alteration, disruption or destruction (HADD) to fish or fish habitat, as defined under the <i>Fisheries Act</i> .

Permit	Regulatory Authority	Construction Activity
Notice of Works (NoW) Application for Approval	Transport Canada (TC)	In-water works associated with the construction and operations of the Community Harbour that have the potential to interfere with navigation.
Authorization of Explosives Magazine Licence Application	Natural Resources Canada (NRCan)	Transport, storage and acquisition of explosives.

9. Material Use

The following equipment and materials are approximate.

9.1. Equipment

Typical equipment type, approximate quantity, size/dimensions and proposed use are outlined in Table 9-1.

Table 9-1: Equipment Use

Equipment type and Quantity	Size – Dimensions	Proposed Use
Drills – 2 to 3	5 tons	Quarrying
Excavators – 3 to 5	30 to 40 ton	Quarrying, handling armour stone, loading trucks, excavating, dredging
Trucks – 4 to 5	35 to 40 ton articulating	Hauling quarried rock
Front end loader – 2 to 3	966 to 988	Loading rock and moving cargo/equipment
Compactor – 1	20 ton	Compacting road surfacing
Dozer – 1	D8	Leveling placed rock and road surfaces
Grader - 1	140	Road maintenance
Spud barge/derrick– 1	20 m x 50 m deck w/ 150t crane	Dredging, moving/lifting materials and equipment
Work boats – 1 to 2	Varies, 50 to 500 horsepower	Floating equipment movement and surveys
Pickup truck - 5	Crew cab, ¾ ton	Crew and supplies movement

Equipment type and Quantity	Size – Dimensions	Proposed Use
Mini-bus - 1	15 passenger	Daily crew mobilization from hotel/accommodation to Project site
Fuel/service truck - 1	10 ton	Daily refueling and servicing of major mobile equipment, fueled from Government of Nunavut - Petroleum Products Division (GN/PPD) dispensers in Arctic and/or Contractor supplied fuel storage facilities
Telehandler – 1	5 ton	Moving materials and equipment
Rough terrain crane - 1	80 ton	Lifting materials
Rock Crusher – 1 to 2	---	Crushing run of quarry materials

9.2. Fuel Use

Fuel use and storage methods are outlined in Table 9-2 below.

Table 9-2: Fuel Use and Storage Methods

Fuel	Number of Containers and Capacity	Total Amount of Fuel (in Litres)	Proposed Storage Methods	Proposed Use
Diesel	N/A	1.5 million	Fuel will be dispensed on a daily basis from existing facilities in Grise Fiord and/or Contractor supplied fuel storage facilities	Mobile equipment; remote generators and heaters
Gasoline	N/A	15,000	Fuel will be dispensed on a daily basis from existing facilities in Grise Fiord and/or Contractor supplied fuel storage facilities	Pick-up trucks, small work boats, small generators, and ATVs
Aviation fuel	N/A		N/A	
Propane	10 - 15kg tanks	20 to 30	Forklift-able metal cylinder rack	Heaters

9.3. Hazardous Materials

Hazardous and chemical materials expected to be required during construction are outlined in Table 9-3.

Table 9-3: Hazardous Materials and Chemical Use

Hazardous Materials and Chemicals	Number of Containers and Capacity	Total Amount of Hazardous Materials and Chemicals (in Litres)	Proposed Storage Methods	Proposed Use
Lube and oils	10 drums, and 10 5-gallon pails	2000 litres	Drums on pallets, in lined storage area	Maintenance of mobile equipment
Oxy/Acetylene	10 each, 140 cu.ft. cylinders		Forklift-able metal cylinder rack	Welding and cutting of steel
Paint	10 1-gallon cans	40 litres	Inside fireproof cabinets, stored inside heated enclosure	Painting wharf hardware and miscellaneous components
Explosives	Standard explosives and magazines	40 tonnes	Certified explosives magazine	Quarrying

9.4. Water Use

Water for the Project will be used for camp, municipal and industrial purposes. The Project water use requirements and proposed sourcing are outlined in Table 9-4.

Table 9-4: Water Use

Daily amount (m ³)	Proposed water retrieval methods	Proposed water retrieval location
5 m ³ at site only (excludes crew consumption at hotel/ accommodations location)	Delivery by Hamlet or contracted water truck	Hamlet reservoir/water system

10. Environmental Management

10.1. Potential Environmental and Social Impacts

Potential environmental and social impacts that may occur during the construction and operation of the Project are described in Table 10-1.

Table 10-1: Environmental Effects and Mitigation

Environmental Effect	Mitigation
Accidental leaks and spillages of substances such as fuel or petroleum-based lubricants to the environment	There is the potential for accidental leaks or spillages during equipment operation and refuelling. The Contractor will be required to develop a Spill Emergency Response Plan (CSERP) to outline spill response procedures.
Disturbance of terrestrial and marine wildlife	Disturbance to terrestrial and marine wildlife may occur. However, construction will be occurring adjacent to the community along a well-trafficked beach. A pre-construction wildlife survey will be completed by a Qualified Professional (QP) and appropriate Authorities Having Jurisdiction (AHJ) (e.g., DFO Fish and Fish Habitat Protection Program [FFHPP]) will be engaged to confirm no impacts to marine wildlife.
Loss of fish habitat	Loss of fish habitat will occur due to construction of the Project. DFO-FFHPP will be engaged to confirm if a FAA is required.
Changes to traffic patterns	A Traffic Management Plan is required by the Contractor for traffic routing.
Disruption of marine and terrestrial land uses	A consultation program has been ongoing since the feasibility stage of the Project and continued engagement with the community will occur throughout the Project to ensure minimal impact to the community's marine and land use activities
Increased noise, light and dust related to construction activities	There will be increased noise and dust associated with construction. The Contractor will be required to implement dust and noise management mitigations.
Increased pressure on community infrastructure and support services	The Project aims to reduce any undue burden on the community services and infrastructure. The provision of accommodation for non-local workers during construction will be managed to minimize any impacts on housing and accommodation facilities in the community. It is anticipated that the Project's need for solid waste disposal, water, and sewage services will be minimal. The Hamlet has confirmed that its current landfill, wastewater treatment, and water reservoir facilities have sufficient capacity to meet these requirements.

Environmental Effect	Mitigation
	If fuel in the community is insufficient, the Contractor will provide portable tanks and fuel as required.

10.2. Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be generated to support permitting and to confirm mitigation and monitoring measures that will be incorporated during construction to minimize negative effects to socio-economic and environmental factors. The Contractor will be required to generate their own CEMP (CCEMP), which at a minimum meets the commitments made in the permitting CEMP and outline how all monitoring commitments will be met. In addition to the CEMP, Contractor Work Plans (CWPs) will be developed as outlined in Sections 10.3.

10.3. Contractor Work Plans

In addition to the CEMP, the CWPs provide specific task execution methodologies and outline situational plans to confirm the forethought of construction. CWPs required for the Project prior to construction will include but may not be limited to the following:

- Marine Safety Plan: Outlines how to minimize the impacts of water works.
- Quarry Management Plan: Outlines manage measures necessary for aggregate production.
- Spill Response Plan: outlines measures to be followed in the event of accidental spills.
- Fuelling Method: outlines how safe fueling and fuel storage practices will be followed.
- Traffic Management Plan: Outlines procedures and protocols for site access, traffic routing and management.
- Drilling and Blasting Plan: Outlines the steps for drilling and blasting that will be taken.
- Health, Safety, and Environment Safe Work Plan: Outlines a plan to protect the workers, community and environment.

11. Waste Management

The Project waste management plan is outlined in Table 11-1.

Table 11-1: Waste Management – Types and Disposal Methods

Proposed Activity	Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
1, 2, 3, 5	Sewage (human waste)	600 m ³	Hamlet or Contractor sanitary truck to Hamlet sewage lagoon	n/a
1, 2, 3,	Greywater	400 m ³	Hamlet or Contractor sanitary truck to Hamlet sewage lagoon	n/a

Proposed Activity	Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
1, 2, 3, 5	Combustible wastes	5 tons	Hamlet landfill	n/a
1, 2, 3, 4, 5	Non-Combustible wastes	1 tons	Hamlet landfill	n/a
2	Overburden (organic soil, waste material, tailings)	negligible	What little overburden exists at the quarry will be set aside and stockpiled at the quarry	n/a
1, 2, 3, 5	Hazardous waste	2000 litres	Returned to south in sealed drums, transported in 20' shipping containers and disposed in accordance with regulatory procedures	n/a

Note. Proposed Activities are as follows:

1. Marine-based Activities
2. Pits and quarries
3. Temporary Structures
4. Winter Access
5. Permanent structures