Part 1 General

1.1 PRECEDENCE

.1 Division 1 Sections take precedence over technical specification sections in other Divisions of this specification.

1.2 BACKGROUND INFORMATION

.1 Features remaining at the Roberts Bay site are waste rock piles, two open and flooded adits, infrastructure remains with light framed 'temporary' buildings, abandoned equipment, debris, a landfill/dump with a waste rock berm, drainage ditches and a tailings pond. Ida Bay site has four piles of waste rock and an open flooded adit. In addition to the waste rock, there are four berms constructed out of waste rock materials at the Roberts Bay mine site: one surrounds the camp dump, another encircles the tailings pond, a third on the crushed rock ore pad and finally one surrounding the former fuel bladder storage location. An abandoned camp site remains, and is a suitable location for a temporary camp.

.2 The Roberts Bay and Ida Bay mine sites are located in Nunavut, 115 km southwest of Cambridge Bay. Roberts Bay mine site is located 1 km north of Roberts Lake. This is a remote location only accessible by helicopter, float plane, barge or winter ice roads. There is a road from Roberts Lake to the mine site following a basaltic ridge.

.3 Site hazardous materials have been identified. A list of hazardous materials is included in the specifications.

1.3 SITE ACCESS

.1 The Roberts Lake property is located in an isolated area with no permanent road access.

.2 The Roberts Bay site and Ida Bay site can be accessed via winter roads from Cambridge Bay.

.3 There are no airstrips present at either of the two mine sites. It is not practical to build an airstrip for remediation purposes. Access by air is limited to float planes or helicopters.

.4 Open water is typically available in the region between June 15 and September 15. Barge access is available to Roberts Bay during open water season approximately 1.5 km from the Roberts Bay Mine site. A possible location for barge access from Melville Sound to Ida Bay is located 100m or less northwest of the mine site. Depth of water at this location would need to be checked if Contractor plans to use this barge access point.

.5 Access to Roberts Bay and from Ida Bay is possible by winter road.

1.4 DESCRIPTION OF WORK

.1 Work of this contract comprises the site remediation activities at Roberts Bay and Ida Bay including, but not limited to, the following:

.1 Mobilize and demobilize of all personnel, equipment, support facilities and materials required to complete the work.

.2 Provide a complete camp facility for duration of work.

.3 Remediate the Roberts Bay site as follows:

- .1 Infrastructure: Dismantle structures and segregate the waste.
- .2 Tailings Pond: Drain standing water, if any.
  - .1 Water shall be sampled to meet the applicable water discharge criteria prior to discharge.
- .3 Non hazardous waste: Segregate non hazardous waste. Burn wood material. Emplace remaining inert material within the non hazardous landfill footprint (tailings pond area) and cover as indicated.
- .4 Waste rock dumps: Use clean waste rock for backfill, regrading, capping and erosion protection
- .5 Existing landfill containing domestic waste: Leave waste materials in place, and provide a waste rock cover.
- .6 Hazardous wastes: PCB capacitors (3), 7 light ballasts (0.1 cu.m), compressed gas cylinders (10), mill process chemicals, acids, lead acid batteries, waste oils and glycols to be removed from the site and shipped to a facility licensed to handle these materials. Fuel (gasoline and jet fuel-3200L) and hydrocarbon impacted water from fuel bladders and barrels-800L to be shipped off site for disposal.
- .7 Dispose off site of 200 m^3 of petroleum impacted soils located within the fuel storage compound.
- .8 Metal contaminated soil 65 m^3 (40m^3 of which is co-contaminated with hydrocarbons) to be containerized and shipped off site.
- .9 Mine openings: (Two adits and 1 vent raise)-Blast down the roofs of adits and in-fill with clean waste rock. Cover concrete at vent raise with waste rock.

.4 Milling Equipment (Roberts Bay):

- .1 Grinding mill, crusher (approximately 12 tonnes of mining equipment painted with lead based paint): Ship materials off site for disposal, or remove paint material and landfill mill equipment.

.5 Remediate the Ida Bay site as follows:

- .1 Non hazardous wastes: Transport the non hazardous wastes (approximately 9 cu.m.) to the Roberts Bay site and co-manage with materials at Roberts Bay.
- .2 Exploration trench (1.2 m wide, 8 to 10 m long, 1 m deep): Fill with waste rock.
- .3 Hazardous materials (broken acid lead batteries and asbestos brake pads)- approximately 100 kg. Package and remove off-site for disposal.
- .4 Mine openings: Blast down roof of adit and in-fill with waste rock. Fill vent raise with waste rock.
- .5 Cut steel pipes to grade. Estimated five pipes.

.6 Waste Rock backfilling:

.1 Roberts Bay Waste rock: 2300 m^3 available in total. Use for backfilling and landfill construction.

.2 Landfill details and design to be provided by Engineer.

.3 Ida Bay Waste rocks: 2200 m^3 available in total. Use for backfilling.

.4 Ida Bay Waste rock: (approx. 25 m^3) Remove the waste rock from the shoreline above low tide, and dispose of in the exploration trench.

1.5 POTENTIAL ADDITIONAL WORK

.1 Potential additional work has been identified. The table "Potential Additional Work" on the "Basis of Payment" form indicates potential work, or work where durations or quantities are unknown, and pay items associated with each.

.2 The following items have been identified:

.1 Collect, containerize and dispose off site additional hazardous materials above the estimated quantities.

.2 Collect additional debris and non hazardous materials above the estimated quantities.

.3 Payment for operation and maintenance of the camp beyond periods specified, including cook, wildlife monitor and medic will be made under Potential Additional Work Item P3.1 on the Basis of Payment Schedule.

.2 Payment for Emergency aircraft flights, materials, supplies, etc. will be made under Potential Work Item P3.2 on the Basis of Payment Schedule.

.3 Payment for pumping any water from the surface of the tailings pond will be made under Potential Work Item P3.3 on the Basis of Payment Schedule.

1.6 DEFINITIONS

.1 Engineer's Authorized Personnel: Within the context of these Specifications, the term Engineer's Authorized Personnel refers to personnel appointed by the Engineer or authorized on site by the Engineer. Engineer's Authorized Personnel provide recommendations/technical guidance to the Engineer, as required, for the enforcement of these specifications.

.2 Contractor: The Contractor procured to undertake the remediation work is defined, within the context of these specifications, as the Contractor.

.3 Contractor's Site Superintendent: The Contractor's resident site representative, who is authorized to make decisions on behalf of the Contractor.

1.7 SUBMITTALS

.1 All submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.8 CONTRACTOR USE OF SITE

.1 Contractor has the use of site with the following restrictions:

.1 Use of site shall comply with environmental requirements of Section 01 35 43.

.2 Coordinate use of premises under direction of Engineer.

1.9 PERMITS AND LICENSES

.1 The Engineer has applied for a Land Use Permit, Water Use License and Quarry Permit. All restrictions and requirements of these apply to the Contractor.

.2 Be responsible for obtaining and paying for all permits, licenses, and approvals associated with the development and operation of a construction camp.

.3 Register, obtain and pay for all required licenses and permits for individual tradesmen employed for work as referenced in the various Sections of the Contract Specifications.

.4 Provide supplemental information to the regulators for any necessary license amendments or reporting requirements.

.5 Pay all costs associated with complying with the requirements for the permits and licenses noted in the above clauses.

1.10 SITE SUPERVISION

.1 Designate the Contractor's Site Superintendent to be on site at all times during construction, to have full authority to make decisions for the Contractor, to be knowledgeable of the requirements of the contract, and to act upon Engineer's instructions.

1.11 WORKER ORIENTATION SEMINAR

.1 Develop, prior to the start of work, course material for a Worker Orientation Seminar. The outline of this seminar is to be approved by the Engineer and is intended to describe the work at the site, and provide instruction for the applicable health, safety, and environmental policies and regulations as related to the site work activities. Course material is to be prepared and presented in the English language and the local dialect.

.2 Submit five copies of the Worker Orientation Seminar course material to the Engineer for review at least thirty days prior to the seminar. Include information describing the facility to be used for conducting the seminars.

.3 The Orientation Course is to address, but is not necessarily limited to, the following topics:

- .1 Project Communication
  - .1 Roles of Engineer and Engineer's authorized representatives.
  - .2 Roles of Contractor and Contractor's authorized representatives
  - .3 Lines of project communication.
- .2 Scope of Work
  - .1 Collection and disposal of debris at the two sites.
  - .2 Demolition of remains of site structures.
  - .3 Adits, and related safety issues.
  - .4 Remediation of waste rock.

.5 Hazardous materials collection and disposal.
.6 Handling materials painted with lead based paints.
.7 Incineration

.3 Regional Overview of the Roberts Bay/Ida Bay area.
.1 Land use of area (hunting, fishing activities, etc.).
.2 Location of site relative to communities.
.3 Heritage resources.
.4 Climate.
.5 Geology and hydrology.
.6 Flora and fauna.

.4 Project Organization/Schedule/Administration
.1 Personnel policies.
.2 Supervisory reporting relationships.
.3 Communication.
.4 Payroll and banking procedures.
.5 Work schedules and hours.
.6 Camp rules.

.5 Environmental Issues and Protection Procedures
.1 Climate.
.2 Land use.
.3 Water resources/fisheries.
.4 Terrestrial resources.
.5 Heritage resources.
.6 Spill contingency plans/procedures.
.7 Training activities

.6 General Site Specific Health and Safety
.1 Teamwork.
.2 Work attitudes/productivity.
.3 Anti-Harassment Policy.
.4 First aid procedures.
.5 Protective equipment and clothing.
.6 Safe operation of equipment and tools.
.7 WHMIS requirements.
.8 Wildlife awareness.

.7 Work Specific Task Requirements
.1 Demolition
.2 Collection and disposal of debris.
.3 Sealing adits
.4 Collection and packaging hazardous materials.
.5 Handling materials painted with lead based paints.
.6 Product incineration.
.7 Remediation of waste rock.

.4 Prior to the start of work conduct Worker Orientation Seminars for all supervisors, foremen, Contractor’s general workforce, Engineer, and Engineer's Authorized Personnel staff based on the course material approved by Engineer.

.5 Provide a training seminar of approximately four hours in length for supervisors, foremen, Engineer, and Engineer's on-site support staff. Provide a training seminar of approximately two hours in length for Contractor's general work force. Each person on

site is to attend one of the seminars. Require each attendee to sign a record of attendance upon completion of the seminar. Retain, for Engineer's review at any time, this record of attendance.

.1 Site Superintendent to provide seminar material and conduct training for all new staff and visitors up to 6 events.

1.12 MEASUREMENT OF PAYMENT

.1 Work under this contract will be paid for as follows:

.1 Lump sum pay items will be paid at the lump sum price tendered for each lump sum item listed in the Basis of Payment Form.

.2 Unit price items will be paid at the unit price tendered for each unit price item listed in the Basis of Payment Form.

.3 Miscellaneous project costs will be paid at the lump sum price tendered under for "Balance of Project Costs" on the Basis of Payment Form.

.4 Level of effort for Authorized Potential Additional Work will be negotiated and paid for at firm all inclusive prices tendered for additional work on the Basis of Payment Form.

.2 Unit price items, lump sum pay items, and provisional cost recoverable items will be paid under the Basis of Pricing, which will form the Basis of Payment Schedule of the proposed contract. All other items, whether specifically defined in the specific sections of the Specifications or not, will be paid under Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.

.3 Direct costs include all costs directly attributable to a particular pay item including equipment, operators, materials, equipment maintenance and depreciation, etc. All direct costs for lump sum and unit price items are to be included in the appropriate price item in the Basis of Payment Schedule.

.4 Indirect costs include all costs not directly attributable to the pay items including profit, supervision, overhead, administration, CGL Insurance, WCB, allowance for equipment repairs, charters, attendance at meetings and any other relevant costs. All indirect costs associated with specific unit price or lump sum items will be included in Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule. Provide a breakdown of Item BOPC-1, Balance of Project Costs as part of the Contractor Work Breakdown Structure specified in Section 01 32 19 -Project Management, and Construction Schedule.

.5 Include costs of any statement of or requirement for work, goods or services required in this section that are not covered by appropriate payment clauses in other sections in Item BOPC-1, Balance of Project Costs, in the Basis of Payment Schedule.

.6 Notify Engineer of planned work activities in accordance with requirements of Section 01 33 00 - Submittal Procedures, and at least 48 hours in advance of operations to permit required measurements for payment.

.7 All costs for the preparation of the Worker Orientation Seminar Material and for conducting the seminars, including the preparation of meeting room facilities as required, are to be included in the lump sum price for Worker Orientation Seminar, Item

01 11 00-1, as indicated in the Basis of Payment Schedule.

.8 The lump sum payment for the Worker Orientation Seminar will be made in two progress installments as follows:

.1 Sixty percent of the lump sum price for the Worker Orientation Seminar will be paid upon completion by the Contractor and review by the Engineer of the Worker Orientation Seminar course material, and upon conducting the seminar prior to the start of work.

.2 Forty percent of the lump sum price for the Worker Orientation Seminar will be paid upon demonstration by the Contractor to the Engineer that all of the Contractor's workforce have attended the seminar at the start of each subsequent construction season. This should include all additional costs for visitors and Engineer’s authorized personnel.

.9 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 TRAIL BETWEEN ROBERTS BAY AND IDA BAY

.1 During frozen ground conditions, access to Roberts Bay can be accomplished via a winter road or Cat Train. During un-frozen ground conditions, access to the Roberts Bay mine site is limited to ATV, foot and light vehicles. Twisting and turning of these vehicles during travel must be minimized. The Contractor must ensure that minimal damage to the ground is caused by the vehicle and equipment traffic. The existing trail between Roberts Bay and Ida Bay is restricted to a max. ground pressure of 0.26 Kpa (5.5psi) during the summer months.

.2 Heavy construction equipment can only travel between Roberts Bay and Ida Bay during winter months on ice roads.

1.2 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 – Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 DEFINITIONS

.1 Activity: An element of Work performed during course of Project. An activity normally has an expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart). A graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: Original approved plan (for Project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Construction week will be seven (7) days a week, 10 hours a day with a one (1) hour lunch.

.5 Duration: Number of work periods required to complete an activity or other Project element. Usually expressed as workdays or workweeks.

.6 Milestone: A significant event in Project, usually completion of major deliverable.

.7 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.8 Project Planning, Monitoring, and Control System: Overall system operated by Engineer to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Project Schedule is practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate or Completion and Final Certificate or Completion as defined times of completion are of essence of this contract.

□

1.3 SUBMITTALS

.1 Submit to Engineer within 10 working days of Award of Contract Bar (GANTT) Chart for planning, monitoring and reporting of project progress.

.2 All submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.4 PROJECT SCHEDULE

.1 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award
.2 Submission of required submittals.
.3 Mobilize equipment to site
.4 Ida Bay cleanup
.5 Roberts Bay cleanup
.6 Dispose of hazardous materials
.7 Interim Certificate of Completion
.8 Demobilize Contractor's Equipment
.9 Closeout Submittals
.10 Final Acceptance

.2 Submit preliminary construction progress schedule in accordance with Section 01 33 00- Submittal Procedures to Engineer coordinated with Engineer's project schedule.

.3 After review revise and resubmit schedule to comply with revised project schedule.

.4 During progress of work revise and resubmit as directed by Engineer.

1.5 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule and submit with progress claim reflecting activity changes and completions as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.6 START-UP MEETING

.1 Within 5 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Engineer, Contractor and INAC will be in attendance. The meeting will be a teleconference meeting.

.3 Establish time and contact information for the meeting and notify parties concerned minimum three (3) days before meeting.

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.4 Engineer will chair the meeting and take minutes. Meeting will be informal and agenda to include following:

.1 Appointment of official representative of participants in Work.

.2 Preliminary Schedule of Work.

.3 Preliminary Schedule of submission of Work Plan and Cost Breakdown and other submissions.

.4 Preliminary requirements for temporary facilities, site security, proposed camp facilities, equipment and proposed method of mobilization and demobilization.

.5 Set-up of Pre-construction meeting.

1.7 PRE-CONSTRUCTION MEETING

.1 As per Start-up meeting, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Engineer, Contractor, INAC, Land Use Inspector, Water License Inspector and major subcontractor will be in attendance.

.3 Provide space, establish time and location of meeting and notify parties concerned minimum three (3) days before meeting.

.4 Engineer will chair the meeting and take minutes. Agenda to include following:

.1 Appointment of official representative of participants in Work.

.2 Schedule of Work, progress scheduling in accordance with Section 01 33 00 – Submittal Procedures.

.3 Schedule of submission of shop drawings, and product data in accordance with Section 01 33 00 – Submittal Procedures.

.4 All submittals in accordance with Section 01 33 00-Submittal Procedures including but not limited to:

.1 Site Specific Health and Safety Plan

.1 Emergency Response Plan

.2 Spill Contingency Plan

.3 Wilderness Response Plan

.5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 51 00 – Temporary Facilities.

.6 Site security in accordance with Section 01 54 00 – Camp Facilities

.7 Proposed camp facilities in accordance with Section 01 54 00 – Camp Facilities.

.8 Proposed changes, change orders, task authorizations procedures, approvals required, time extensions, overtime and administrative requirements.

.9 Close out procedures, acceptance and warranties as per Section 01 77 00 – Closeout Procedures.

.10 Monthly progress claims, administrative procedures and holdbacks.

.11 Insurances and transcripts.

.12 Equipment that the contractor plans to use.

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.13 Location of equipment, and proposed method of mobilization and demobilization.

.5 Comply with Engineer's allocation of mobilization areas of site.

.6 Coordinate field engineering and layout work with Engineer.

1.8 CONSTRUCTION MEETINGS

.1 Construction meetings will be held every two weeks on site.

.2 Contractor, major subcontractors involved in Work and Engineer will be in attendance.

.3 Engineer will prepare agenda for meetings.

.4 Engineer will distribute written notice of each meeting 3 days in advance of meeting date to Contractor.

.5 Provide physical space and make arrangements for meetings.

.6 Engineer will record minutes and include significant proceedings and decisions, identify action by parties and circulate to attending parties and affected parties not in attendance within 3 days after meeting.

.7 Agenda to include following:

.1 Review, approval of minutes of previous meeting.
.2 Review of Work progress since previous meeting.
.3 Field observations, problems, and conflicts.
.4 Problems, which impede construction schedule.
.5 Review of off-site fabrication delivery schedules.
.6 Corrective measures and procedures to regain projected schedule.
.7 Revision to construction schedule.
.8 Progress schedule, during succeeding work period.
.9 Health, Safety, and Security issues.

1.9 ON-SITE DOCUMENTS

.1 Maintain at job site, one copy each of the following:

.1 Contract Drawings
.2 Specifications
.3 Requests for Clarification
.4 Addenda
.5 Task Authorizations
.6 Change Orders
.7 Material & Safety Data sheets
.8 Reviewed shop drawings

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.9 Copy of approved Work schedule
.10 Labor Conditions and Wage Schedules
.11 Site Specific Health and Safety Plan
.12 Spill Contingency Plan
.13 Fire Safety Plan
.14 Land Use Permit and Water License
.15 Emergency Response Plan
.16 Site medic credentials
.17 License for radio communications
.18 All applicable Territorial permits and licenses
.19 All applicable Federal permits and licenses

1.10 SUBMITTALS

.1 Submit requests for payment for review, and for transmittal to Engineer.

.2 Submit requests for interpretation of Contract Documents, and obtain instructions through Engineer.

.3 Process task authorizations and change orders through Engineer.

.4 Deliver closeout submittals for review through Engineer.

1.11 CLOSEOUT PROCEDURES

.1 Notify Engineer when Work is considered ready for substantial performance.

.2 Accompany Engineer on preliminary inspection to determine items listed for completion or correction.

.3 Comply with Engineer’s instructions for correction of items of Work listed in executed Interim Certificate of Completion.

.4 Notify Engineer of instructions for completion of items of Work determined in Engineer’s final inspection.

1.12 COST AND QUANTITY CONTROL

.1 Provide a Contract Work Breakdown Structure (CWBS) based on the Contractor's Cost Breakdown and any modifications requested by the Engineer as follows:

.1 CWBS to be an organization of the work to be performed, services to be provided and data to be submitted by the Contractor, as well as payments to be made to the Contractor under the terms of the Contract.
.2 The CWBS to clearly define the work elements of each item of the CWBS.
.3 The CWBS to include a breakdown of pay items included under Item BOPC - 1, Balance of Project Costs in the Basis of Payment Schedule. All unit price, lump sum, and provisional cost sum allowance pay items included in the Basis of Payment Schedule shall also be included in the CWBS.

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.4 Prepare the CWBS in computerized spreadsheet format compatible with the most recent release of Microsoft Excel software. Provide CWBS in hard copy and diskette format.

.5 Submit the CWBS within 30 days following contract award date.

.6 Provide the following information for Task Authorization tracking:

.1 Table indicating all Task Authorizations for Potential Additional Work and Provisional Cost Sum. Details to include Approved Amount, Amount in Current Claim, Expenditure to date, Expenditure per claim, and Amount Remaining.

.2 Equipment and Material Control:

.1 Record data on status of construction material and equipment and report upon Engineer's request.

.3 Workforce report:

.1 Record and report manpower listing for each company employed under this Contract, including subcontractors, detailing daily man-hours during the current month and cumulative total to date and report upon Engineer's request.

.2 Provide statistical reporting.

.3 Provide statistics related to lost time accidents upon Engineer's request.

.4 Submit the Monthly Project Workforce Report template (following this section) and submit to the Engineer.

1.13 MEASUREMENT OF PAYMENT

.1 Payment for the Pre-construction Meeting will be will be made at the lump sum price, under Item 01 32 19 -1 on the Basis of Payment Schedule. All direct costs for the Pre-construction Meeting are to be included in the lump sum price for Pre-construction Meeting.

.2 Except as indicated above, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate cost of the work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in this section.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

□

Part 1 General

1.1 ADMINISTRATIVE

.1 Submit to Engineer submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Work affected by submittal will not proceed until review is complete.

.3 Allow 7 days for Engineer's review of each submission.

.4 Review submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.

.5 Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.6 Contractor's responsibility for errors and omissions in submission are not relieved by Engineer's review of submittals.

.7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer's review.

.8 Keep one reviewed copy of each submission on site.

1.2 SUBMITTAL REQUIREMENTS

.1 Submit submissions in accordance with the following:

Item	Date Required	Section
1. Schedules	7 days after Contract Award	01 32 19
2. Site Specific Health and Safety Plan	14 days after Contract Award	01 35 32
3. Contingency and Emergency Response Plan	14 days after Contract Award	01 35 32
4. Spill Contingency Plan	14 days after Contract Award	01 35 32
5. Wilderness Response Plan	14 days after Contract Award	01 32 19

6. Location of camp	3 weeks prior to mobilization	01 54 00
7. Worker Orientation Course Seminar materials.	30 days prior to course presentation	01 11 00
8. Potable water quality tests	Prior to opening camp	01 54 00
9. Workforce Reports	Monthly	01 32 19
10. Requests for Payment	Monthly	01 32 19
11. Closeout Submittals	Prior to request for final payment	01 78 00

.2 Accompany submissions with transmittal letter, containing:

.1 Date.
.2 Project title and number.
.3 Contractor's name and address.
.4 Description of submittal
.5 Other pertinent data.

.3 Submissions to include:

.1 Date and revision dates.
.2 Project title and number.
.3 Name and address of:
.1 Subcontractor.
.4 Contractor's stamp, signed by Contractor’s authorized representative certifying approval of submissions and compliance with Contract Documents.

.4 After Engineer’s review, distribute copies.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term “Shop drawings” means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 The review of shop drawings by Engineer is for sole purpose of ascertaining conformance with general concept. This review does not mean that Engineer approves detail design inherent in shop drawings, responsibility for which remains with Contractor submitting same, and such review does not relieve Contractor of responsibility for errors or omissions in shop drawing or of responsibility for meeting all requirements of construction and Contract Documents. Without limiting the generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 SITE SPECIFIC HEALTH AND SAFETY REQUIREMENTS

.1 Maintain and complete all health and safety, fire safety, and environmental compliance activities in accordance with applicable sections and Authorities Having Jurisdiction.

.2 Schedule a compliance meeting on an as required basis, as directed by Engineer. Compliance meetings may be held in conjunction with regular meetings.

.3 Review reporting and inspection requirements to meet the intent of the Nunavut Safety Act, the Water License, the Land Use Permit, regulatory, and other requirements as may be required.

.4 Compliance meetings to be held at the Work site.

.5 Engineer will record minutes, chair the meeting and distribute minutes to parties of record prior to the next scheduled meeting.

.6 Attendees:

- .1 Contractor: Manager and / or Supervisor(s), representatives of major Subcontractors, and others as necessary.
- .2 Engineer, and representatives of Independent Inspection Agencies.
- .3 INAC representative(s).

.7 Agenda:

- .1 Review and approval of minutes of previous meeting.
- .2 Review of items of significance that could affect Work.
- .3 Inspect the site on a monthly basis, or more or less often, as determined by the Engineer or as dictated by the Authorities Having Jurisdiction.
- .4 Identify and record field observations, problems, and conflicts that must be noted in reports required by the Authorities having Jurisdiction.
- .5 Identify corrective measures and procedures to regain approval from Authorities Having Jurisdiction.
- .6 Identification of requirements for maintenance of quality standards needed for compliance with applicable Codes and Legislation.
- .7 Review site safety and security issues.
- .8 Review environmental and regulatory compliance.
- .9 Other topics for discussion as appropriate to current status of the Work.

1.2 SUBMITTALS

.1 Submit Site Specific Health and Safety Plan no later than 14 days after contract award to the Authorities Having Jurisdiction to ensure all the elements required by the Nunavut Safety Act, OSHA Regulations, other Authorities Having Jurisdiction, and Contract Specifications have been addressed. Any items, which are identified as missing, will be

added and the plan revised, so as to incorporate the additional items. The revised safety plan will be submitted to Engineer within fourteen (14) days after the first review.

.2 All submittals in accordance with Section 01 33 00 - Submittal Procedures.

.3 The Site Specific Health and Safety Plan will include, but is not limited to the following sections:

.1 A Statement of Contractor's Safety Policy.
.2 Safety Responsibilities of all on-site personnel.
.3 Safe Work Practices and/or Job Procedures.
.4 Camp Rules and their enforcement.
.5 Results of safety and health risk or hazard analysis for camp and construction activities.
.6 Procedures for, but not limited to, cold weather survival, remote work and general worker health and safety.
.7 Name and telephone number of Contractor's corporate Safety Officer and on-site Safety Representative.
.8 Contingency Plan.
.9 Emergency Response Plan.

.5 Submit within 14 days of award, on site Contingency and Emergency Response Plan addressing standard operating procedures to be implemented during emergency situations.

.1 Keep the Site Specific Health and Safety Plan on site, and available to site personnel and updated after each Safety Meeting. Co-ordinate with the Environmental Health and Safety Policy requirements.

1.3 CONSTRUCTION SAFETY MEASURES

.1 Observe and enforce construction safety measures required by the latest revisions of: Canada Labour Code, National Building Code of Canada, National Fire Code of Canada, Workers' Compensation Board, the applicable Occupational Health and Safety Regulations, and Territorial and local statutes and authorities.

.2 In the event of discrepancies between any requirements of the above listed authorities, the more stringent requirements will govern.

.3 Maintain at the site, three safety hats with liners, and three safety hi-visibility vests for use by Engineer and visitors.

.4 Comply with all applicable health and safety policies and procedures of Engineer.

.5 Engineer or his representative has the authority to stop work on the contract if, in his/her opinion, the work is being performed in an unsafe manner as required by the applicable safety legislation.

.6 Prepare and coordinate a Contingency and Emergency Response Plan with contributions from appropriate authorities including Nunavut Safety Act, Safety Measures Hospitals, RCMP, Ministry of Transportation, and Ministry of Health. Plan will identify off site

Emergency Response Coordinator through whom all information and coordination will flow in the event of an incident.

.7 Verify that emergency procedures including appropriate First Aid facilities and First Aid personnel are in place at the Work Site. First aid facilities and First Aid personnel must be in compliance with the Nunavut Safety Act.

.8 Verify that procedures meet the WCB and HRSDC requirements.

.9 Hazardous Material Discovery

.1 Immediately stop work and notify Engineer for further instructions with respect to abatement procedures required for asbestos conditions encountered when work occurs in areas having materials resembling asbestos during course of Work.

1.4 FILING OF FILE NOTICE

.1 File Notice of Work with Federal and Territorial Authorities having jurisdiction prior to commencement of Work.

1.5 REGULATORY REQUIREMENTS

.1 Comply with specified standards, regulations and orders of Authorities Having Jurisdiction to ensure safe operations at sites containing hazardous or toxic materials and other hazards (such as wildlife encounters, falls, etc.).

.2 Employ a Level 2 Supervisor on site as per Nunavut WCB Mine Health and Safety Act.

.3 All equipment brought to the site must meet the Mine Health and Safety Act, equipment must have rotating beacons and vehicles must have beacons and buggy whips.

1.6 RESPONSIBILITY

.1 Be responsible for safety of persons and property on site and for protection of public off site and environment to extent that they may be affected by the site and conduct of Work.

.2 Control access to the site. Persons with business at the site and who are not Contractor's employees must be briefed on site specific health and safety issues, and provided with a copy of the site specific health and safety plan.

.3 Contractor may refuse access to the site to any person not complying with site specific health and safety standards.

.4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, territorial, and local statutes, regulations, and ordinances, and with Site-Specific Health and Safety Plan:

.1 Conduct appropriate safety training for all personnel working on the site.

.2 Conduct work place safety inspections for all work activities.

.3 Maintain a log of first aid and safety supplies, and notify appropriate personnel for restocking after each incident, and periodical restocking to replace out dated or consumable (headache medicines, band-aids) products.

1.7 HAZARD COMMUNICATION REQUIREMENTS

.1 Comply with Work Site Hazardous Materials Information System Regulations of the Authorities Having Jurisdiction.

.2 Provide Engineer with Material Safety Data Sheets (MSDS) and documentation on any "hazardous" chemical that Contractor or Contractor Representatives plan to bring onto site; bound in one place and stored in accordance with the Site Specific Health and Safety Plan.

1.8 UNFORESEEN HAZARDS

.1 Should any unforeseen or peculiar safety related factor, hazard, or condition become evident, stop work, assess, take steps to mitigate if necessary at that time and immediately advise Engineer verbally and in writing.

1.9 SAFETY AND HYGIENE

.1 Provide training for all persons entering the Hygiene site in accordance with specified personnel training requirements, maintain log of who was trained, what training was provided and by whom the training was conducted.

.2 Personal Protective Equipment (PPE):

.1 Furnish site personnel with appropriate PPE as required by legislation.

.2 Verify that safety equipment and protective clothing is kept clean and well maintained.

.3 Develop written PPE care and use procedures to be included in the Site Specific Health and Safety Plan and verify that procedures are strictly followed by site personnel including, but not limited to, the following:

.1 Provisions for prescription eyeglasses with side shields worn as safety glasses and do not permit contact lenses on site within work zones.

.2 Provisions, for footwear, are steel toed safety shoes or boots and are covered by rubber overshoes when entering or working in potentially contaminated work areas.

.4 Heat Stress/Cold Stress: Implement heat stress and cold stress monitoring program as applicable and include in the Site Specific Health and Safety Plan.

.5 Personnel Hygiene and Personnel Decontamination Procedures: provide minimum as follows:

.1 Suitable containers for storage and disposal of used disposable PPE.

.2 Potable water and suitable sanitation facility.

.3 Access to shower facilities.

.4 Provisions for proper disposal of contaminated PPE.

1.10 SITE COMMUNICATIONS

.1 Post emergency numbers near site telephones.

.2 Train personnel in the use of "buddy" system.

.3 Provide alarm system to notify employees of site emergency situations or to stop Work activities if necessary.

1.11 SAFETY MEETING

.1 Conduct task specific safety meetings, as applicable.

.2 Conduct safety meetings with workers engaged in constructing, maintaining or traveling on winter roads. Workers must be instructed on the dangers inherent with winter roads, and hazard avoidance procedures.

.3 Conduct safety meetings with workers engaged in winter conditions. Topics must include cold stress, exhaustion, snowmobile safety, buddy systems, and any other items inherent in working outdoors in winter in isolated environments. Conduct similar safety meetings for workers engaged in summer conditions.

.4 Conduct mandatory daily safety meetings for personnel, and additionally as required by special or work related conditions; include refresher training for existing equipment and protocols, review ongoing safety issues and protocols, and examine new site conditions as encountered. Hold additional safety meetings on an as needed basis or as specified by the Authorities having Jurisdiction.

1.12 FUEL MANAGEMENT

.1 Vehicle and equipment refuelling:

.1 All vehicle and equipment refueling must be conducted by appropriately trained personnel using the effective personal protective equipment in a manner which meets or exceeds regulatory requirements.

.2 Records of fuel usage by activity must be maintained.

.2 Fuel transport:

.1 All fuel transports including mobile refuelling trucks and fuel transport to stationary equipment such as generators or pumps or distributed storage areas, must occur in approved (CSA) containers with the notification and consent of site safety personnel.

1.13 VEHICLE AND EQUIPMENT USAGE

.1 Seatbelts must be worn at all times vehicle is in operation.

.2 Vehicles are to not be idled for longer than 10 minutes (warm up) unless explicitly used as a place of refuge during animal encounters or for personnel working outdoors during winter operations. Exceptions are to be made in consultation with Engineer.

.3 Perform vehicle maintenance and lubrication of equipment in a manner that avoids spillage of fuels, oils, grease and coolants. When refueling equipment, use leak free

containers and reinforced rip and puncture proof hoses and nozzles. Remain in attendance for duration of refuelling operation, and ensure that all storage container outlets are properly sealed after use.

.4 Place drip pans under stationary equipment with potential leaks.

1.14 FLAMMABLE LIQUIDS

.1 The handling, storage and use of flammable liquids will be governed by the current National Fire Code of Canada.

.2 Flammable liquids such as gasoline, kerosene and naphtha may be kept for ready use in quantities not exceeding 45 litres provided they are stored in approved safety cans bearing the Underwriter's Laboratory of Canada or Factory Mutual seal of approval. Storage of quantities of flammable liquids exceeding 45 litres for work purposes, requires the permission of the permitting authority.

.3 Do not transfer flammable liquids in the vicinity of open flames or any type of heat-producing devices.

.4 Do not use flammable liquids having a flash point below 38°C such as naphtha or gasoline as solvents or cleaning agents.

.5 Store flammable waste liquids, for disposal, in approved containers located in a safe ventilated area. Quantities are to be kept to a minimum and Engineer is to be notified when disposal is required.

.6 Dispose of all flammable liquids in accordance with all applicable environmental regulations.

1.15 STORAGE AND HANDLING OF FUEL

.1 Locate fuel storage areas as approved by Engineer.

.2 Inspect fuel storage and dispensing facilities daily. Make available fire fighting equipment for immediate access at each fuel storage location.

.3 Store all barrels containing fuel and /or hazardous materials in an elevated position, either on their side with bungs facing 9 and 3 o'clock position, or on pallets, upright, and banded.

.4 All barrels to be individually identified. Label will be to industry standards and will provide all information necessary for health and safety and environmental purposes. Make available, to all personnel, Material Safety Data Sheets for all materials maintained at site or along right-of-ways.

.5 All barrels/fuel containers to be labeled with INAC's name, and Contractor's name as required by the Land Use Permit.

.6 Treat all waste petroleum products, including used oil filters as hazardous materials.

.7 Conduct regular inspections of all machinery hydraulic, fuel and cooling systems. Repair leaks immediately.

.8 Pre-assemble and maintain emergency spill equipment, including at least two fuel pumps , empty 200 L barrels and absorbent material sufficient to clean up a 1000 litre spill at all fuel storage sites. Maintain spill mats or pan under mobile fueling containers and a spill kit at the refuelling area.

.9 Remove all full and empty barrels, fuel storage facilities and associated materials and equipment from site at conclusion of work.

1.16 SPILL CONTINGENCY PLAN

.1 Submit to Engineer for approval, detailed Spill Contingency Plan. Identify response capabilities by detailing response times, and types and volumes of spills to which Contractor can respond. Following information is required as a minimum:

.1 A description of pre-emergency planning.
.2 Personnel roles, lines of authority and communication, emergency phone numbers.
.3 Emergency alerting and response procedures.
.4 Evacuation routes and procedures, safe distances and places of refuge.
.5 Directions/methods of getting to nearest medical facility.
.6 Emergency decontamination procedures.
.7 Emergency medical treatment and First-Aid.
.8 Emergency equipment and materials.
.9 Emergency protective equipment.
.10 Procedures for reporting incidents, and
.11 Spill response and containment plans for all materials that could potentially be spilled.

1.17 MEDICAL

.1 Provide and maintain first aid and medical care and facilities for all workers as required by the Nunavut Safety Act.

.2 Provide the appropriate Nunavut first aid kit, based on the number of workers, in accordance with the Nunavut Safety Act.

.3 Establish an emergency response plan acceptable to Engineer, for the removal of any injured person to medical facilities or a doctor's care in accordance with applicable legislative and regulatory requirements.

.4 Provide proof of First Aid credentials to Engineer prior to the start of each construction season. Provide the appropriate number of first aid attendants on site in accordance with the Nunavut Safety Act (minimum of one).

.5 Emergency and First Aid Equipment:

.1 Locate and maintain emergency and first aid equipment in appropriate location on site including first aid kit to accommodate number of site personnel; portable emergency eye wash; fire protection equipment as required by legislation.

.2 Locate 2 self contained breathing apparatus units; blankets and towels; stretcher; and 1 hand held emergency siren in all confined access locations.

.3 Provide a minimum of one (1) Medic Level 2: a person with a current St. John Ambulance and First Aid, Level 2 Certificate or Canadian Red Cross Responder Certificate(for a two week course) and maintain first aid and medical care and facilities for all workers.

1.18 ACCIDENTS AND ACCIDENT REPORTS.

.1 Immediately report, verbally, followed by a written report within 24 hours, to Engineer, all accidents of any sort arising out of or in connection with the performance of the work, giving full details and statements of witnesses. If death or serious injuries or damages are caused, report the accident promptly to Engineer by telephone or facsimile in addition to any report required under federal and territorial laws and regulations.

.2 If a claim is made by anyone against Contractor or subcontractor on account of any accident, promptly report the facts in writing to Engineer, giving full details of the claim.

1.19 SECURITY

.1 Enforce the Camp Rules as provided under Section 01 54 00 - Camp Facilities.

.2 Limit site access only to persons employed on the project. Unauthorized persons will be permitted on site only with the approval of Engineer.

1.20 WILDLIFE HAZARDS

.1 Develop a wildlife response plan, as part of the Site Specific Safety Plan, that includes bear and large mammal safety and as a minimum meets the following requirements:

.1 Firearms must be stored and used in accordance with all AHJ. Terms of Use for firearms must be submitted to Engineer for review.

.2 All wildlife encounters and sightings must be reported to Engineer as part of the weekly report.

.3 A minimum of one person must be designated as a wildlife responder and trained in firearms and wildlife deterrent use. Qualifications and training plans for wildlife responders must be submitted to Engineer as part of the Site Specific Safety Plan.

1.21 WILDLIFE MONITORS

.1 Provide for the duration of the construction seasons, full-time wildlife monitors acceptable to Engineer. Provide sufficient number of wildlife monitors with firearms and ammunition to protect the safety of all workers in all areas, including Engineer and Engineer's support staff during site operations.

.2 Assign a wildlife monitor to accompany Engineer and Engineer's support staff during all inspections and soil/material sampling activities that take place away from the construction camp area.

.3 Assume full responsibility for reporting incidents associated with wildlife encounters.

.4 Supply one ATV per wildlife monitor to facilitate his duties. Ensure wildlife monitors are fully trained in the safe use of the ATV equipment. Provide snowmobiles during winter construction.

.5 Provide the wildlife monitors with mobile communication radios with charging units for on-site communication between the wildlife monitors, Contractor base radio, and Engineer and Engineer's Authorized Personnel. If radios do not provide sufficient range for continuous communication, provide satellite phones.

1.22 FIRE SAFETY

.1 Provide all fire prevention, fire protection and fire fighting services at the project site.

.2 Implement a fire safety program that includes fire prevention, fire protection and fire fighting requirements. Submit details of the fire safety program in writing to Engineer for review prior to start of construction. Such review does not relieve Contractor from any obligations or responsibilities required by the Contract.

.3 Ensure that any subcontractors and other Contractor personnel on-site are briefed on fire safety requirements and are familiar with the fire prevention, fire protection and fire fighting program.

.4 The fire safety program to meet or exceed the most recent editions of the following codes and standards:

.1 Nunavut Safety Act.

.2 National Fire Code of Canada.

.3 Canada Labour Code.

.5 Personnel designated for fire fighting services must be provided with training for any special hazards that may be present. These personnel must also be provided with protective equipment as required by the Canada Labour Code.

1.23 REPORTING FIRES

.1 A person discovering a fire and all fire Fires related incidents will report immediately, by fastest available means, to Engineer and site superintendent.

.2 A person discovering a fire will if possible, remain in the vicinity to direct fire fighting personnel.

1.24 FIRE EXTINGUISHERS

.1 Provide and maintain fire extinguishers in sufficient quantity to protect, in an emergency, the work in progress and the physical plant on site.

1.25 SMOKING PRECAUTIONS

.1 Do not permit smoking in hazardous areas. Exercise care in the use of smoking materials in non-restricted areas.

.2 Provide and place signs prohibiting smoking in areas where smoking is not permitted.

.3 Signs prohibiting smoking will be in English and the local dialect and will have black lettering not less than 50 mm high, with a 12 mm wide stroke on a yellow background. In lieu of lettering, symbols of not less than 150 mm by 150 mm may be used.

.4 Smoking is prohibited within 7.5 metres of fuel storage and dispensing facilities.

.5 Provide and place signs indicating that smoking within 7.5 metres of fuel storage and dispensing facilities is not permitted, and that the vehicle ignition must be turned off while the vehicle is being refuelled. Provide at least one weather-resistant sign at each fuel dispensing location. The signs will have a minimum dimension of 200 mm and letters not less than 25 mm high. In lieu of lettering, signs may have international "No Smoking -Ignition Off" symbols not less than 100 mm in Precautions diameter. Install signs in a location visible to all drivers approaching the dispensing location, and at the dispensing unit.

1.26 RUBBISH AND WASTE MATERIALS

.1 Rubbish and waste materials are to be kept to a minimum.

.2 Storage:

.1 Extreme care is required where it is necessary to store oily waste in work areas to ensure maximum possible cleanliness and safety.

.2 Greasy or oily rags or materials subject to spontaneous combustion will be disposed of as hazardous material.

1.27 HAZARDOUS SUBSTANCES

.1 If the work entails the use of any toxic or hazardous materials or chemicals, or otherwise creates a hazard to life, safety or health, work will be in accordance with the National Fire Code of Canada, Occupational Health and Safety Legislation, and WHMIS.

.2 Engineer is to be advised, and a "Hot Work" permit issued by Contractor's designated representative in all cases involving welding, burning or the use of blow torches and salamanders, in buildings or facilities. Special precautions are necessary to safeguard life and property from damage by fire or explosives.

.3 Wherever work is being carried out in dangerous or hazardous areas involving the use of heat, fire watchers, equipped with sufficient fire extinguishers, will be provided. The determination of dangerous or hazardous areas along with the level of precaution necessary for Fire Watch will be at the discretion of Contractor. Notify Engineer prior to that determination.

.4 Provide proper ventilation and eliminate all sources of ignition where flammable liquids, such as lacquers or urethanes are used.

1.28 QUESTIONS

.1 Direct any questions to Engineer.

1.29 MEASUREMENT OF PAYMENT

.1 Payment for the preparation and completion of the Site Specific Health and Safety Plan, are to be included in the lump sum price for Site Specific Health and Safety Plan, Item 01 35 32-1, as indicated in Basis of Payment Schedule. The lump sum price for the Site Specific Health and Safety Plan will be paid after a satisfactory Site Specific Health and Safety Plan has been submitted to Engineer.

.2 The provision of Wildlife Monitors, including ATV in summer and snowmobile in winter, will be measured for payment by the person-day that the services are provided. The provision of wildlife monitoring services will be paid under Item 01 35 32-2, Wildlife Monitors in the Basis of Payment Schedule.

.3 The provision of a level 2 Medic will be paid at the daily rate tendered under item 01 35 32 -3 on the Basis of Payment schedule. Price to include medic, room and board and any other costs related to retaining a medic on site.

.4 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 – Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 REGULATORY OVERVIEW

.1 Comply with all applicable environmental laws, regulations and requirements of Federal, Territorial and other regional authorities, and acquire and comply with such permits, approvals and authorizations as may be required.

.2 Comply with and be subject to those permits and approvals obtained from Engineer to conduct the work.

.3 Pay specific attention to the Land Use Permit and Water License.

1.2 SUBMITTALS

.1 Submit all required Contractor submittals to satisfy environmental requirements directly to the responsible agency and Authorities Having Jurisdiction.

.2 Submit one complete copy of all submittals and agency approvals to Engineer.

.3 All submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.3 SITE MAINTENANCE

.1 Keep the site free from the accumulation of waste materials and debris as specified in this section.

.2 Upon completion of the work, clean away and dispose of all surplus material, supplies, rubbish, and temporary works leaving the site neat and tidy to the requirements of the Engineer and the Land Use Permit.

1.4 FIRES

.1 Fires and burning of rubbish on site permitted only when approved by Engineer and as per required burning permit.

1.5 DISPOSAL OF WASTES

.1 Bury non hazardous rubbish and waste materials in designated landfill on site as designated by Engineer.

.2 Dispose of temporary camp waste in a manner acceptable to Engineer.

.3 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways.

1.6 WATER MANAGEMENT

.1 Provide potable water for drinking and cooking.

.2 Provide proof that potable water meets CCME drinking water guidelines.

1.7 SEWAGE MANAGEMENT

.1 Provide toilets, or other acceptable means of collecting and disposing of sewage.

.2 Comply with the requirements of the Land Use Permit, the Water License, and the Public Health Act (Nunavut). Information on the application and supporting documents can be obtained from the Nunavut Water Board and Nunavut Impact Review Board, websites are NWB - http://www.nunavutwaterboard.org/en/public_registry(under Remediation) NIRB - http://ftp.nunavut.ca/nirb/NIRB_SCREENINGS/ (under Active Screenings).

1.8 DRAINAGE

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.

.2 Do not pump water containing suspended materials into waterways or drainage systems.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.9 SITE CLEARING AND PLANT PROTECTION

.1 Protect plants on site and adjacent properties where indicated.

.2 Minimize stripping of topsoil and vegetation.

1.10 WORK ADJACENT TO WATERWAYS

.1 Do not operate construction equipment in waterways.

.2 Do not dump excavated fill, waste material, or debris in waterways.

1.11 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

1.12 ENVIRONMENT PROTECTION SUPPLIES

.1 Comply with federal and territorial fisheries and environmental protection legislation, including preventing the loss or destruction of fish habitat, and minimizing the impact of sedimentation, siltation or otherwise causing a degradation in water quality.

1.13 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 REFERENCES AND CODES

.1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.

.2 Meet or exceed requirements of:

.1 Contract documents.

.2 Specified standards, codes, and referenced documents.

.3 Use latest version of all specified standards, codes, and referenced documents.

.4 Perform work in accordance with the Specifications and meet or exceed all codes, standards, and regulations applicable to the Work and issued under the authority of the Government of Canada and the Government of Nunavut. Advise Engineer of any discrepancies in the codes, standards, and regulations applicable to the Work.

1.2 REFERENCES AND CODES-FEDERAL

.1 Meet or exceed governing codes, standards, guidelines, and regulations applicable to the Work and issued under the authority of the Government of Canada, but not limited to, the following:

.1 Canada Labour Code Part 11-Occupational Health and Safety (R.S. 1985, c.L-2).

.2 Canada Occupational Health and Safety Regulations (SOR/86-304).

.3 Canadian Environmental Protection Act, S.C. 1999 (S.C. 1999, c.33) a. SOR/2002-318.

.4 National Fire Code of Canada, 1995 a. 2005.

.5 Transportation of Dangerous Goods Act, 1992 (S.C. 1992, c.34) a.1999, c.31.

.6 Transportation of Dangerous Goods Regulations (SOR/2001-286) a. SOR/2003-400.

1.3 REFERENCES AND CODES – NUNAVUT

.1 Meet or exceed the governing codes, standards and guidelines, and regulations applicable to Work and issued under the authority of the Government of the Northwest Territories as follows:

.1 Environmental Protection Nunavut Act (R.S.N.W.T. 1988, c. E-7) a. 1998, c.21, c.24.

.2 Labour Standards Act Nunavut (R.S.N.W.T. 1988, c.L-1) amended S.N.W.T 2003, c.15, in force January 2004.

.3 Public Health Act, R.S.N.W.T. 1988, c.P-12

.4 Spill Contingency Planning and Reporting Regulations R-068-93 (NWT document)

.5 Fire Prevention Act, R.S.N.W.T. 1988, c.F-6

.6 Transportation of Dangerous Goods Act (1990 S.N.W.T. 1990, c.36)

.7 Safety Act-Consolidation of General safety Regulations R.R.N.W.T. 1990, cS-1, as amended by R.R.N.W.T. 1990, cS-1 (supp.)

.8 Work Site Hazardous Materials Information System Regulations (R.R.N.W.T1990, c.S-2)

1.4 STANDARDS AND GUIDELINES

.1 Guidelines for Canadian Drinking Water Quality, April 2004.

.2 Guidelines for the Management of Waste Batteries, September 1998

.3 Guidelines for the Management of Waste Lead and Lead paint, April 2004.

1.5 PERMITS AND LICENSES

.1 The following permits and licenses will be provided to Contractor when received from INAC:

.1 Type "A" Land Use Permit.

.2 Type “B” Water License.

.2 Any deviations from the current remediation plan may require land use permit amendments or field authorizations. Notify Engineer of any proposed deviations so INAC can contact the appropriate agency to obtain approval for the deviation.

1.6 HAZARDOUS MATERIALS DISCOVERY

.1 Work at the site will involve contact with the following:

.1 PB containing materials. (Capacitors and ballasts)

.2 Asbestos containing materials. (Asbestos brake pads and asbestos insulated cabinet)

.3 Metal impacted soils.

.4 PHC (total petroleum hydrocarbons).

.5 Hazardous liquids and petroleum based sludges.

.6 Demolition debris with lead based paints.

1.7 WHMIS

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labeling and provision of material safety data sheets acceptable to Labour Canada and Health and Welfare Canada.

.2 Deliver copies of WHMIS data sheets to Engineer on delivery of materials.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 INSTALLATION AND REMOVAL

.1 Provide temporary utilities to facilitate all construction and camp activities.

.2 Remove from site all such work after use.

.3 Provide all temporary utilities consisting of the design, supply, construction, maintenance, operation, and removal of the utilities and services required to support the work at the site. Temporary utilities shall meet requirements of Land Use Permit issued for the Work, satisfy requirements of Federal, Territorial, and local authorities having jurisdiction, and comply with the requirements of Section 01 35 43 - Environmental Procedures.

1.2 WATER SUPPLY

.1 Provide potable water for camp use, and non potable water for construction use.

1.3 TEMPORARY HEATING AND VENTILATION

.1 Provide temporary heating required during construction period.

.2 Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.

.3 Provide ventilation for temporary facilities as follows:

.1 Ventilate temporary sanitary facilities.

1.4 TEMPORARY POWER AND LIGHT

.1 Provide, operate, and maintain an electrical power supply system, in accordance with governing regulations, to service Contractor’s site power requirements.

.2 Install temporary facilities as necessary for power distribution, such as power cable and pole lines, subject to Engineer’s approval.

.3 Provide lighting and power at site for use during work by Contractor, subcontractors, and Engineer’s support personnel.

1.5 TEMPORARY COMMUNICATION FACILITIES

.1 Provide temporary telecommunication facilities.

.2 System must be capable of transmitting and receiving messages from Cambridge Bay and points south, 24 hours per day.

.3 All site personnel including Engineer’s authorized personnel must have access to the system.

.4 Provide separate line item in the BOPC-1 in the CWBS for air time spent on the phone or fax.

1.6 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

1.7 ALL TERRAIN VEHICLES

.1 Make available on site for exclusive use by Engineer one new, motorized all terrain vehicle equipped with a minimum engine size of 400 cc, standard double seat, two helmets (medium and large), a baggage rack, a trailer, and a tire repair kit.

.2 The use of this vehicle will not be shared with the Contractor.

.3 Supply one ATV per wildlife monitor to facilitate his duties specified in Section 01 35 32 - Site Specific Health and Safety Plan.

.4 Vehicles provided for purposes of this contract are accepted at risk of supplier whether in possession of supplier or Engineer.

.5 Deliver vehicles to location designated by Engineer at the site.

.6 Store vehicles in accordance with manufacturer's recommendations.

.7 Maintain ATV's in good running order for duration of project. If ATV's are out of commission for any period of time, provide other replacement ATV's.

.8 Repair and maintain ATV's expeditiously.

.9 Provide and pay for all fuel and lubricants required to operate the ATV's for the duration of the project.

1.8 MEASUREMENT OF PAYMENT.

.1 Supply of ATV for the Wildlife Monitor will be paid under Item 01 35 32-2, Site Specific Health and Safety Plan in the Basis of Payment Schedule.

.2 Supply of ATV for Engineer will be made under Item 01 54 00-7, Camp Facilities.

.3 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 **Products (NOT USED)**

Part 3 **Execution (NOT USED)**

END OF SECTION

Part 1 General

1.1 MOBILIZATION AND DEMOBILIZATION

.1 Provide all labour, equipment and materials, and performance of all work necessary for mobilization to, and demobilization from the Roberts Bay/Ida Bay sites.

.2 Mobilization to include transportation to site of Contractor's labour, equipment, materials, and assembling, erecting, and preparing site, in readiness to start work, all in accordance with Contractor's schedule.

.3 Mobilization to include transportation to site of camp facility, as required.

.4 Demobilization to include dismantling and removal from site, of all Contractor's equipment, camp facilities and materials, cleanup of site and transportation of labour and equipment from site.

1.2 MEASUREMENT OF PAYMENT

.1 Price to include all labour, equipment, materials, meals, accommodation, flights, and any other costs necessary to undertake work required.

.2 Mobilization will be paid for at the lump sum price tendered for under Item 01 53 00-1 on the Basis of Payment Form. Payment will be made when materials, camp, equipment, and supplies have been delivered to the site.

.3 Demobilization will be paid for at the lump sum price tendered for under Item 01 53 00-2 on the Basis for Payment Schedule. Payment will be made when the Contractor removes all equipment, materials, and cleans up the site.

.4 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 PRELIMINARY REQUIRMENTS

.1 Prior to installation of camp facilities and service area, submit location and layout plan to Engineer for review.

.2 The location of the camp facilities must be approved by Engineer. Provide 3 weeks prior to mobilization.

.3 Provide and operate complete camp facilities services, including provision, preparation, and serving of food for construction personnel, Engineer and his authorized personnel, and other specified site visitors.

.4 Temporary camp facilities to be established and operated in accordance with local regulations and authorities having jurisdiction.

.5 Provision of camp facilities services consisting of:

- .1 Design, supply, installation, operation and maintenance of camp facilities including:
  - .1 All associated facilities.
  - .2 Utilities and services required for camp such as heating, lighting, fuel, potable, and domestic water systems.
  - .3 Sewage collection.
  - .4 Treatment and disposal systems.
  - .5 Waste, refuse and garbage collection and disposal system.
  - .6 Camp fire prevention.
  - .7 Alarm and fire fighting system.
  - .8 Camp safety and security service.
  - .9 Meals and catering service.
  - .10 Shower/wash facilities.
  - .11 Sleeping and washroom facilities.
  - .12 Bedding and bedding laundry service.
  - .13 Janitorial service.
  - .14 Recreational facilities.
  - .15 Personnel laundry facilities.
- .2 Obtain and pay for, as part of provision of camp facilities services all licenses, permits, and authorizations required to comply fully with all laws, ordinances and regulations of Federal and local authorities in connection with the performance of work of this section.
- .3 Provide camp facilities services for own workforce, surveyors, Engineer, specialist inspectors (1) and for two (2) over night visitors. Separate space is to be provided for female staff.
- .4 Demobilize and remove camp facilities from site at completion of contract.

.6 Camp facilities including its facilities, utilities, services, location and operation is subject to Engineer's approval and is to be designed, established and operated in accordance with applicable Federal, Territorial and local codes, regulations and requirements governing camp facilities.

.7 Camp location to be established at a location, which does not interfere with operations undertaken on site. Camp and service area locations are subject to Engineer's approval.

.8 Pay for all costs for inspection of camp and electrical facilities by authorities having jurisdiction.

.9 Pay for all costs for inspection of camp and electrical facilities by authorities having jurisdiction.

.10 Provide camp facilities services for own workforce, Engineer and Engineer's authorized personnel as follows:

.1 Resident Engineer: duration of project.

.2 Engineer's Authorized Personnel, PWGSC and INAC Office Personnel: on an as required basis, maximum of 2 persons at any one time, arriving and departing with crew changes.

.10 Soft-sided tents will meet the requirements of this specification.

1.2 ENVIRONMENT

.1 Comply with environmental regulations as per Section 01 35 43.

.2 Adhere to applicable guidelines and in accordance with authority having jurisdiction.

.3 Submit to Engineer before opening of camp, proof of adherence to all environmental regulations. Display all applicable regulatory permits at the camp site.

.4 Camp facilities including its facilities, utilities, services, location and operation is subject to the approval of Engineer and is to be designed, established and operated in accordance with applicable Federal, Territorial and local codes, regulations and requirements governing camp facilities. The camp facilities will meet or exceed the most recent edition of the Government of Nunavut, Public Health Act and Regulations.

.5 Provide water that meets Health Canada Guidelines for Canadian Drinking Water Quality. Submit information on water, including the source and water quality test results to Engineer prior to opening the camp.

.6 Comply with sewage treatment, disposal and closure requirements as outlined in Section 01 35 43 – Environmental Procedures.

1.3 CAMP INSTALLATION AND REMOVAL

.1 Mobilize equipment, camp, personnel, and materials.

.2 Establish approved temporary buildings and facilities as required.

.3 Place all camp facilities so as not to interfere with any construction or other site activities.

.4 Carry out all work necessary to protect environment, such as construction pads (if required), prior to actual installation of camp.

.5 Do not locate camp generators adjacent to any sleeping facility, camp kitchen or an area with constant human presence.

.6 Remove camp facilities, clean up, and leave site in condition satisfactory to Engineer.

1.4 SITE LOCATION

.1 Locate Camp at a site that provides for the safety and welfare of its residents for the duration of the Work.

.2 Locate Camp within walking distance of the work site, if possible.

1.5 MAINTENANCE

.1 Maintain Camp facilities in tidy and sanitary condition.

.2 Heat Camp facilities as required.

.3 Clean Camp facilities daily. Clean and sanitize toilets, urinals, showers, wash basins, and laundry tubs daily.

.4 Provide adequate bug, pest, and wildlife control to all buildings, facilities, and camp site.

.5 Maintain camp facilities power plant, fuel storage facilities, water lines, sewage system, garbage disposal containers, heating units, appliances and furniture in neat, clean and good operating condition and make repairs as necessary.

1.6 ENGINEER'S REQUIREMENTS

.1 Provide for sole use of Engineer, one room for sleeping. Space to be furnished in same manner as rooms used by Contractor's personnel.

.2 Provide space for up to 2 overnighting or occasional site visitors as and when required in the camp.

.2 Provide a minimum of 11 m^3 of air space for each occupant.

.3 Provide space in the Camp for the exclusive use of the medic. Space must have two beds. Provide medic with a communications device compatible with all site communications.

.4 Provide space for the Engineer to use as an office.

.5 Engineer's office to have a minimum floor space of 15 square metres and furnished with the following:

.1 Table, minimum size 1.8m x .8 m

.2 One two-drawer file cabinet with locking mechanisms.

.3 One waste paper basket.

.4 One duplex receptacles, 120V, 60hz.

.6 Provide and maintain at Engineer's office one satellite phone line or equivalent communication approved by Engineer.

.7 Provide, for use by one (1) mobile communication radio, complete with charging units. The radio shall allow for on-site communication between engineer and the Contractor.

.8 It is critically important that the communication equipment provided by the Contractor for Engineer's use is reliable and of the highest quality. Immediate repair or replace faulty equipment.

.9 Provide one (1) ATV c/w trailer as described under Section 01 51 00, Temporary Facilities for use by Engineer and authorized visitors.

1.7 ADDITIONAL SAFETY EQUIPMENT

.1 Maintain at site, two (2) sets of CSA approved safety rubber boots and three (3) safety hats with liners and safety glasses for use by Engineer and visitors.

.2 Maintain a supply of ear plugs or any items necessary for well being of camp occupants.

1.8 KITCHEN DINING COMPLEX

.1 Functional design of kitchen to include all equipment necessary for food storage, preparation, cooking and serving 3 meals daily to meet camp population requirements.

.2 Provide dishwashing and garbage handling equipment, consistent with required function of kitchen.

.3 Provide seating capacity of dining area to meet camp population requirements.

.4 Store all non-perishable food supplies in adequate containers, kept in an orderly manner and under sanitary conditions, in vermin-proof enclosures.

.5 Store all perishable food supplies in properly refrigerated indoor areas within camp facilities to preclude attraction of wildlife.

1.9 LINEN, BEDDING AND LAUNDRY

.1 Supply three (3) blankets, two (2) sheets, one (1) bath towel, one (1) face cloth, and one (1) pillow and one (1) pillow case for each person living in camp.

.2 Change two (2) sheets and one (1) pillow case once per week or whenever a change of occupant occurs.

.3 Launder sheets and pillow covers regularly to provide weekly supply of clean linen.

.4 Provide clean blankets to all camp occupants. Clean blankets at conditions warrant.

.5 Cooking staff to wear suitable kitchen attire. Launder kitchen attire daily.

1.10 ABLUTION AND LATRINE FACILITIES

.1 Provide ablution and latrine facilities as per AHJ and codes requirements and as per camp occupancy requirements as follows:

.1 Flush toilets as required.

.2 Urinals as required.

.3 Wash basin of stainless steel, porcelain, with one mirror over each basin as required.

.4 Individual shower units with non-slip flooring together with adjacent dressing cubicles as required.

.2 Maintain separate ablution and latrine facilities for female/male populations.

.3 Maintain separate ablution and latrine facilities for Engineer and Engineer's support staff.

.4 Clean ablution and latrine facilities daily. Supply adequate amounts of paper towels, toilet tissue, and individual drinking cups in washrooms.

1.11 FOOD QUALITY AND SCHEDULE

.1 Groceries to be of top quality. Eggs and dairy products to be grade “A”. Canned fruit and vegetables to be choice or fancy. Provide choices of traditional food.

.2 Beef to be Canada Grade “A”, pork to be Grade “I”, turkey, chicken, or other fowl to be “utility” or better.

.3 As a minimum, provide three meals a day. Provide casual meals or fourth meals if irregular shifts are worked or irregular travel by personnel is required.

.4 Provide box lunches for all camp occupants who will not be in a camp for noon meal.

1.12 CAMP RULES

.1 A Camp of this nature in a remote location requires that certain basic rules be established for mutual benefit of all camp occupants.

.2 Prepare a set of Camp rules, for approval by Engineer, prior to commencing operations.

.3 Camp rules to cover such items as property damage, smoking, use of alcoholic beverages, drugs, firearms, security, nuisance, and any other matters to make Camp an orderly, well managed operation.

.4 In order to protect all residents, the following activities are strictly prohibited and could result in dismissal and removal from site:

.1 Tampering with smoke or fire detectors/alarms, and other safety equipment.

.2 Possession and consumption or use of alcohol or illegal drugs.

.3 Possession or use of firearms, ammunition, or other lethal weapons.

.4 Fighting, physical violence, stealing, vandalism, or destruction of property.

.5 Harassment in any form.

.6 The employee or visitors departure from the site for any of these reasons will be on the first available scheduled transportation. Should this person wish to leave immediately, the costs will be the responsibility of the employee.

.5 Become familiar with all emergency procedures, exits, signals, and alarms. Keep accesses to fire equipment clear at all times, and immediately report any damaged fire or safety apparatus to your supervisor.

.6 Use vehicles or equipment only when trained and authorized to do so.

.7 Use, adjust, and repair equipment or machinery only when authorized by the supervisor.

.8 Vehicle/Equipment checks must be completed and the logbook updated at the beginning of every shift or when starting any vehicle or piece of equipment. Seat belts must be worn at all times in vehicles and equipment.

.9 Keep living areas as clean as possible.

.10 Have warm emergency clothing available at all times during the winter.

.11 Keep clothing or other flammable goods away from baseboard heaters.

.12 Ensure that personal items and clothing are marked for easy identification.

.13 Employees must store/remove all personal effects and belongings when going off rotation or permanently off site.

.14 No loose clothing, dangling neckwear, bracelets, rings or similar articles are to be worn where there is a risk of coming into contact with moving machinery or electrical energized equipment.

.15 Keep workplace and equipment neat and orderly. Complete an inspection of work place tools and equipment prior to starting work. Correct any hazards immediately.

.16 Provide a copy of Camp rules to all camp occupants prior to or upon arrival in camp.

.17 Enforce Camp rules.

1.13 LAUNDRY FACILITIES

.1 Provide laundry facilities dedicated to the Camp and separate from units used for washing of site PPE (e.g. coveralls).

.2 Laundry facilities for washing of PPE to be located in controlled facility within or adjacent to base camp.

1.14 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in a clean and orderly condition, weatherproof sheds for storage of tools, equipment, and materials.

.2 Locate materials not required to be stored in weatherproof sheds in a manner to cause least interference with work activities.

1.15 SANITARY FACILITIES

.1 Washroom facilities are to be provided at, or in close proximity to, the respective camp, and work areas.

1.16 ACCESS TO WORK

.1 Be responsible for the transport of personnel and equipment to the various work areas on the site.

1.17 TRANSPORTATION

.1 Provide return air transportation services for Contractor, Engineer, and Engineer's Authorized Personnel from Cambridge Bay to the Roberts Bay or Ida Bay sites.

.2 It is anticipated that air transport of Engineer's Authorized Personnel will be scheduled to coincide with the transport of Contractor's workforce to and from the site.

.3 Engineer will advise Contractor of Engineer and Engineer's personnel air transportation requirements one week in advance of trip departure.

1.18 CAMP SECURITY

.1 Restrict access to camp. Only persons employed on project to be allowed normal access. Unauthorized persons will be permitted on site only with approval of Engineer and/or Contractor.

1.19 MEASUREMENT OF PAYMENT

.1 Provision of all camp facilities and equipment, including communication equipment for the camp will be paid at the lump sum price tendered under Item 01 54 00-1, Camp Facilities and Equipment, in the Basis of Payment Schedule.

.2 All costs for the operation and maintenance of all camp facilities and equipment, including water treatment and sewage treatment, inspection of camp and electrical facilities by Nunavut officials, on-site mobile communication equipment, as well as the provision of catering, rooms, and laundry services for the camp are to be included in the lump sum payment for Camp Operation and Maintenance, Item 01 54 00-2, as indicated in the Basis of Payment Schedule.

.3 The provision of room and board and associated services for Engineer and Authorized Personnel will be measured for payment by the person-day for each day that personnel reside overnight at the camp. Engineer's room and board will be paid under Item 01 54 00-3 in the Basis of Payment Schedule.

.4 Provision of casual meals to visiting Engineer's Authorized Personnel will be measured for payment by the number of meals served. Casual meals will be paid under Item 01 54 00-4 in the Basis of Payment Schedule.

.5 Charters will be paid at the unit price tendered under Item 01-54 00 – 5 on the Basis of Payment Schedule. The rates are to include crew changes, food flights, supplies, meetings

or any other charter requirements. The rates are to be based on a round trip from Cambridge Bay.

.6 It is anticipated that air transport of Engineer's Authorized Personnel will be scheduled to coincide with the transport of Contractor's workforce to and from site. Provide air transportation for Engineer's personnel at a minimum frequency of one return trip per week and two additional trips per month schedule according to Engineer's request.

.7 All costs for the provision of satellite and/or long distance communication links for Engineer and authorized personnel will be paid at the lump sum price tendered for Communication links, Item 01 54 00-6, as indicated in the Basis of Payment Schedule.

.8 All costs for the provision and maintenance of an ATV and a snowmobile for use by the engineer will be paid at the lump sum price tendered under item 01 54 00-7 in the Basis of Payment schedule.

.9 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 QUALIFICATIONS OF SURVEYOR

.1 Qualified registered land surveyor, licensed to practice in Nunavut, acceptable to the Engineer.

.2 Surveyor cannot be an employee of the Contractor.

1.2 SURVEY REQUIREMENTS

.1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.

.2 Layout non hazardous landfill at Roberts Bay.

.3 Prepare an “as-built” drawing for Ida Bay showing demolished adit and vent raise, exploration trench and backfill, waste rock piles and any other surface features. Contour interval 0.5m.

.4 Prepare an “as-built” drawing for Roberts Bay showing waste rock piles, non hazardous landfill (previous tailings pond area), regarded dump, demolished adits, and any other surface features. Contour interval 0.5 m.

.5 Supply all equipment, stakes, and lath required to do the work.

1.3 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

1.4 SUBMITTALS

.1 Submit name and address of Surveyor to Engineer.

.2 Upon request of the Engineer, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with the Contract Document.

.4 Submit all drawings electronically in accordance with Engineer’s protocols for AutoCAD drawings and by hard copy. Hard copy drawings must be signed by a professional engineer in the firm.

.5 Submit a final “as built” drawings at the conclusion of the work.

1.5 MEASUREMENT OF PAYMENT

.1 Payment for the surveys will be paid for at the lump sum price tendered under Item 01 71 01 - 1 Surveys in the Basis of Payment Schedule. Tendered price to include all labour, equipment, materials, meals, accommodation, flights, and any other costs necessary to undertake work required.

□

.2 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

□

Part 1 General

1.1 DISPOSAL OF WASTES

.1 Bury non hazardous demolition debris and waste in non hazardous landfill.

.2 Disposal of waste into waterways is prohibited.

.3 Burn wood, move ash to non hazardous landfill upon authorization from Nunavut Department of Environment, as directed by the Engineer and required burning permit.

.4 Place steel waste in non hazardous landfill as directed by Engineer.

1.2 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution

3.1 CLEANING

.1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.

.2 Clean-up work area as work progresses.

END OF SECTION

Part 1 General

1.1 INSPECTION AND DECLARATION

.1 Contractor's inspection: Contractor and Subcontractors: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Engineer in writing of satisfactory completion of Contractor's inspection and that corrections have been made.

.2 Request Engineer's inspection.

.2 Engineer's Inspection: Engineer and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor to correct Work accordingly.

.3 Completion: submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Work is complete and ready for final inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of Work by Engineer, and Contractor. If Work is deemed incomplete by Engineer, complete outstanding items and request reinspection.

1.2 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 – Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

Part 1 General

1.1 FORMAT

.1 Organize data in the form of a manual

.2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

.3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.

.4 Cover: Identify each binder with type or printed title “Project Record Documents”, list title of project, and identify subject matter of contents.

.5 Closeout submittals are to be prepared in hardcopy and electronic form. Prepare three (3) hard copies and three CDs (or DVDs). Email record and document submissions to be in PDF format.

1.2 CONTENTS - EACH VOLUME

.1 Table of Contents: provide title of project.

.1 Date of submission; names.

.2 Contractor addresses, and telephone numbers with name (s) of responsible parties.

.2 Provide a listing of training that was provided to workers during the course of the work.

1.3 SUBMISSION

.1 Submit “as built” drawings of the Roberts Bay and Ida Bay Mine Sites.

.2 Submit project photographs of all site activities and site at key milestones.

.3 Submit documents required by Land Use Permit and Water License

.1 Volumes of water pumped daily from all sources, including where water was pumped from and where it was pumped.

.2 Any other documentation required by the Land Use Permit and Water License.

.3 Submit manifests, Weigh Scale Reports, TDGA logs, Certificates of destruction/disposal for hazardous materials removed from the site.

1.4 MEASUREMENT OF PAYMENT

.1 Work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a

separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution (NOT USED)

END OF SECTION

□

Part 1 General

1.1 INVENTORY OF HAZARDOUS WASTE

.1 The following hazardous waste materials have been identified and quantified at the Roberts Bay site:

- .1 PCB containing equipment:
  - .1 3 electrical capacitors labeled as PCB containing.
  - .2 7 transformer ballasts.
- .2 Lead batteries 1 drum (205L) and 3 vehicle batteries.
- .3 Asbestos insulated cabinet (1).
- .4 Asbestos brake pads
- .5 Waste oil – 760 litres
- .6 Liquid remaining in fuel bladder 300 L
- .7 Used oil/fuel filters - 15
- .8 Glycol – 205 L
- .9 Waste gasoline -80L
- .10 Turbo Jet Fuel – Type B (dated 1998), 14 drums -3100L
- .11 Unknown liquids in drums 3065 L
- .12 Mill process chemicals (xanthanate, various acids, calcium, lime, lead shavings, etc.)
  - .1 8 overpacks and 9 drums in all.
  - .2 6 drums of xanthanate
  - .3 Limited quantity of Dowfroth 1012 Floatation Frother
  - .4 1 drum of lime
  - .5 several bags of high calcium process agent
  - .6 6 liters of hydrochloric acid
  - .7 5 liters of nitric acid
- .13 Steel contaminated with lead based paints -12 tonnes.
- .14 Compressed gas cylinder – 11.
- .15 500 m of detonation cord.

.2 The following hazardous waste materials have been identified and quantified at Ida Bay site:

- .1 Asbestos brake pads
- .2 0.5 m^3 of lead acid batteries with contaminated soil.

.3 The following metal impacted soils were identified:

- .1 Roberts Bay: 65 m^3 (40m^3 of which is co-contaminated with hydrocarbons) around mill site.
- .2 Ida Bay: 25 m^3, waste rock at shoreline.

.4 The following hydrocarbon impacted soils were identified:

.1 Roberts Bay: 200 m^3 located around the fuel storage compound, mill/assay building, garage, and muskeg area.

1.2 MEASUREMENT OF PAYMENT

.1 The on site Engineer will conduct confirmatory sampling on site. For sampling of contaminated soil the Contractor is responsible for costs associated with packaging the samples and transporting them to Yellowknife.

.2 Contractor sampling of unknown liquids: sampling and testing of hazardous materials, Provisional Cost Sum item 02 41 00-12 in the basis of payment schedule, "Identification of unknown mill process liquids and unknown chemicals", will be used to cover applicable direct costs plus Contractor mark-up.

.3 Payment for off site disposal of PCB containing equipment will be made at the lump sum price tendered under item 02 41 00 -1 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.4 Payment for off site disposal of lead batteries and vehicle batteries will be made at the lump sum price tendered under item 02 41 00 -2 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.5 Payment for off site disposal of Asbestos insulated cabinet and asbestos brake pad will be made at the lump sum price tendered under item 02 41 00 -3 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.6 Payment for off site disposal of waste oil will be made at the unit price tendered per litre under item 02 41 00 -4 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.7 Payment for off site disposal of liquids remaining in fuel bladder will be made at the unit price tendered per litre under item 02 41 00 -5 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.8 Payment for off site disposal used fuel filters will be made at the unit price tendered per filter under item 02 41 00 -6 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.9 Payment for off site disposal of glycol will be made at the unit price tendered per litre under item 02 41 00 -7 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.10 Payment for off site disposal of waste gasoline will be made at the unit price tendered per litre under item 02 41 00 -8 on the Basis of Payment schedule.

Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.11 Payment for off site disposal of Turbo Jet Fuel will be made at the unit price tendered per litre under item 02 41 00 -9 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.12 Payment for off site disposal of unknown liquids in drums will be made against the provisional sum provided under item 02 41 00 -10 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.13 Payment for off site disposal of known and unknown mill process chemicals will be made against the provisional sum provided item 02 41 00 -11 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport, and dispose of the specified material off site.

.14 Payment for the laboratory identification of unknown mill process chemicals and unknown liquids will be made against the provisional sum provided under item 02 41 00 -12 on the Basis of Payment schedule. Price to include all field sampling, shipping, and laboratory costs necessary to identify unknown materials on site.

.15 Payment for off site disposal of steel contaminated with lead based paints will be made at the lump sum price tendered under item 02 41 00 -13 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to load, transport and dispose of the material at a licensed facility.

.16 Payment for off site disposal of metal impacted soils at Roberts Bay will be made at the unit price tendered per cu.m. under item 02 41 00 -14 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to excavate, containerize, transport and dispose of materials off site.

.17 Payment for off site disposal of metal impacted soils at Ida Bay will be made at the unit price tendered per cu.m. under item 02 41 00 -15 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to excavate, containerize, transport and dispose of materials off site.

.18 Payment off site for disposal of hydrocarbon impacted soils removed from the fuel storage compound at Roberts Bay will be made at the unit price tendered per cu.m. under item 02 41 00 -16 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to excavate, transport and dispose of materials off site.

.19 Payment off site for disposal of the compressed gas cylinders at Roberts Bay will be made at the unit price tendered per cylinder under item 02 41 00 -17 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport and dispose of materials off site.

.20 Payment off site for disposal of the detonation cord at Roberts Bay will be made at the unit price tendered per meter under item 02 41 00 -18 on the Basis of Payment schedule. Price to include all labour, equipment and materials necessary to containerize, transport and dispose of materials off site.

.21 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products (NOT USED)

Part 3 Execution

3.1 PREPARATION

.1 Inspect site with the Engineer and verify extent and location of items designated for removal.

3.2 TEMPORARY STORAGE

.1 Prepare a temporary hazardous material storage area in a location approved by the Engineer.

.1 The temporary compound is to be large enough to house all the hazardous materials on site.

.2 Contractor is responsible for the security and containment of the hazardous waste and hazardous waste compound

.3 The Contractor, upon approval of the Engineer, will remove all hazardous materials in a timely fashion.

3.3 HAZARDOUS ITEMS REMOVAL FROM SITE

.1 Remove temporarily stored hazardous materials, as directed by the Engineer, when it interferes with the Work.

.2 Remove drums or containers of like materials once collection of materials is complete.

.3 Transport materials designated for disposal using approved facilities listed in accordance with applicable regulations.

.1 Provide certificates of destruction/disposal from disposal facility.

3.4 DISPOSAL OF METAL IMPACTED SOILS

.1 At Ida Bay, pull back waste rock that extends into the ocean and is partially covered by seawater at high tide. Remove the material and dispose of in the exploration trench.

.2 Excavate metal impacted soils at Roberts Bay. Material is waste rock fines, and is located in the vicinity of the mill building and other areas where waste rock has been stockpiled.

.3 Containerize all metal impacted soils and ship to a disposal facility licensed to receive this material.

.4 Provide certificates of destruction/disposal from disposal facility.

3.5 DISPOSAL OF HYDROCARBON IMPACTED SOILS

.1 Excavate hydrocarbon impacted soils at Roberts Bay located at the mill/assay building, garage, and muskeg areas.

.2 Excavate hydrocarbon impacted soils at Roberts Bay located at the fuel storage compound.

.3 Containerize hydrocarbon impacted material scheduled for off-site disposal and ship to a facility licensed to receive this material.

.4 Grade soils level on completion of the work at Roberts Bay.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Methods and procedures for demolishing and removing site work items designated to be removed in whole or in part.

1.2 DEFINITIONS

.1 Demolition: rapid destruction of building following removal of hazardous materials.

.2 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos, PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or well being or environment if handled improperly.

.3 Disposal area: The disposal area for non hazardous debris is the tailings pond area as directed by Engineer. It is a roughly circular impoundment measuring approximately 40 m in diameter with a surface elevation of 67.0 m amsi. The surface area of the tailings is about 700 m^2 including the waste rock berm. The tailings are contained in berms that range from .5 to 1.0 m higher in elevation compared to the surface elevation of the tailings and about 3 m at the highest point above the natural grade. The berm has a 2:1 slope. Tailings were dry when inspected in August 2006.

1.3 QUALITY ASSURANCE

.1 Regulatory Requirements: ensure Work is performed in compliance with CEPA, CEAA, TDGA, MVSA and applicable Nunavut regulations.

.2 Health and Safety.

.1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety Plan.

1.4 SITE CONDITIONS

.1 Site Environmental Requirements.

.1 Perform work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Ensure that selective demolition work does not adversely affect adjacent watercourses, groundwater and wildlife, or contribute to excess air and noise pollution.

.3 Do not dispose of waste of volatile materials including but not limited to, mineral spirits, oil, petroleum based lubricants, or toxic cleaning solutions into watercourses.

.1 Ensure proper disposal procedures are maintained throughout the project.

.4 Do not pump water containing suspended materials into watercourses.

.5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with Engineer.

.6 Protect plants on site and adjacent properties where indicated.

.2 Existing Conditions.

.1 Remove contaminated or hazardous materials as directed by Engineer from site, prior to start of demolition Work, and dispose of at designated disposal facilities in safe manner in accordance with TDGA and other applicable regulatory requirements.

1.5 SCOPE OF DEMOLITION AND DISPOSAL ACTIVITIES

.1 Scope of activities at Roberts Bay:

.1 Demolish adit cover building at Adit #1.

.2 Demolish mill building and fresh water pumphouse. Demolish and dispose of metal frames and remains of a shed, wood, concrete, tires, steel, plastic, cables, abandoned equipment.

.3 Demolish coarse ore hopper structure

.4 Demolish assay building.

.5 Demolish reagent storage building.

.6 Cleanup old camp area. (Platforms and remains of several tent-cabin frames, outhouse and shed. Core racks)

.7 Cleanup adit, garage, fuel bladder areas

.8 Cleanup mill, assay lab areas.

.9 Remove fuel bladder.

.2 Scope of activities at Ida Bay

.1 Cleanup all non hazardous wastes (wood, lumber, steel, rubber hoses, tin cans, auto parts)

.2 Remove timbers at entrance to adit

.3 Remove any wood at the vent raise.

.4 Cut and remove any pipes protruding from rocks.

1.6 ESTIMATED VOLUMES

.1 Estimated volumes of demolition debris as reported by Earth Tech are as follows for a Total 354 m^3 comprised of the following:

.1 Wood- 92 m3

.2 Steel/metal-84 m3

.3 Misc. inert products-178 m^3

1.7 SCHEDULING

.1 Employ necessary means to meet project time lines without compromising specified minimum rates of material diversion.

.1 Notify Engineer in writing when unforeseen delays occur.

1.8 MEASUREMENT OF PAYMENT

.1 Payment to demolish remains of structures will be made at the lump sum price tendered under item 02 41 13 -1 on the Basis of Payment form. Price to include all labour, equipment and materials necessary to demolish remains of infrastructure, cut to required sizes, landfill and compact.

.2 Payment to collect all remaining debris on site will be made at the lump sum price tendered under item 02 41 13 -2 on the Basis of Payment form. Price to include all labour equipment and materials necessary to collect debris at the Ida Bay and Roberts Bay sites and consolidate and compact material at the Roberts Bay non hazardous landfill site.

.3 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products

2.1 EQUIPMENT

.1 Leave machinery running only while in use, except where extreme temperatures prohibit shutting machinery down.

Part 3 Execution

3.1 PREPARATION

.1 Inspect site with Engineer and verify extent and location of items designated for removal, disposal, alternative disposal and items to remain.

3.2 REMOVAL OF HAZARDOUS WASTES

.1 Remove contaminated or dangerous materials defined by authorities having jurisdiction, relating to environmental protection, from site and dispose of in safe manner to minimize danger at site or during disposal.

3.3 PREPARATION OF DISPOSAL AREA

.1 Using waste rock obtained from waste stockpiles and from rock filled berms around the fuel bladder, reshape, reconstruct, and regrade the existing berms around the non hazardous landfill (previous tailings pond) to provide a stable long-term slope, Construct berms to a height sufficient to contain the non hazardous landfill (previous tailings pond), and a 1 meter cover of waste rock. The height of the reconstructed berm is expected to average 3.5 meters. Construct berm with a 1 meter top, and 2H: 1V backslopes.

3.4 DEMOLITION

.1 Demolish structures.

.2 At end of each day's work, leave Work in safe and stable condition.

.3 Demolish to minimize dusting. Keep materials wetted as directed by Engineer.

.4 Remove structural framing and concrete.

.5 Separate wood from other debris. Burn wood in a designated area as directed by Engineer and dispose of ashes in the non hazardous landfill.

.6 Contain fibrous materials (e.g. Insulation) to minimize release of airborne fibres while being transported within facility.

.7 Remove and dispose of demolished materials except where noted otherwise and in accordance with authorities having jurisdiction.

.8 Alter the size and shape of materials destined for disposal in the non hazardous landfill as required to facilitate ease of placement and compaction to the satisfaction of the Engineer. The overall goal in this regard is to ensure that waste is placed in as dense an arrangement as possible.

.9 Break or cut up waste materials so that waste pieces are no larger than 1 m by 1 m or as directed by Engineer. Eliminate irregularly-shaped pieces, which would preclude close-packing and compaction at the non hazardous landfill (e.g., cylindrical storage tanks will be cut up so that individual pieces may be ‘nested’ when deposited). To the greatest degree possible, undertake size reduction work at the demolition site rather than at the non hazardous landfill.

.10 Collect all visible debris at both the Roberts Bay and Ida Bay sites and deposit in the non hazardous landfill at Roberts Bay.

.11 Compact debris with the dozer. On completion of the work, compact by a minimum of five (5) passes of the dozer.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Requirements rough grade all disturbed areas following excavation, and any other areas disturbed while undertaking the Work.

.2 This section covers the requirements for the Contractor to seal vent raises and adits at Ida Bay and Roberts Bay. Dimensions of openings as follows:

Table 1. Mine Openings

Location	Approximate Opening Size (m)
Roberts Bay Adit #1	1 – 2 m height x 6.5 – 7 m wide x 10 m deep opening.
Roberts Bay Vent	Concrete cap 2.65 m x 2.5 m, 0.3 m thick
Roberts Bay Adit #2	2.5 m height x 4 m wide x 5 m deep
Ida Bay Adit	1.4 – 3.5 m height x 5.5 m wide x 10 m deep
Ida Bay Vent shaft	Overall opening of the area 3m x 2.3m Opening of shaft 2.3m x1.65m Water depth inside appears to be 1.25m

.3 Retain the services of a Level 2 Mine Supervisor, as required under the NWT Mine Safety Act.

1.2 DESCRIPTION OF MINE OPENINGS

.1 Adit #1 at the Roberts Bay mine site is located northeast of the tailings pond. Adit#1 is covered with a wooden framework and plywood against which some waste rock is emplaced. Standing water at the entrance to the adit indicates the mine workings are flooded. A chain link fence surrounds the adit to provide some protection against access.

.2 Adit #2 at Roberts Bay is located east of Adit #1 on the side of the eastern basaltic ridge. The walls of Adit #2 appear to be partially collapsed and a chain link fence only partially surrounds it. Caving and fractures are evident implying the structural integrity of the opening is not sound. Ice is visible at the bottom of the adit.

.3 A vent raise, sealed with concrete, is located north of the opening of Adit #2. There is no evidence of subsidence around the vent raise.

.4 The adit at Ida Bay is a prominent feature. It is fully open with no physical barrier to prevent access, or warning signs. The adit is located approximately 15 m from the ocean

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shoreline and at the time of the 2005, inspection was fully flooded with fresh water. The timbers bracing the back of the adit entrance appear deteriorated and their structural integrity is uncertain.

.5 The vent raise at Ida Bay is located west of the adit. It is covered with loose plywood, which has begun to deteriorate. Below the plywood, the vent raise is filled with water.

1.3 REFERENCES

.1 Nunavut Mine Health & Safety Act

1.4 MEASUREMENT OF PAYMENT

.1 Payment for removing timbers, fences, and debris is covered under Section 02 41 13 Selective Demolition.

.2 Payment for collapsing adits and vent raise by drilling and blasting at Roberts Bay and Ida Bay will be made at the lump sum price tendered under item 03 05 11-1 on the Basis of Payment form. Payment is for collapsing three (3) adits.

.3 Payment for filling depressions following drilling and blasting, and filling the vent raise at Ida Bay is covered under Section 31 23 10 Excavating, Trenching and backfilling.

.4 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products

2.1 BLASTING AGENTS

.1 Blasting contractor to select blasting agent required for this contract.

Part 3 Execution

3.1 PROTECTION

.1 Prevent damage to surroundings and injury to persons. Post guards, sound warnings, and display signs when blasting is to take place.

3.2 BLASTING SUPERVISOR

.1 Retain a blasting supervisor responsible for blasting methods and procedures, who will direct the activities of all blasting operations.

.2 Blaster must have a valid blaster’s certificate.

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3.3 BLASTING SAFETY

.1 Assume full responsibility for safety in addition to any special provisions for safety included in these specifications; conform to all applicable laws and regulations.

.2 Use a standard blasting warning signal in connection with all blasting that conforms to all applicable laws and regulations.

.3 Use detonators with protected bridging or other acceptable precautions in all blasting operations done by electric firing.

.4 Assign responsibility for the proper care of detonators and explosives to responsible employees and do not leave these materials unguarded unless secured in approved explosive magazines. Advise local authorities and police of arrangements for storing and handling of explosives.

.5 When carrying out blasting operations take all proper precautions for the protection of persons and property, including use of blasting mats, screens, fences or barriers for protection against fly rock during blasting. Contractor shall be responsible for any mishap or damage resulting from the blasting operation.

3.4 SEAL MINE OPENINGS AT ROBERTS BAY

.1 Clear away fence, debris, and timbers at the entrance to the adits.

.2 Drill and blast the top of the adits to drop the tops of the adits.

.3 Cover the remaining depressions with waste rock.

.4 Cover the concrete cap at the vent raise with a minimum 500mm of waste rock, and blend in with the surrounding area.

3.5 SEAL MINE OPENINGS AT IDA BAY.

.1 Remove timbers at entrance to adit.

.2 Drill and blast the top of the adit to drop the top of the adit.

.3 Cover the remaining depressions with waste rock.

.4 Remove wood cover from vent shaft.

.5 Fill the vent shaft with waste rock.

END OF SECTION

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Part 1 General

1.1 SECTION INCLUDES

.1 This section includes the requirements for excavating, trench backfilling and backfilling depressions as follows but not limited to:

.1 Fill trench at Ida Bay. Trench is located in the basaltic ridge west of the adit. The trench is about 1.2 metres wide, 8 to 10 metres long and 1.0 metres deep.

.2 Cover adits (two at Roberts Bay and one at Ida Bay) following collapse of roofs.

.3 Fill vent raise at Ida Bay.

.4 Remove surface debris from waste dump area prior to placing cover.

.5 Segregate hazardous and non hazardous materials.

.6 Removed non hazardous debris to be relocated to the non hazardous waste landfill facility.

.7 Cover remains of former camp waste dump containing domestic waste. Estimated area of existing dump is 310 $m^{2.}$

.8 Borrow area reclamation.

1.2 QUALITY ASSURANCE

.1 Health and Safety Requirements:

.1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety Plan.

1.3 MEASUREMENT OF PAYMENT

.1 Payment for excavating and backfilling at Roberts Bay will be made at the unit price per cu.m; tendered under item 31 23 10 -1 on the Basis of Payment form. Quantity of material excavated will be measured by truck box measurement where applicable. Engineer and contractor to determine most effective method of measurement for other methods of measurement. Price to include all labour, equipment, and materials necessary to excavate waste rock and place at the locations indicated.

.2 Payment for excavating and backfilling at Ida Bay will be made at the unit price per cu.m; tendered under item 31 23 10 -2 on the Basis of Payment form. Quantity of material excavated will be measured by truck box measurement where applicable. Engineer and contractor to determine most effective method of measurement for other methods of measurement. Price to include all labour, equipment, and materials necessary to excavate waste rock and place at the locations indicated.

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.3 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products

2.1 MATERIALS

.1 Type 1 Granular Fill: Waste rock, obtained from the Robert's Bay and Ida Bay stockpiles.

.2 Type 2 Granular Fill: Sand / Sand and Gravel, obtained from the Robert's Bay borrow areas.

Part 3 Execution

3.1 SITE PREPARATION

.1 Remove obstructions, ice, and snow, from surfaces to be excavated within limits indicated.

3.2 BACKFILLING

.1 Do not proceed with backfilling operations until Engineer has inspected and approved installations.

.2 Areas to be backfilled to be free from debris, snow, ice, water, and frozen ground.

.3 Do not use backfill material which is frozen or contains ice, snow, or debris, with the exception of waste rock that may be used to meet the requirements of this specification at Ida Bay.

.4 Backfill trench at Ida Bay using Type 1 Granular Fill (waste rock).

.5 Backfill trench in one lift. Compact to 95% of maximum dry density

.6 Backfill depressions over collapsed adits and vent raise. Backfill in layers not exceeding (1) metre. Place final lift to a thickness of 500 mm. Compact to 95% of maximum dry density.

.7 Thickness of cover over the adits and vent raise will be determined by surrounding topography. Fill to a height of 1 m above surrounding ground.

.8 Regrade existing camp dump at Roberts Bay to a minimum slope of 20:1 and to blend into the surrounding topography.

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.9 Place Type 1 Granular Fill (waste rock) cover over the regraded existing camp waste landill at Roberts Bay to a minimum thickness of 1 metre. Place and compact in 300 mm maximum lift thicknesses.

.10 Type 1 and Type 2 Granular Fill to be compacted to a minimum of 95% of maximum dry density in accordance with ASTM 698 or as determined from a control strip density. The method for determining the maximum dry density will be established by the Engineer. Provide all equipment and resources necessary to carry out a control density test upon request.

.11 Place a 0.5 metre thickness of waste rock cover over the concrete cap at Roberts Bay.

.12 Control Strip Density:

.1 A control strip is a lift of granular material placed over a minimum of 300 m^2 area that requires regrading.

.2 To determine the Control Strip Density, moisture and density readings is to be taken by the Engineer during the compaction process until a maximum dry density is attained.

.3 The density and moisture content of the Control Strip is to be measured by the Engineer after each pass of the compaction equipment to determine the type of equipment and number of passes required to obtain the specified density.

.4 A new Control Strip will be required if, as established by the Engineer, the materials type, moisture content, or subgrade of the area to be regraded is significantly different that that of the Control Strip.

.5 Proof-roll areas compacted in accordance with the Control Strip Density upon completion of grading and compaction or as requested by the Engineer.

.6 Use a fully loaded tandem axle gravel truck for the proof-rolling operation. The speed of the vehicle is not to exceed 4 km per hour during proof-rolling. The Engineer may authorize the use of alternate proof-rolling equipment.

.7 Make sufficient passes with the proof-rolling equipment to subject every point on the surface to three separate passes of a loaded tire.

.8 Where proof-rolling reveals areas of defective granular fill, remove and recompact the granular fill, and modify the compaction process, as required.

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.9 The Contol Strip Density method for compaction is not intended to relax the specified compaction requirements, but to reduce compaction testing requirements.

3.3 BORROW AREA RECLAMATION

.1 Leave borrow areas in a tidy, well drained condition, free of standing surface water to satisfaction of the Engineer.

.2 Regrade borrow areas as directed by the Engineer.

END OF SECTION

□

Part 1 General

1.1 SECTION INCLUDES

.1 Methods and procedures for the preparation, filling, and closure of a dedicated, on-site landfill for the disposal of non hazardous waste (including ash, scrap metal and other non hazardous material) and soil from the remediation of Roberts Bay and Ida Bay.

.2 Work under this section includes but is not limited to the following:

- .1 Stabilization of the existing Tailings Pond berms.
- .2 Consolidate tailings spilled over existing berm area, estimated quantity of 10 m^3.
- .3 Consolidate tailings spilled over existing berm area, estimated quantity of 10 m^3.
- .4 Installation of woven geotextile over existing tailings.
- .5 Placement of 500 mm thick protective cover of granular material over woven geotextile.
- .6 Construction of perimeter containment berm.
- .7 Spreading and compaction of non hazardous waste and soil within the Tailings Pond landfill.
- .8 Placement of Intermediate cover material over waste layers.
- .9 Placement of final cover material.

.3 Details and design of landfill are provided on the design drawings.

- .1 Estimated quantity of Type 1 (Waste Rock) - 1300 m3 (in place)
- .2 Estimated quantity of Type 2 (Sand and Gravel) - 1700 m3 (in place)
- .3 Estimated quantity of Intermediate Cover (Type 2) 250m3 (in place)

1.2 DEFINITIONS

.1 Non hazardous Waste: Waste materials derived from the decommissioning of the respective mine sites and which are destined for disposal in the dedicated, on-site landfill.

.2 Hazardous Materials: Dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos, PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, or other material that can endanger human health or well being or environment if handled improperly.

.3 Granular Fill: Site derived waste rock, sand or sand and gravel materials used in the various elements of the landfill construction.

.4 Woven Geotextile: Synthetic material used to provide stabilization of the tailings during the construction of the tailings pond landfill.

.5 Type 1 Granular Fill: Waste rock, obtained from the Robert's Bay and Ida Bay stockpiles.

.6 Type 2 Granular Fill: Sand / Sand and Gravel with a maximum particle size of 250mm, obtained from the Robert's Bay borrow areas.

.7 Berm: Granular fill berm type as indicated on the Drawings, placed above the original ground up to the design elevation.

.8 Intermediate Cover: Type 2 Granular Fill, as designated by the Engineer, used to cover each waste layer and fill void spaces within the landfilled waste.

.9 Surficial Boulders: Visible rocks with a nominal diameter of 300 mm or greater.

.10 Waste Material: Excavated material unsuitable for use in work or surplus to requirements.

.11 Borrow Material: Material obtained from approved areas and required for regrading requirements.

.12 Maximum Dry Density is determined in accordance with ASTM D698. It is applicable if less than 30% of the material is retained on the ASTM 19 mm sieve.

.13 Corrected maximum dry density is applicable if more than 30% of the material is retained on the ASTM 19 mm sieve. It is defined as:

.1 $$D = \frac{D1 \times D2}{(F1)(D2) + (F2)(D1)}$$

.2 Where:

D = Corrected maximum dry density kg/m³

F1 = Fraction (decimal) of total field sample passing ASTM 19.0 mm sieve

F2 = Fraction (decimal) of total field sample retained on ASTM 19.0 mm sieve (equal to 1.00 - F1)

D1 = Maximum dry density, kg/m³ of material passing ASTM 19.0 mm sieve determined in accordance with Method C of ASTM D698 or latest edition thereof.

D2 = Bulk density, kg/m³ of material retained on ASTM 19.0 mm sieve, equal to 1000 G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127-84, or latest edition thereof.

1.3 QUALITY ASSURANCE

.1 Regulatory Requirements: Ensure work is performed in compliance with CEPA, CEAA, TDGA, MVSA and applicable Nunavut regulations.

.2 Health and Safety.

.1 Do construction occupational health and safety in accordance with Section 01 35 32 – Site Specific Health and Safety Plan.

1.4 SITE CONDITIONS

.1 Site Environmental Requirements.

.1 Perform work in accordance with Section 01 35 43 - Environmental Procedures.

.2 Suspend operations whenever climatic conditions are unsatisfactory for work to conform with this Specification.

.3 Do not operate equipment in work areas until the material has dried sufficiently to prevent excessive rutting.

.4 Contractor is advised that soft ground conditions may be prevalent at the site during periods of maximum thaw of the permafrost. Schedule and carry out work to minimize disturbance to permafrost soils.

.5 Heavy construction equipment can only travel on the road between the Ida Bay mine site and the Roberts Bay Mine site during the winter months.

1.5 SUBMITTALS

.1 All submittals will be in accordance with Sections 01 33 00 - Submittal Procedures and 01 78 00 - Closeout Submittals as well as with these specifications.

.2 Landfill Construction Plan-submittals to include:

.1 Topographic survey.

.2 Written landfill construction plan including:

.1 The haulage route proposed for movement of waste from the demolition or excavation sites to the landfill.

.2 The equipment to be used to haul, place, grade, and compact the waste.

.3 Provide total station topographic survey results in NAD83 coordinates, and landfill volume calculation to the Engineer following completion of waste placement and construction of interim soil cover.

.3 Final As-built topographic survey as per Section 01 71 01 – Survey Requirements

1.6 MEASUREMENT OF PAYMENT

.1 Preparation of the landfill area, landfilling of non hazardous waste and if necessary contaminated soils, and placement of the final cover system will be paid on a lump sum basis, under Item 31 23 11-1 on the Basis of Payment form.

.2 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 – Project Management and Construction Schedule.

Part 2 Products

2.1 MATERIALS

2.2 WASTE ROCK (TYPE 1 GRANULAR FILL)

.1 Obtained from Roberts Bay and Ida Bay waste rock stockpiles. Waste Rock will be unfrozen, and free from deleterious materials.

2.3 SAND / SAND AND GRAVEL (TYPE 2 GRANULAR FILL)

.1 Granular Fill material obtained from on-site borrow areas.

.2 Granular Fill materials require the approval of the Engineer.

.3 Granular Fill material is to be pit-run or screened stone, gravel or sand consisting of hard durable particles free from clay lumps, cementation, organic material, snow, ice and other deleterious materials.

2.4 GEOSYNTHETIC MATERIALS

.1 Geotextile material in accordance with Section 31 23 12 - Geotextiles.

Part 3 Execution

3.1 SITE PREPARATION

.1 Tailings material from spills outside the tailings pond containment area are to be excavated and placed into the Tailings Pond prior to start of landfill construction.

.2 Unless specifically indicated on the Drawings, do not remove existing topsoil or organic materials from embankment construction areas. Remove exposed surface boulders over 300 mm in diameter that are located in areas to receive Type 2 Granular Fill. Dispose of boulders by placing on embankment side slopes.

.3 Borrow Excavation:

.1 Obtain from potential borrow areas located within the Site Boundaries as shown on Drawings, or provide from own sources, all required fill material.

.2 Advise Engineer of selected borrow areas seven (7) days in advance of excavation operations.

.3 Notify Engineer whenever unsuitable materials are encountered in borrow areas.

.4 Borrow material cannot be obtained from existing granular pads beneath facilities to be demolished, unless authorized in writing by the Engineer.

.5 Stripping, stockpiling and replacement or placement to a new location of organic material and stripping and disposal of waste material found when excavating existing granular fills to be as directed by the Engineer.

.6 Final grading of borrow area upon completion to be tidy, in a well drained condition, free of standing water to the satisfaction of the Engineer.

.7 Upon completion of final grading, leave all slopes in a stable condition and spread all stripped organics.

.8 Transport aggregate from borrow areas to the work areas via existing access routes where available. Maintain and provide for dust control on the access route between the borrow area and the work areas.

3.2 GRANULAR FILL PLACEMENT – GENERAL

.1 Set grades and lay out work in detail from control points in areas of granular fill placement. Advise Engineer sufficiently in advance of granular fill placement operations to enable original ground cross-sections to be surveyed and verified.

.2 Haul granular fill material from borrow sites to designated areas.

.3 Place granular fill material to the lines, grades, elevations and dimensions indicated on the Drawings, or agreed to with the Engineer.

.4 Do not place granular fill on snow or surface ice.

.5 Maintain natural drainage patterns, unless otherwise directed, and fill depressions to avoid any ponding of water adjacent to embankments.

.6 All fill material is to be placed in an unfrozen state. Fill material to be free from debris, snow and ice. Do not place granular fill if the outside air temperature is below 0°C, unless otherwise directed by the Engineer.

.7 Maintain a crowned surface during construction to ensure ready runoff of surface water. Do not place material in free standing water. Drain low areas, before placing

material. Follow all requirements specified in the Water Use License and Land Use Permit.

.8 Do not dump waste or intermediate fill material over the side slopes of berms.

.9 Place and compact fill material in horizontal lifts.

.10 Cease construction at any sign of movement or bulging in the embankments to allow assessment by the Engineer.

.11 For fill depths greater than 500 mm, place granular material in lifts not exceeding 250 mm in loose thickness. For fill depths greater than 200 mm and less than 500 mm, place material in two lifts of equal depth. For fill depths less than 200 mm, place material in one lift. Place intermediate fill as described in Clause 3.7 of this Section.

.12 Moisture condition granular fill as required to meet compaction requirements. If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.

.13 If granular fill has dried out prematurely due to weather conditions, scarify surface, adjust moisture condition and recompact at the Engineer's discretion. No extra payment will be made for extra costs incurred as a result of any extra work.

.14 Compaction equipment must be capable of obtaining required densities uniformly in materials on project. Hand equipment must be available for compaction in areas where large equipment can not access and around instrumentation.

.15 Apply water as necessary during compaction to obtain specified density. If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is corrected.

.16 Shape finished surface to required cross-section and grade, or as directed by the Engineer.

.17 Type 1 and Type 2 Granular Fill to be compacted to a minimum of 95% of maximum dry density in accordance with ASTM 698 or as determined from a control strip density. The method for determining the maximum dry density will be established by the Engineer. Provide all equipment and resources necessary to carry out a control density test upon request.

3.3 TAILINGS POND LANDFILL – BERM STABILIZATION

.1 The existing Tailings Pond perimeter berms are to be stabilized prior to commencing with landfilling operations. Type 1 Granular Fill material is to be placed on the outer slopes of the existing perimeter berms in accordance with the following specifications and the requirements of Clause 3.2 of this Section, and as shown on the Drawings.

.2 Supply place, blade and trim Waste Rock (Type 1 Granular Fill material) to elevation, grades, and cross-section dimensions indicated or directed by the Engineer.

.3 Supply and install witness grade stakes in areas to be reconstructed to monitor the depth of granular fill material. The grade stakes are to be placed on a grid spacing approved by the Engineer for each specific regrading area. Immediately replace all grade stakes that are damaged or displaced by Contractor operations.

.4 Compact Waste Rock (Type 1 Granular Fill material) to obtain specified density.

.5 Place specified backfill material in uniform horizontal layers in depths as indicated in Clause 3.2 of this Section up to lines and grades indicated. Compact each layer before placing succeeding layer.

.7 Dry out material or apply water as necessary during compaction to obtain specified density.

3.4 PREPARATION FOR GEOSYNTHETICS INSTALLATION

.1 Any standing water contained within the tailings pond area is to be removed prior to the initial site survey and geosynthetic material installation. Water to be removed in accordance with the requirements of Section 01 35 43 - Environmental Procedures and as approved by the Engineer.

.3 Geosynthetic Materials

.1 Smooth the tailings surface prior to the installation of the geotextile material.

.2 Notify Engineer when the tailings surface preparations are complete. Engineer’s approval required prior to installation of the geosynthetic material.

.3 Install geosynthetic material as indicated on the Drawings and in accordance with Section 31 23 12 - Geotextiles.

.4 Notify Engineer when geosynthetic material installation is complete. Engineer’s approval required prior to placement of granular fill over the geosynthetic material.

.5 Place Type 1 or Type 2 Granular Fill material over the geotextile as indicated on the Drawings.

.6 The first lift of granular fill immediately over the geotextile is to be a minimum of 300 mm in thickness. A greater lift thickness to be used if excessive rutting occurs. Carry out granular fill placement using low ground pressure equipment capable of placing / spreading the granular fill without disturbing the underlying geotextile.

.7 Notify Engineer when the installation of the full lift of granular material has been completed. Engineer's approval required prior to completion of the perimeter containment berm.

3.5 PERIMETER CONTAINMENT BERM

.1 Supply, place, blade and trim Type 2 Granular Fill material to the elevation, grades, and cross-section dimensions indicated on the drawings or as directed by the Engineer.

.2 Existing berm inner slopes are to be free of debris, snow, ice and water prior to the placement of additional granular materials.

.3 Supply and install witness grade stakes in areas to be reconstructed to monitor the depth of granular fill material. The grade stakes are to be placed on a grid spacing approved by the Engineer for each specific regrading area. Immediately replace all grade stakes that are damaged or displaced by Contractor operations.

.4 Type 2 Granular Fill to be compacted to a minimum of 95% of maximum dry density in accordance with ASTM 698 or as determined from a control strip density. The method for determining the maximum dry density will be established by the Engineer. Provide all equipment and resources necessary to carry out a control density test upon request.

.5 Place specified backfill material in uniform horizontal layers in depths as indicated in Clause 3.2 of this Section up to lines and grades indicated. Compact each layer before placing succeeding layer.

.6 Dry out material or apply water as necessary during compaction to obtain specified density.

3.6 DISPOSAL OF NON HAZARDOUS WASTE MATERIALS

.1 Place non hazardous material from the designated area(s) in uniform, horizontal lifts between and against the perimeter containment berm as shown on the Drawings. The thickness of each waste lift is to be such that voids within the waste can be filled with intermediate cover. The maximum thickness of each waste lift is to not exceed 500 mm.

.2 Compact waste during placement with a compactor or approved alternative during placing and spreading of the waste material. The equipment must be capable of crushing demolition debris.

.3 For placement in landfill, cut all demolition material and debris as required:

.1 To minimize displacement and lifting of landfilled materials.

.2 So that the maximum depth of any one material component within the landfill does not exceed 0.5 metres.

.3 To satisfy the overall landfill dimension requirements as indicated on the Drawings.

.4 Cut structural steel materials into separate members prior to placement in landfills. Place large materials including structural steel members, timbers, communication dishes, etc. on the base of the landfill or on the base of an intermediate cover layer so that the materials lay on a compacted, flat surface. Cut hollow components or objects, such as tanks, as required, to allow for nesting of materials. As a minimum, hollow components are to be cut in half parallel to the lengthwise axis, and are not to exceed 0.5 metres in height when placed in the landfill. Within the landfill, support the underside of nested materials with intermediate cover or other debris material to minimize displacement and lifting of materials.

.6 Segregate all metal demolition material and debris from other material when placed in the landfill. The proposed location of the metal waste area within the landfill is to be reviewed by the Engineer. Record the specific location and depth of this material on the project Record Drawings.

.7 Crush, cut or shred barrels to be landfilled on site to reduce the total original barrel volume by a minimum of 75 percent.

3.7 PLACEMENT OF INTERMEDIATE COVER

.1 Place 150 mm lift of intermediate cover material over each 500 mm thick lift of waste material. Two (2) lifts of waste expected for this project.

.2 Type 2 Granular Fill to be used as the intermediate cover material.

.3 Spread and compact the granular fill material in order to fill in any voids remaining in the compacted waste material.

.4 Place sufficient granular fill to provide a minimum of 150 mm of cover over the waste at all locations.

.5 Final lift of intermediate cover to be levelled and compacted prior to placement of subsequent granular material layers.

3.8 PLACEMENT OF GRANULAR FILL COVER

.1 Supply, place, blade and trim Type 2 Granular Fill cover material to the elevation, grades, and cross-section dimensions indicated on the drawings or as directed by the Engineer.

.2 Supply and install witness grade stakes in areas to be reconstructed to monitor the depth of granular fill material. The grade stakes are to be placed on a grid spacing approved by the Engineer for each specific regrading area. Immediately replace all grade stakes that are damaged or displaced by Contractor operations.

.3 Type 2 Granular Fill to be compacted to a minimum of 95% of maximum dry density in accordance with ASTM 698 or as determined from a control strip density. The method for determining the maximum dry density will be established by the Engineer. The contractor is to provide all equipment and resources necessary to carry out a control density test upon request.

.4 Place specified backfill material in uniform horizontal layers in depths as indicated in Clause 3.2 of this Section up to lines and grades indicated. Compact each layer before placing succeeding layer.

.5 Dry out material or apply water as necessary during compaction to obtain specified density.

3.9 PLACEMENT OF WASTE ROCK COVER

.1 Supply, place, blade and trim Type 1 Granular Fill cover material to the elevation, grades, and cross-section dimensions indicated on the drawings or as directed by the Engineer.

.2 Supply and install witness grade stakes in areas to be reconstructed to monitor the depth of granular fill material. The grade stakes are to be placed on a grid spacing approved by the Engineer for each specific regrading area. Immediately replace all grade stakes that are damaged or displaced by Contractor operations.

.3 Compact Type 1 Granular Fill material to obtain specified density.

.4 Place specified backfill material in uniform horizontal layers in depths as indicated in Clause 3.2 of this Section up to lines and grades indicated. Compact each layer before placing succeeding layer.

.5 Dry out material or apply water as necessary during compaction to obtain specified density.

.6 Complete the placement of the waste rock on the outer berm slope to the lines and grades indicated on the design drawings and in accordance with the requirements of the specifications.

3.10 AS-BUILT SURVEY

.6 Complete as-built survey in accordance with the requirements of Section 01 71 01 – Survey Requirements.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

.1 This section specifies the requirements for the supply and installation of Woven Geotextiles over the surface of the tailings pond area prior to waste placement, area, in order to provide stabilization and improve material compaction.

1.2 REFERENCES

.1 Canadian General Standards Board (CAN/CGSB)

.1 CAN/CGSB-4.2-M88, Textile Test Methods.

.2 CAN/CGSB-148.1-M85, Methods of Testing Geotextiles and Geomembranes.

.2 American Society for Testing and Materials International (ASTM)

.1 ASTM D4751-87, Standard Test Method for Determining the Apparent Opening Size of a Geotextile.

.2 ASTM D4632 - Elongation at Failure.

.3 ASTM D3786 - Mullen Burst Strength.

.4 ASTM D4533 - Trapezoid Tear Strength.

.5 ASTM D3787 - Puncture Strength.

.3 Canadian Standards Association (CSA)

.1 CAN/CSA-G40.21-M87, Structural Quality Steels

.2 CSA G164-M1981, Hot Dip Galvanizing of Irregularly Shaped Articles

1.3 MANUFACTURER'S CERTIFICATION AND WARRANTY

.1 Provide to the Engineer, prior to shipment of the material to site, a signed manufacturer's certification that the material to be shipped to the site has test values for each property listed in Table 31 23 12 -1 (at the end of this section) that meet or exceed the property values specified for that material.

.2 These certificates are to be signed by the Manufacturer's Product Manager or Quality Control Manager.

.3 Provide a written warranty from the geotextile manufacturer against defects or deficiencies in the quality of the geotextile material supplied.

1.4 MEASUREMENT FOR PAYMENT

.1 Payment for supply, transport to the site, on-site storage and installation of Woven Geotextile will be made at the unit price tendered per square meters under item 31 23 12 - 1 on the Basis of Payment schedule. Price to include all labour, materials, securing pins, washers, tools, supervision, and on-site transport. No extra payment

will be made for material overlap requirements or for patches over damaged material. The area indicated in Item 31 23 12 – 1 excludes any allowance for waste or material overlap requirements.

.2 Any excavating and backfilling necessary to install and anchor the geotextile will be measured for payment as indicated in Section 31 23 11 – Tailings Pond Non Hazardous Landfill.

.3 Unused geotextile remains the property of the Engineer until completion of the project. Transport and dispose of unused geotextile off-site upon completion of the project.

.4 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 – Project Management and Construction Schedule.

Part 2 Products

2.1 MATERIALS

.1 Woven Geotextile: High strength for stabilization and soil reinforcement. A woven fabric consisting of weaving of high-tenacity polypropylene yarns. The fabric is to be inert to commonly encountered chemicals, hydrocarbons, and mildew and rot resistant, resistant to ultraviolet light exposure, insect and rodent resistant, and conform to the following minimum requirements:

Table 31 23 12 -1

Tested Property	Test Method	Minimum Average Roll Value[1]	
		MD	CD
Grab Tensile Strength	ASTM D-4632	2.12 kN (475 lbs)	1.95kN (440 lbs)
Grab Tensile Elongation	ASTM D-4632	12%	6%
Trapezoidal Tear Strength	ASTM D-4533	0.8 kN (180 lbs)	0.8 kN (180 lbs)
Puncture Strength	ASTM D-4833	0.87 kN (195 lbs)	0.87 kN (195 lbs)
Mullen Burst	ASTM D-3786	1200 kPa (8259 psi)	1200 kPa (8259 psi)

Notes:

[1] The minimum average roll value, or MARV, is defined as the mean value minus two times the standard deviation. A MARV value yields a 97.7% degree of confidence that any samples taken from quality assurance testing will exceed the value reported.

[2] Maximum average roll value.

.2 Seams: Overlapped in accordance with manufacturer's recommendations.

.3 Securing pins and washers to CAN3-G40.21, Grade 300W, hot-dipped galvanized with minimum zinc coating of 600 g/m2 to CSA G164.

.4 Type 2 Granular Fill as per Section 31 23 11 - Tailings Pond Landfill.

2.2 SHIPPING, HANDLING AND STORAGE

.1 Provide the Woven Geotextile in rolls wrapped with protective covering to protect the fabric from mud, dirt, dust, and debris. The fabric is to be free of defects or flaws which significantly affect its physical properties. Label each roll of fabric in the shipment with a number or symbol to identify that production run.

.2 During delivery and storage, protect Woven Geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris, rodents and water.

Part 3 Execution

3.1 QUALITY ASSURANCE

.1 All materials, procedures, operations, and methods are to be in strict conformance with the Drawings and Specifications and is to be subjected to strict quality assurance monitoring as detailed herein. The installed systems is to conform to the Drawings and Specifications, except as otherwise authorized in writing by the Engineer.

3.2 UNDERLYING SURFACE PREPARATION

.1 Ensure that the surface underlying the Woven Geotextile is graded smooth and is free from angular rocks, debris and protrusions. Remove all particles greater than 75 mm in diameter.

3.3 DEPLOYMENT

.1 Do not begin installation of the Woven Geotextile until the base has been approved by the Engineer.

.2 Deploy the Woven Geotextile by unrolling onto the prepared surface in orientation, manner and locations indicated. Woven Geotextile can be retained in position with securing pins.

.3 Place Woven Geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.4 Place Woven Geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of Geotextile.

.5 Overlap each successive strip of Woven Geotextile a minimum of 600 mm over previously laid strip. Securing pins are to be used when necessary to ensure proper anchoring of the engineering fabric, with securing pins at 1.5 to 3.0 metre centres.

.6 Heat track or glue Woven Geotextile overlaps prior to backfilling of granular materials and/or placement of waste to prevent lifting or separation of overlap.

.7 Protect installed Woven Geotextile material from displacement and damage until, during and after placement of waste and/or granular materials

.8 Repair rips or tears with a patch to cover a minimum of 1 metre on each side of the rip or tear.

3.4 ANCHORAGE

.1 Anchor the Woven Geotextile at the perimeter of the tailings pond landfill as indicated on the Drawings. Temporary anchorage can be provided by sandbags.

.2 Secure the geotextile by placing uniform lifts of granular material as shown on the Drawings, not exceeding 200 mm loose thickness, and compact to 95 percent of Maximum Dry Density in accordance with ASTM D698. Compact backfill in such a manner as to not damage the geotextile.

3.5 PROTECTION

.1 Do not permit passage of any vehicle directly on geotextile at any time.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Requirements rough grade all disturbed areas following excavation, and any other areas disturbed while undertaking the Work.

1.2 MEASUREMENT OF PAYMENT

.1 Payment for rough grading will be made at the unit price per cu.m; tendered under Item 31 23 13 -1 on the Basis of Payment Schedule. Price to include all labour, equipment and materials necessary to rough grade waste rock stockpiles following excavation and other areas disturbed while undertaking the work.

.2 Except as otherwise indicated herein, work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Payment Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 19 - Project Management and Construction Schedule.

Part 2 Products

2.1 MATERIALS

.1 Use waste rock as fill for grading work.

Part 3 Execution

3.1 GRADING

.1 Inspect site with Engineer and confirm areas to be rough graded.

.2 Rough grade covers placed over imploded vents and adits.

.3 Rough grade cover material placed at the non hazardous landfill.

.4 Rough grade cover material placed on existing dump. Regrading Type 1 (Waste Rock) - approx 600 m3.

.5 Rough grade all areas disturbed at Roberts Bay.

END OF SECTION

□

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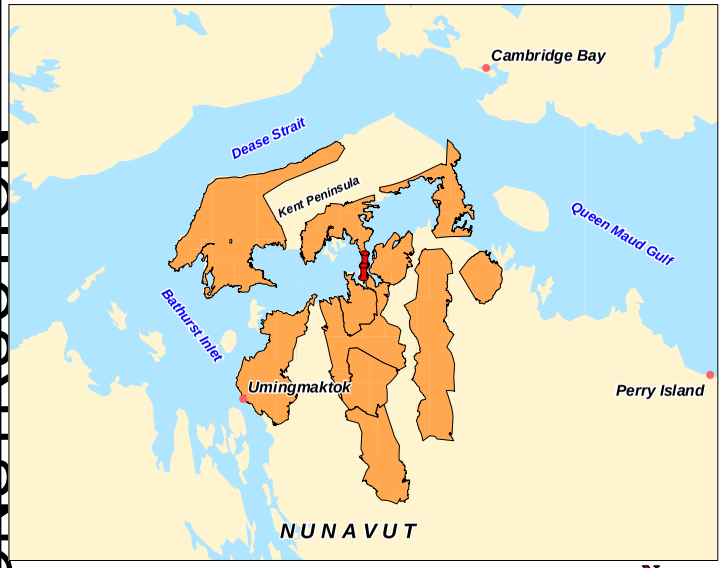


Sketch Plan showing Location of:

Roberts Bay & Ida Bay

Given Coordinates:

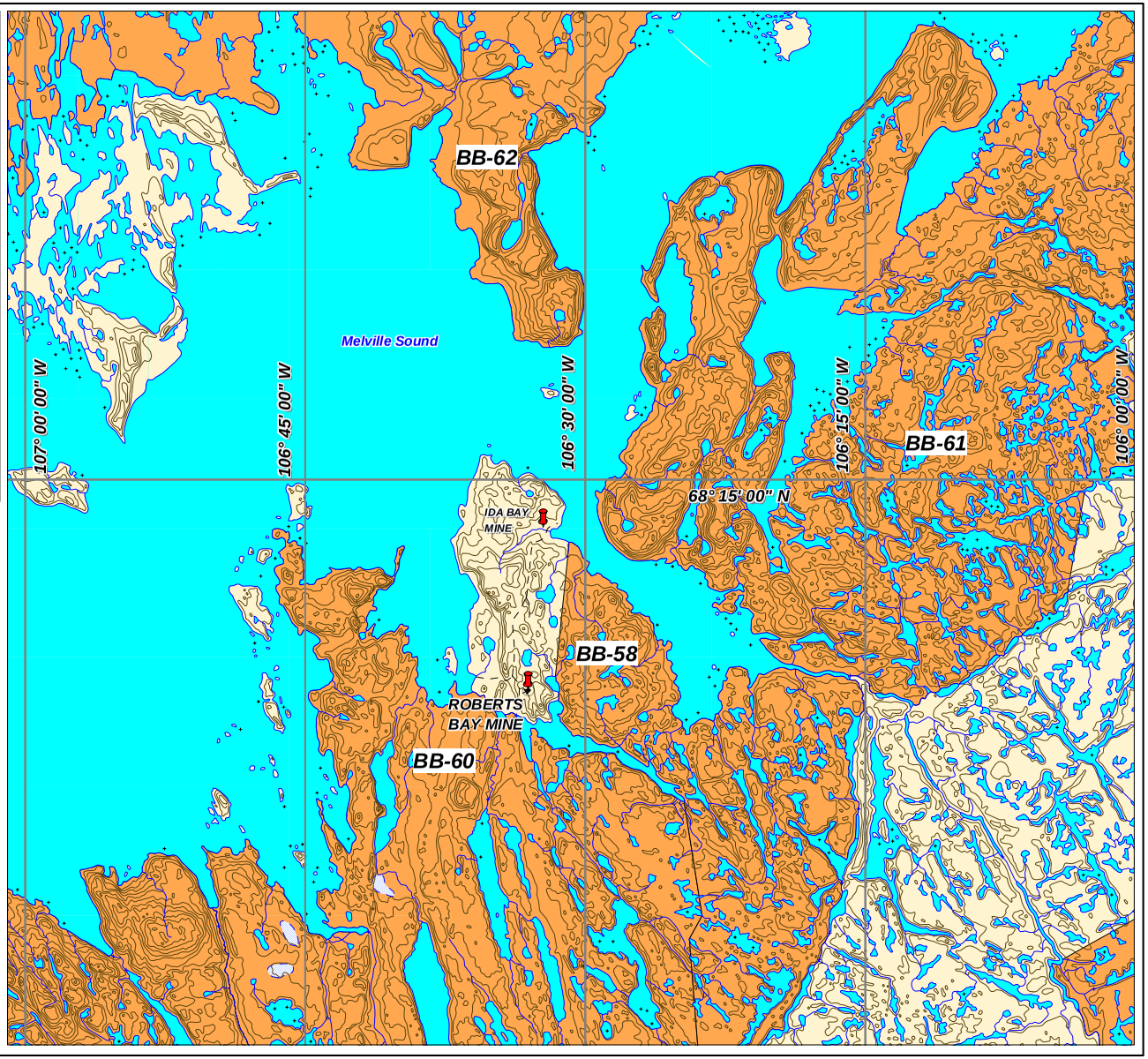
68° 10' 45" N
106° 33' 29" W

Inuit Owned Lands shown thus.....

These parcels are administered by the Kitikmeot Inuit Association

This symbol shows location of coords.

Grid is Lat/Long NAD83.
NTDB data Mapsheet No. 077A (1:250,000)



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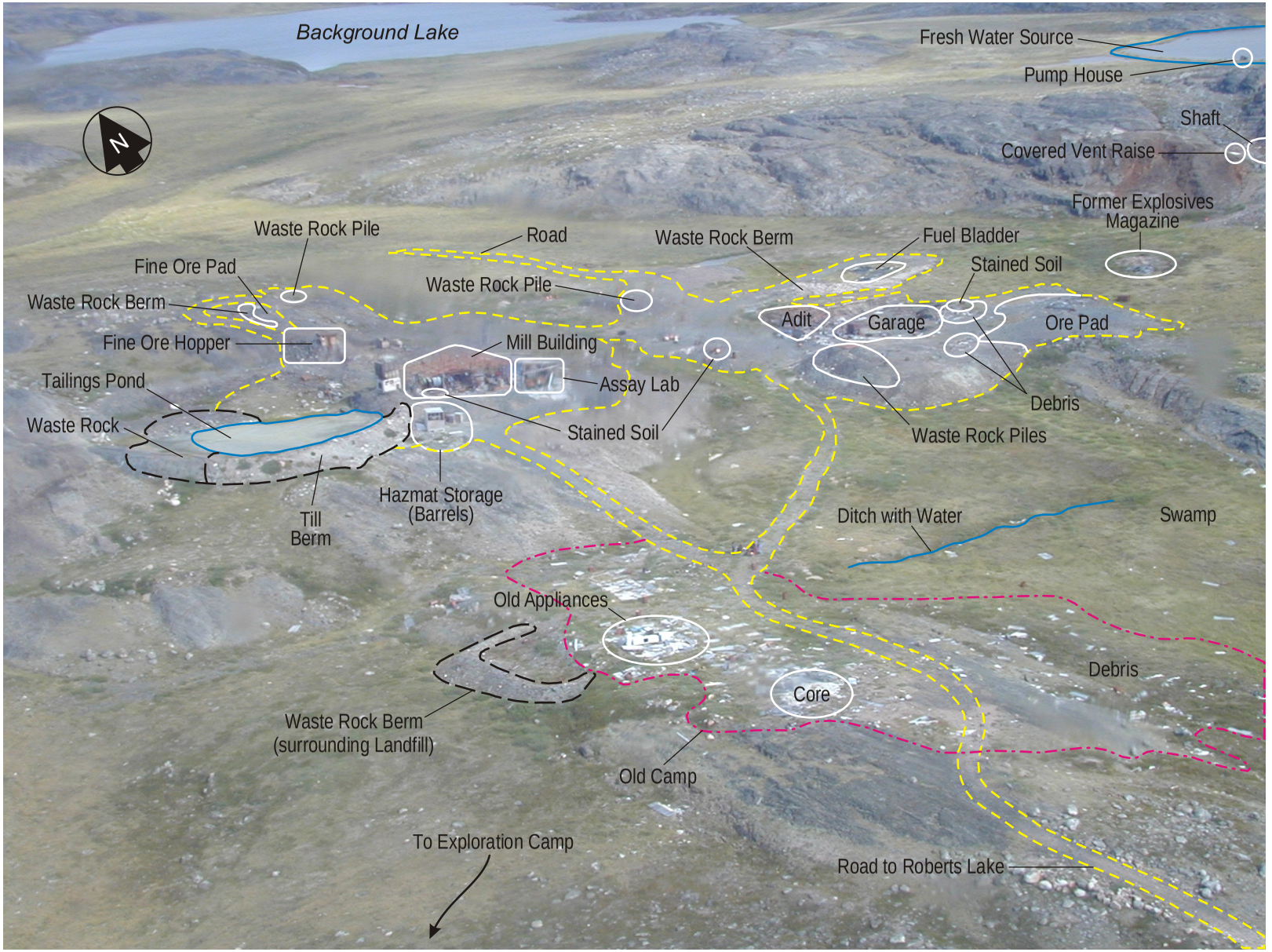

FIGURE 3

Public Works and Government Services Canada

Roberts Bay Silver Mine Photomap

Rescan™

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FIGURE 4

Public Works and Government Services Canada

Roberts Bay Abandoned Mine Site Sample Locations

Rescan™

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FIGURE 6

Public Works and Government Services Canada

Ida Bay Silver Deposit Photomap

Rescan™

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Land Surveys Limited

Prepared: November 16, 2005
Project: ALS050052

Waste Rock - Volume & Area Summary

Robert's Bay

Total Waste Rock Area = 12,655 sq. m.

		Perimeter Area (sq. m)	Average Depth (estimated) (m)	Volume (average depth method) (cu. m)	Volume (by cross section method) (cu. m)	Average Depth (calc'd) (m)
1	Ore Pad - West Half	156.0	0.2	31.2	n/a	n/a
2	Ore Pad - East Half	161.0	0.2	32.2	n/a	n/a
3	Explosives Area (including road)	198.0	0.1	19.8	n/a	n/a
4	Fuel Bladder Berm - South Half	225.0	n/a	n/a	76.0	0.3
5	Fuel Bladder Berm - North Half	223.0	n/a	n/a	72.0	0.3
6	Waste Rock Pile - South End	66.3	n/a	n/a	79.6	1.2
7	Waste Rock Pile - North East End	66.3	n/a	n/a	79.6	1.2
8	Waste Rock Pile - North West End	66.3	n/a	n/a	79.6	1.2
9	Discrete Sample	n/a	n/a	n/a	n/a	n/a
10	Discrete Sample	n/a	n/a	n/a	n/a	n/a
11	Waste Rock Plateau - East	1625.0	0.3	487.5	n/a	n/a
12	Waste Rock Plateau - North	1105.0	0.3	331.5	n/a	n/a
13	Waste Rock Pile 1 (East)	165.8	n/a	n/a	154.8	0.9
14	Waste Rock Pile #2 (North)	39.6	n/a	n/a	26.8	0.7
15	Waste Rock Berm #1 (W of Fine Ore Pad))	113.9	n/a	n/a	59.0	0.5
16	Access Road to Ida Bay	902.0	0.5	451.0	n/a	n/a
17	Fine Ore Pad	669.0	0.2	133.8	n/a	n/a
18	Mill Yard Area (North)	836.0	0.3	250.8	n/a	n/a
19	Waste Rock Berm #2 (N of Tailings Pond)	145.0	0.3	43.5	n/a	n/a
20	Waste Rock Berm #3 (S of Tailings Pond	401.0	0.8	320.8	n/a	n/a
21	Waste Rock around Dump	80.0	0.6	48.0	n/a	n/a
22	Ramp of Waste Rock (to Adit #2)	322.0	0.2	64.4	n/a	n/a
	Total Waste Rock Accounted For:	7566.2		2214.5	627.4	
	Waste Rock Area Unaccounted For:	5088.8				

Ida Bay

Total Waste Rock Area = 4,875 sq. m.

A	Waste Rock Pile # 1 (East)	1077.6	n/a	n/a	1606.4	1.5
B	Waste Rock Pile # 2 (North)	390.9	n/a	n/a	602.3	1.5
C	Waste Rock Pile # 3 (South)	369.0	0.4	147.6	n/a	n/a
D	Waste Rock Pile #4 (West)	228.9	n/a	n/a	156.0	0.7
	Total Waste Rock Accounted For:	2066.4		147.6	2364.7	
	Waste Rock Area Unaccounted For:	2808.6				

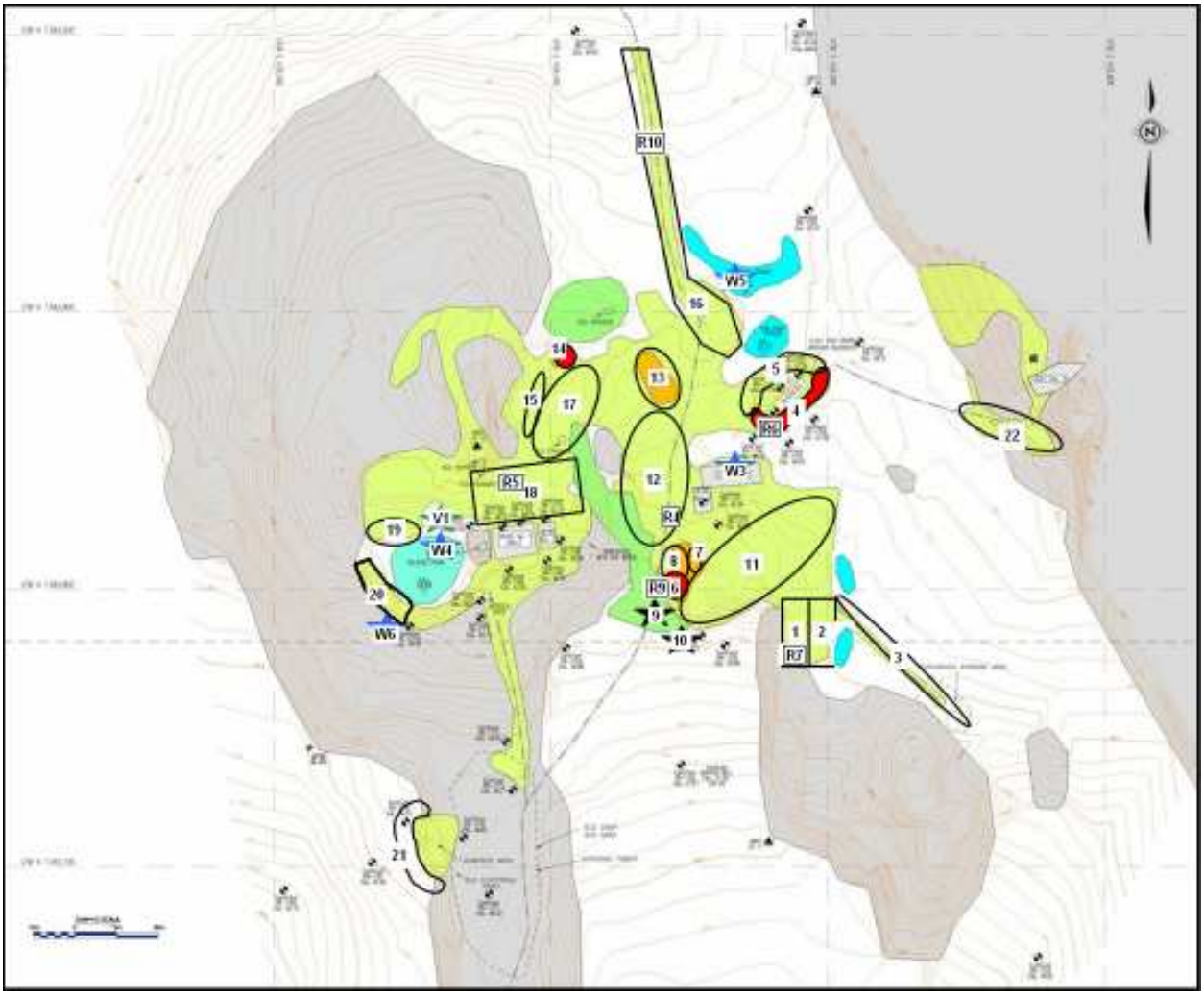


Figure 3: **Sketch indicating the approximate location of sample sites at the Roberts Bay mine site.**
Sample points prefixed with R indicate approximate locations of Rescan (2003) samples.

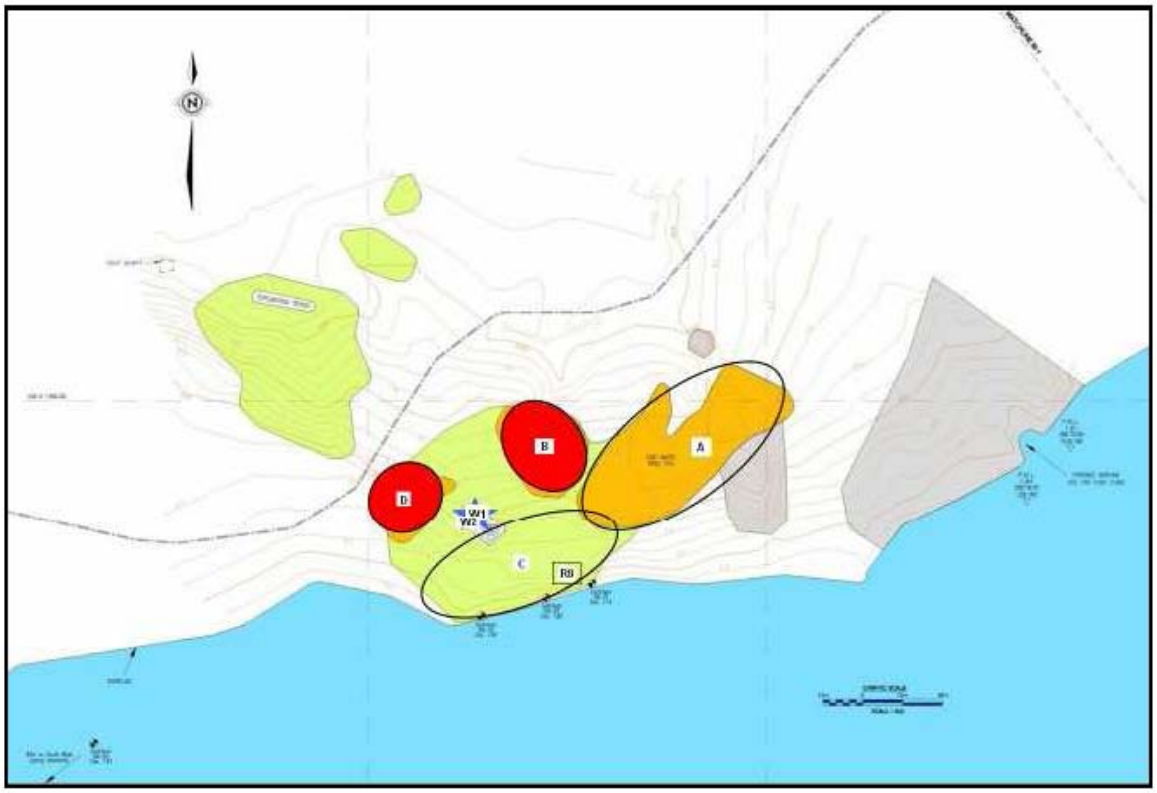
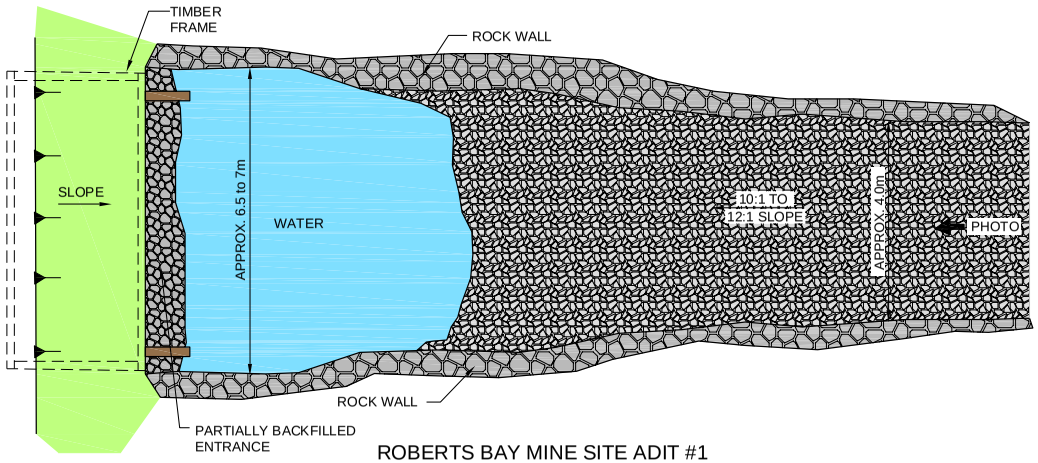


Figure 4: Sketch indicating the approximate location of sample sites at the Ida Bay mine site.
Sample point R8 indicates the approximate location of the Rescan (2003) sample.

ISSUED FOR CONSTRUCTION



ROBERTS BAY MINE SITE ADIT #1

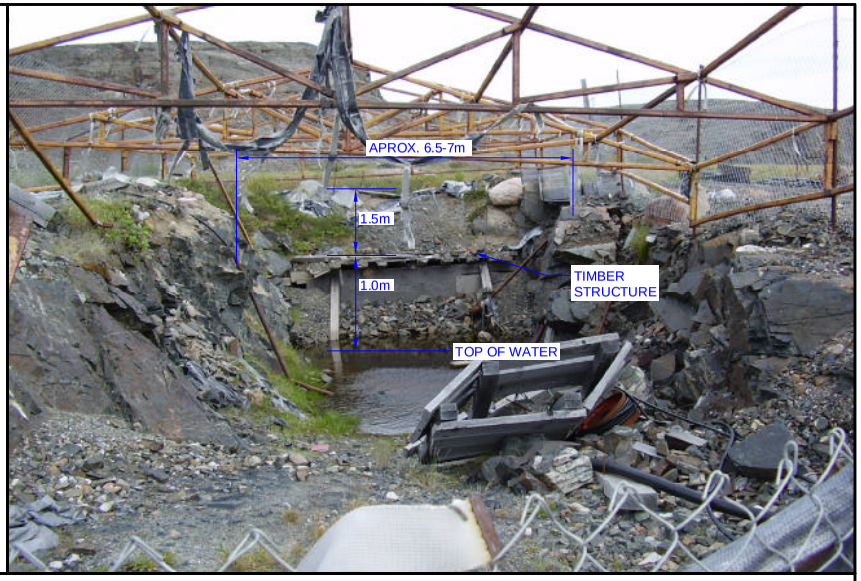
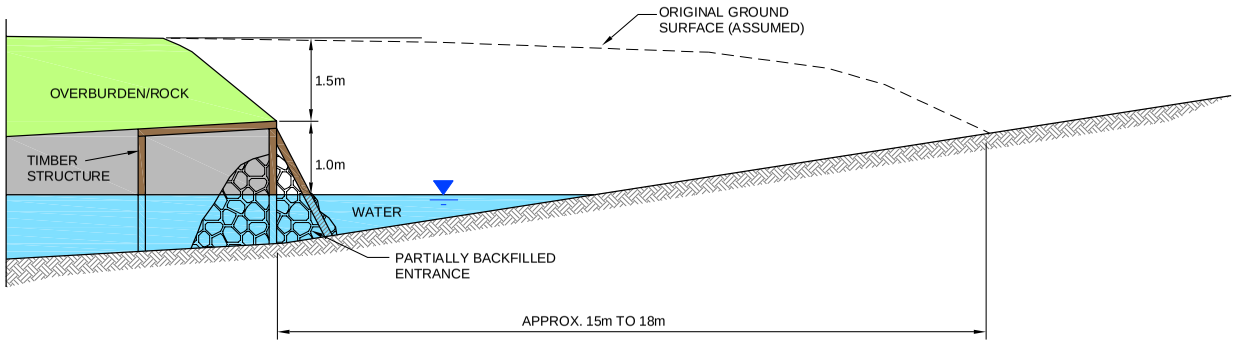


PHOTO LOOKING AT ADIT ENTRANCE



ROBERTS BAY MINE SITE ADIT #1 LONGITUDINAL SECTION

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	CHK'D BY: CP		PROJECT NO: WX15131-3000
AMEC Earth & Environmental 2227 Douglas Road, Burnaby, B.C., V5C 5A9 Tel. 604-294-3811 Fax 604-249-4664	DATUM:	TITLE: ROBERTS BAY MINE SITE ADIT #1 PLAN AND SECTION	REV. NO.: A
	PROJECTION:		FIGURE No.: FIGURE 5
	SCALE: AS SHOWN		

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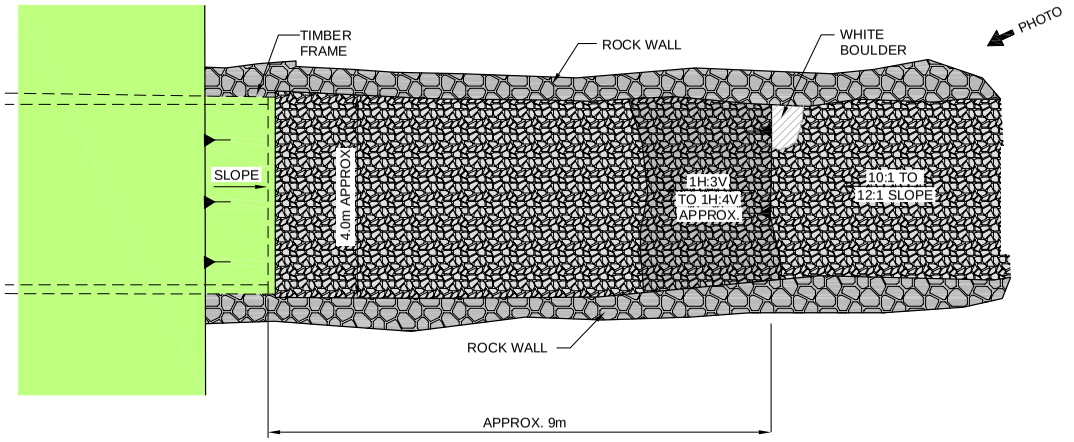
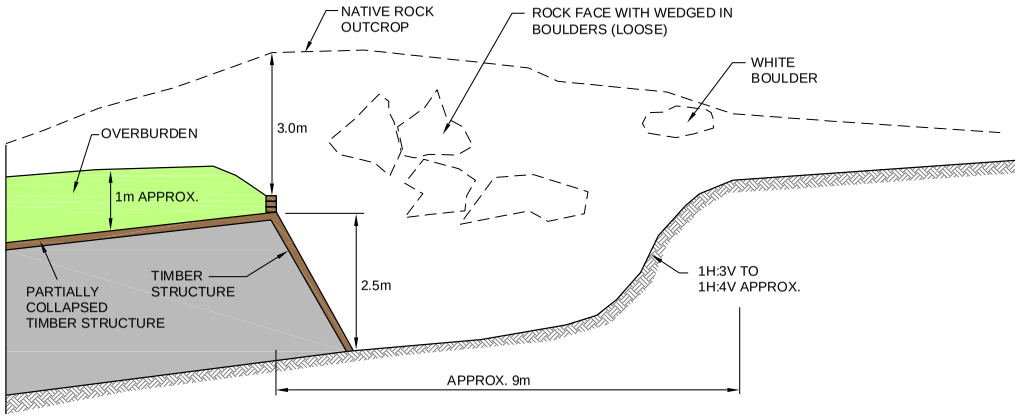


ROBERTS BAY MINE SITE ADIT #2

PHOTO LOOKING AT ADIT ENTRANCE



ROBERTS BAY ADIT #2 MINE SITE LONGITUDINAL SECTION

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	CHK'D BY: CP		PROJECT NO: WX15131-3000
	DATUM: -	TITLE: ROBERTS BAY MINE SITE ADIT #2 PLAN AND SECTION	REV. NO.: A
	PROJECTION: -		FIGURE No. FIGURE 6
	SCALE: AS SHOWN		

AMEC Earth & Environmental
2227 Douglas Road, Burnaby, B.C., V5C 5A9
Tel. 604-294-3811 Fax 604-249-4664

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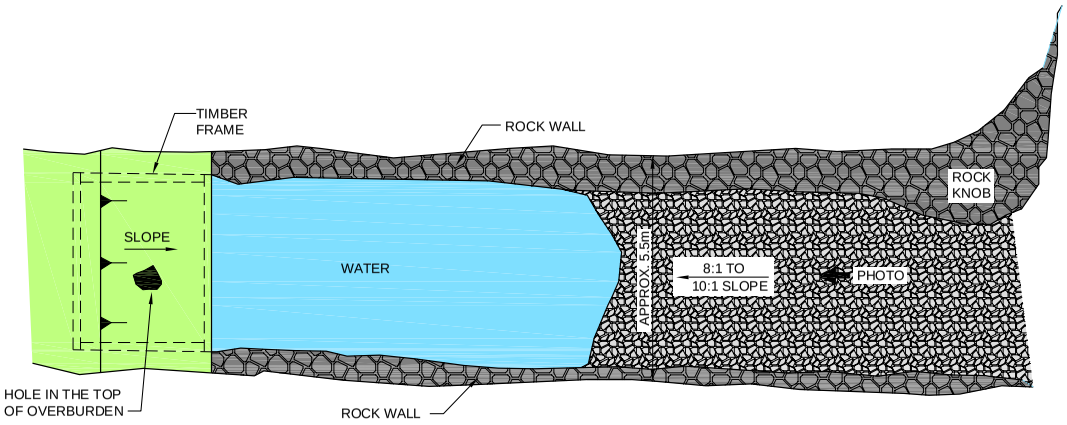
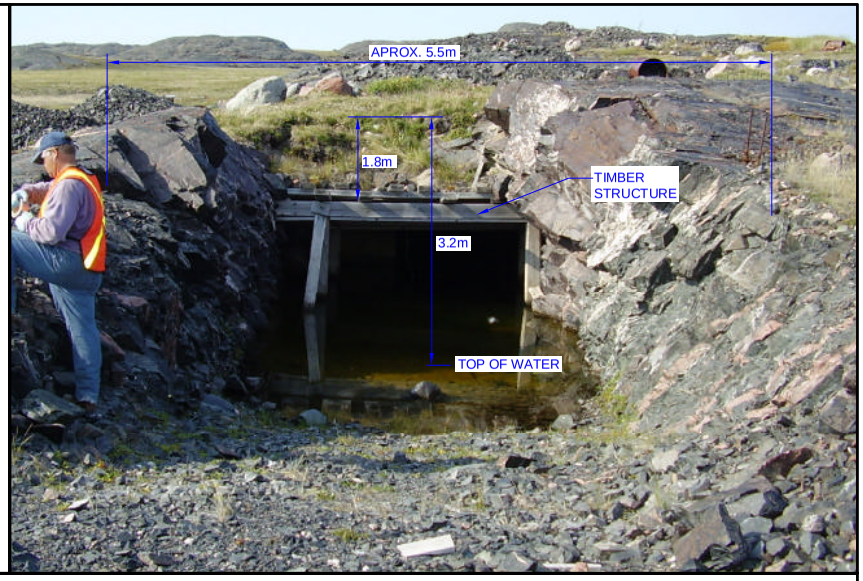


IDA BAY MINE SITE ADIT PLAN



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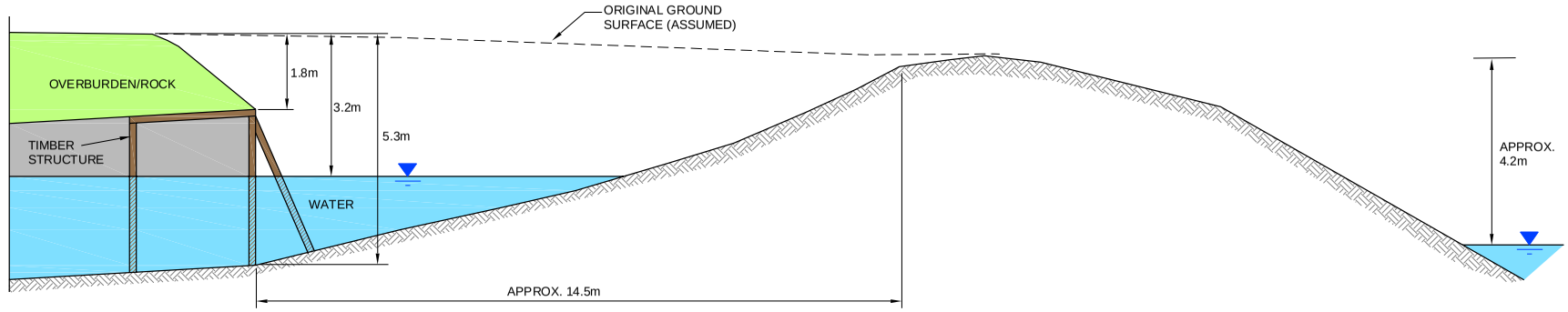

IDA BAY MINE SITE ADIT LONGITUDINAL SECTION

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	CHK'D BY: CP		PROJECT NO: WX15131-3000
AMEC Earth & Environmental 2227 Douglas Road, Burnaby, B.C., V5C 5A9 Tel. 604-294-3811 Fax 604-249-4664	DATUM: -	TITLE: IDA BAY MINE SITE ADIT PLAN AND SECTION	REV. NO.: A
	PROJECTION: -		FIGURE No. FIGURE 7
	SCALE: AS SHOWN		

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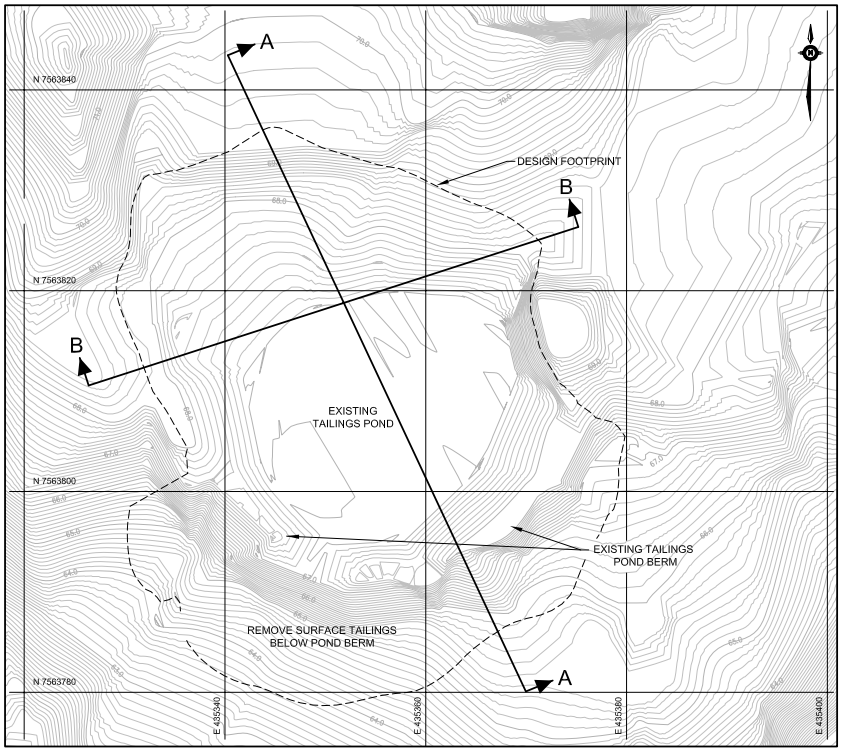

PLAN - EXISTING

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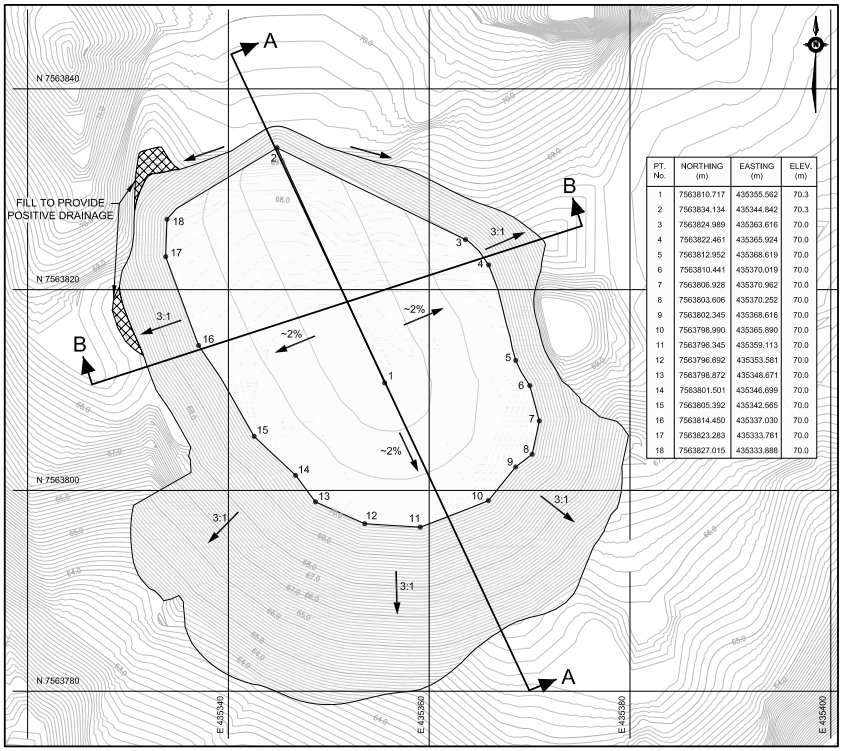
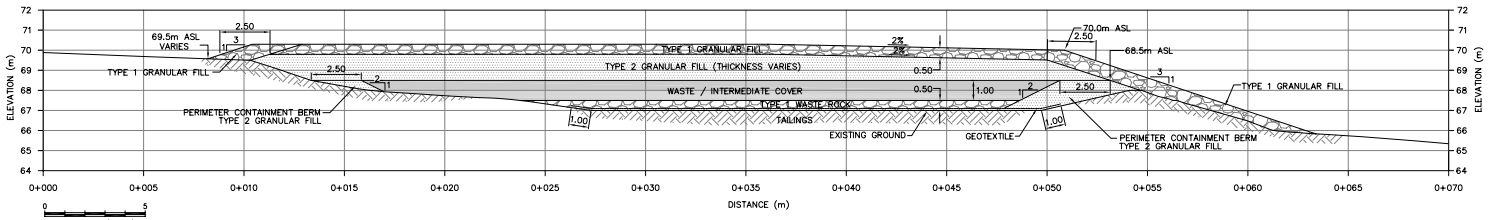


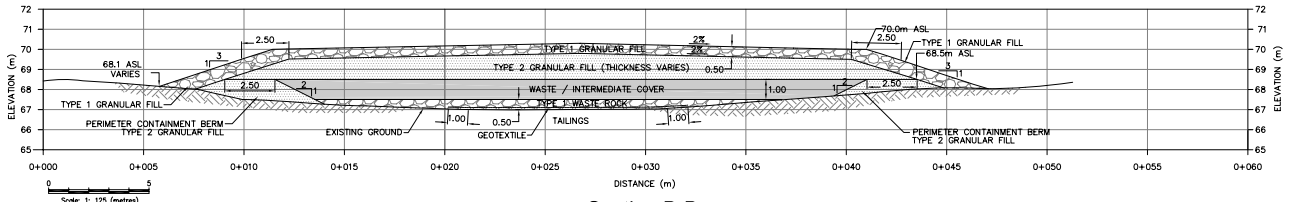
PT. No.	NORTHING (m)	EASTING (m)	ELEV. (m)
1	7563810.717	435355.562	70.3
2	7563834.134	435344.842	70.3
3	7563824.989	435363.616	70.0
4	7563822.461	435365.924	70.0
5	7563812.952	435368.619	70.0
6	7563810.441	435370.019	70.0
7	7563806.928	435370.962	70.0
8	7563803.606	435370.252	70.0
9	7563802.345	435368.616	70.0
10	7563798.990	435365.890	70.0
11	7563796.345	435359.113	70.0
12	7563796.692	435353.581	70.0
13	7563798.872	435348.671	70.0
14	7563801.501	435346.699	70.0
15	7563805.392	435342.565	70.0
16	7563814.450	435337.030	70.0
17	7563823.283	435333.761	70.0
18	7563827.015	435333.888	70.0

PLAN - DESIGN

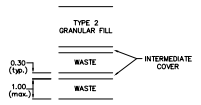
SCALE: 1:250



Section A-A



Section B-B



Waste Placement Detail

N.T.S.

NOTE:
FIGURE BASED ON AMEC LAND SURVEYS LIMITED DRAWINGS:
ROBERTS BAY AND IDA BAY MINE SITE REMEDIATION
SHEETS 1–4, SEPT. 2005

UTM, NAD83 DATUM, ZONE 13
CENTRAL MERIDIAN 105dW

revisions	description	date
5		
4		
3		
2		
1	Issued Construction	DEC 12/08
0	Issued for Review	MAR 9/07

Client

Indian and Northern Affairs Canada

project title

Roberts Bay
Nunavut

Roberts Bay/Ida Bay Mine Site Remediation

approved by
WTH - EBA Engineering Consultants Ltd.

designed by
WTH - EBA Engineering Consultants Ltd.

drawn by
DRG - EBA Engineering Consultants Ltd.

PWGSC Project Manager
JARED BUCHKO

PWGSC, Architectural and Engineering Resources Manager

Client
Indian and Northern Affairs Canada

drawing title

TAILINGS POND LANDFILL
PLAN AND SECTIONS

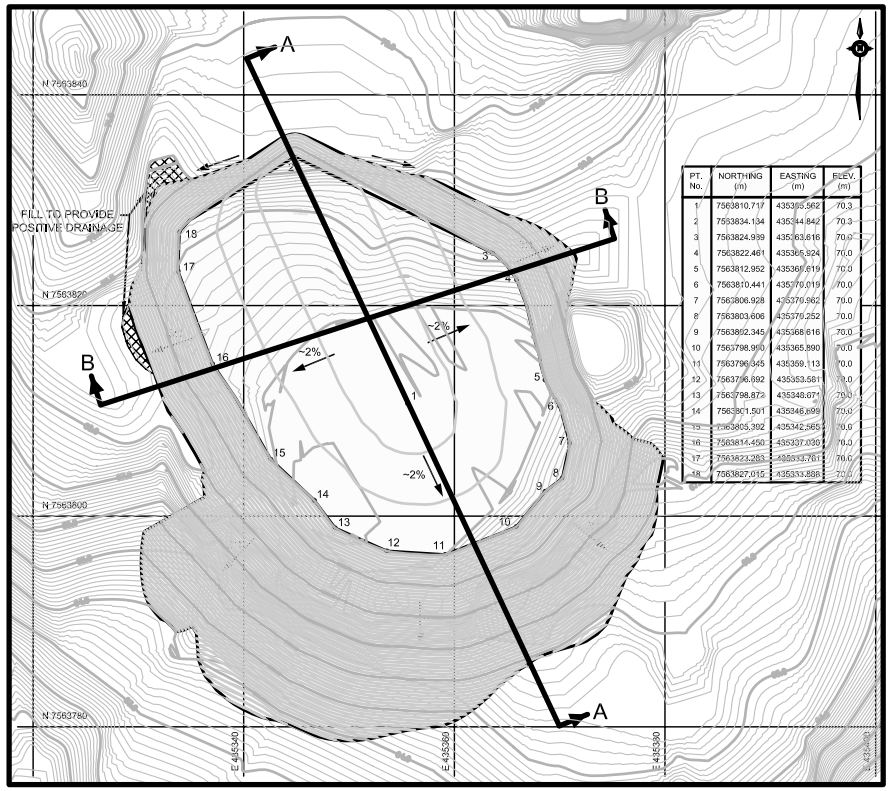
project no.	sheet	revision no.
416829		0

EBA project no.
E14100014

PWGSC – A1 – 841X594

E14100014 D1-D3_R0_IFC.dwg

ISSUED FOR CONSTRUCTION



PT. No.	NORTHING (m)	EASTING (m)	ELEV. (m)
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2	7563834.134	435344.842	70.3
3	7563824.939	435363.616	70.0
4	7563822.461	435365.324	70.0
5	7563812.952	435366.619	70.0
6	7563810.441	435370.019	70.0
7	7563806.928	435370.962	70.0
8	7563803.606	435376.252	70.0
9	7563802.345	435368.616	70.0
10	7563798.990	435365.890	70.0
11	7563796.345	435359.113	70.0
12	7563796.892	435353.581	70.0
13	7563798.873	435348.671	70.0
14	7563801.501	435346.899	70.0
15	7563805.392	435342.565	70.0
16	7563814.450	435337.030	70.0
17	7563823.283	435333.761	70.0
18	7563827.015	435333.886	70.0

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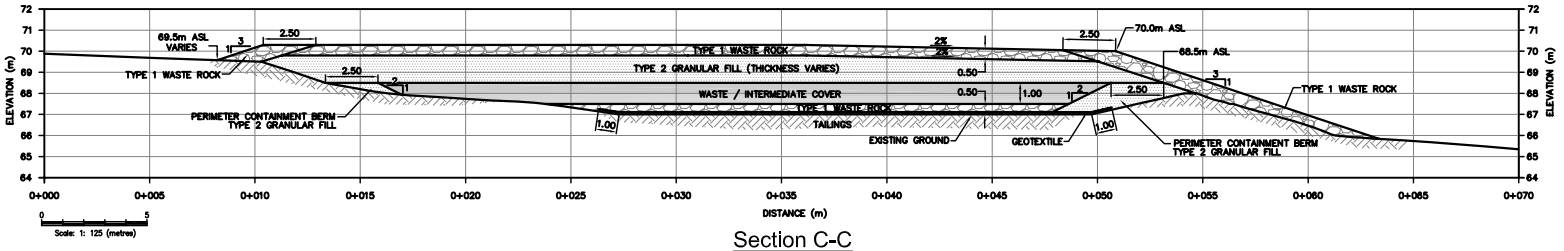
Scale: 1: 250 (metres)

PLAN - DESIGN
SCALE: 1;250



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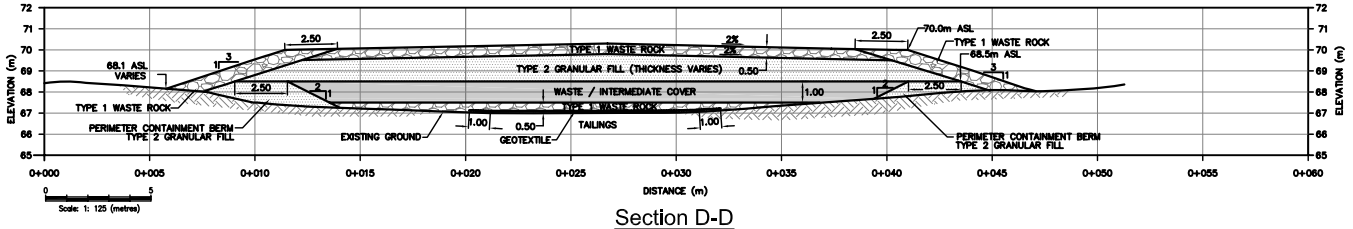
Scale: 1: 125 (metres)

Section C-C



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Scale: 1: 125 (metres)

Section D-D

NOTE:
FIGURE BASED ON AMEC LAND SURVEYS LIMITED DRAWINGS: ROBERTS BAY AND IDA BAY MINE SITE REMEDIATION SHEETS 1–4, SEPT. 2005
UTM, NAD83 DATUM, ZONE 13
CENTRAL MERIDIAN 105dW

revision	description	date
3		
4		
5		
6		
1	Issued For Tender	07/05/12
0	Issued For Review	07/05/09

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region

Client
Indian and Northern Affairs Canada

project title
Roberts Bay
Nunavut

Roberts Bay/Ida Bay Mine Site Remediation

approved by WTH
designed by WTH
drawn by /MM
PWGSC Project Manager JARED BUCHKO
PWGSC, Architectural and Engineering Resources Manager
Client Indian and Northern Affairs Canada

drawing title
TAILINGS POND LANDFILL
PLAN AND SECTIONS

project no.	sheet	revision no.
416829	2	0
IDA project no. E14100014	OF 2	