Issued for Tender Specification Set

Public Works and Government Services Canada

Tender Specifications for the Great Slave Lake Environmental Site Remediation at

Outpost Island Mine Site

Blanchet Island Mine Site

Copper Pass Mine Site

Wilson Mine Site

Waldron Mine Site

Project Number R.041648.001

Public Works and Government Services Canada

March 2014

END OF SECTION

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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 for Outpost Island Mine Site

.1 The Outpost Island Mine was a small gold mining operation that was active between 1941 to 1942 and again in 1951 to 1952. The majority of the mining operations were undertaken on the West Island, including the main camp, mill and services buildings. In 1955, a fire destroyed all of the buildings at the mine site except for an outhouse and a shed on the East Island. Historically there were four mine openings and potentially a fifth vent raise. The Outpost Island Mine presently exists as an abandoned site and is under management of Aboriginal Affairs and Northern Development Canada (AANDC), Contaminants and Remediation Directorate (CARD). As a site is over 50 years old it is classified as a historic site under the NWT Archeological Site Regulations.

.2 The Outpost Island Mine is located approximately 88 km due south of Yellowknife on an archipelago of islands at the entrance to the Hearn Channel of Great Slave Lake, in the Northwest Territories, Canada. The mine site coordinates are 61.736°N, 113.459°W. The mine site is situated on Outpost Island proper while the former camp and some exploration mine workings are located on the East Island. Summer access to the site is currently by fixed-wing aircraft on floats, helicopter, or watercraft. Winter access would be via ice road for vehicles, snow machines or aircraft equipped for landing on snow or ice. Access on site is limited and defined by the limitations resulting from an undulating bedrock surface.

.1 Winter road construction must be done in accordance with the regulatory requirements, including the Land Use Permit, and meet with the approval of the AHJ.
.2 Any barge access during the course of the site work must comply with federal Transport Canada and Navigation Protection requirements.

.3 The site lies within the traditional Akaitcho and NWT Metis lands and is part of the Interim Measures Agreement area. Interim Measures Agreements (IMAs) are in place with the Akaitcho and Northwest Territories Metis Nation (WTMN) and there is a 100% overlap between these agreements. The IMAs clarify how the Government of Canada works with the Aboriginal groups on decisions that may affect rights and interests during the negotiation process and before a final agreement. In the Akaitcho process, interim land withdrawals are in place to temporarily protect some lands against the establishment of new land rights while negotiations proceed.

.4 The results of previous assessments have identified known and potential hazards remaining on site to include, but are not limited to, the following:

.1 Three partially secured mine opening shafts/raises;
.2 A larger main raise;
.3 Exploration trenches on the East Island;
.4 Minor exploration pits around Shaft #2;
.5 Miscellaneous mine equipment (generator and motor on concrete pedestals);
.6 Non-Hazardous Waste and Debris:
.1 At the Mine Site Proper (dock structure, scrap metals, and concrete

slabs)

.2 At the Former Camps Areas (minor waste dumps, an outhouse, old burnt batteries)

.7 Waste Rock;
.8 Tailings;
.9 Soils Impacted by Petroleum Hydrocarbons;
.10 Asbestos Containing Materials (associated with equipment on site);
.11 Hazardous materials (lead amended paint and one partially full container of unknown petroleum product);
.12 Site conditions (remoteness of and access to site);
.13 Mine openings;
.14 Debris;
.15 Metals or Petroleum hydrocarbon contaminated soils and tailings;
.16 Hazardous waste; and,
.17 Unexploded ordnances (UXOs).

.5 Supporting Documents are provided with the RFP package.

1.3 Background Information for Blanchet Island Mine Site

.1 The Blanchet Island Mine has been an area of interest for cobalt and nickel mining since the staking of the LUX claim in 1968. The site workings are limited to an adit at the mine area with some minor infrastructure remaining at the former camp and mine site areas. The Blanchet Island Mine presently exists as an abandoned site and is under management of Aboriginal Affairs and Northern Development Canada (AANDC), Contaminants and Remediation Directorate (CARD).

.2 The Blanchet Island Mine is located approximately 115 km southeast of Yellowknife, on an island within the Hearn Channel of Great Slave Lake, in the Northwest Territories, Canada. The mine site coordinates are 61.996°N, 112.394°W while the camp is located at 61.986°N, 112.417°W. The site is situated on the south side of the island with the camp site located at the shoreline while the adit and former mine workings are located approximately 1.55 km east of the camp. Summer access to the site is currently by fixed-wing aircraft on floats, helicopter, or watercraft. There is an overgrown access route between the mine and camp areas of the site. The route runs through some soft areas and will require some upgrading prior to its use as a haul route to move borrow from the camp area to the mine site. Winter land access could be achieved via a winter road or snow machines could be used.

.1 Winter road construction must be done in accordance with the regulatory requirements, including the Land Use Permit, and meet with the approval of the AHJ.
.2 Any barge access during the course of the site work must comply with federal Transport Canada and Navigation Protection requirements.

.3 The site lies within the traditional Akaitcho and NWT Metis lands and is part of the Interim Measures Agreement area. Interim Measures Agreements (IMAs) are in place with the Akaitcho and Northwest Territories Metis Nation (WTMN) and there is a 100% overlap between these agreements. The IMAs clarify how the Government of Canada works with the Aboriginal groups on decisions that may affect rights and interests during the negotiation process and before a final agreement. In the Akaitcho process, interim land withdrawals are in place to temporarily protect some lands against the establishment of

new land rights while negotiations proceed.

.4 The results of previous assessments have identified known and potential hazards remaining on site to include, but are not limited to, the following:

.1 One adit;
.2 Miscellaneous mine equipment (including track, steel pipe chute, ladders, mine car, etc);
.3 Non-Hazardous Waste and Debris:
.1 At the Mine Site Proper (drums, scrap metals and wooden structures)
.2 At the Former Camps Areas (waste dumps, drums and wooden structures)
.4 Waste Rock;
.5 Steep slopes and rock fall;
.6 Ore concentrate;
.7 Hazardous waste;
.8 Site conditions (remoteness of and access to site);
.9 Mine openings;
.10 Debris;
.11 Metals or Petroleum hydrocarbon contaminated soils and tailings;
.12 Wildlife;
.13 Unexploded ordnances (UXOs).

.5 Supporting Documents are provided with the RFP package.

1.4 Background Information for Copper Pass Mine Site

.1 The original claims for the Copper Pass Mine were first staked by Cominco in 1940 as a high grade nickel showing. After an unspecified period of inactivity, the claims were acquired by Copper Pass Mines Limited in 1969. Blasting and hand-cobbing were the primary extraction methods, after which the ore was shipped to a European mill and smelter for processing. A total of seven trenches were blasted and work concentrated at the Main Showing, West Showing, and East Showing. Additional exploration was conducted at the Upland Pond, through the excavation of five small trenches/pits. Camp facilities were erected on the southern shore of Sachowia Lake and access routes constructed between the respective showings. The mine closed in 1970 with no significant mining or exploration activities documented since (Silke 2009). The Copper Pass Mine presently exists as an abandoned site and is under management of Aboriginal Affairs and Northern Development Canada (AANDC), Contaminants and Remediation Directorate (CARD).

.2 The Copper Pass Mine is located approximately 130 km due east of Yellowknife, in the Northwest Territories, Canada. The site is a collection of mine workings (trenches) situated near the south and eastern shores of Sachowia Lake approximately 6 km north of the Hearn Channel (Great Slave Lake). The coordinates of the mine camp are 62.412°N, 111.861°W. The Main, West, East and Upland Pond mine showings are located within 2 km of the camp site. Summer access to the site is currently by fixed-wing aircraft on floats or helicopter. From the Traditional Knowledge study for the site it was reported that there is an overgrown trail to the site starting at Sachowia Point on Great Slave Lake. This trail is different from the former winter road route which was used to service the mine. Winter land access must follow the route of former winter road.

.1 Winter road construction must be done in accordance with the regulatory

requirements, including the Land use Permit, and meet with the approval of the AHJ.

.2 Any barge access during the course of the site work must comply with federal Transport Canada and Navigation Protection requirements.

.3 The site lies within the traditional Akaitcho and NWT Metis lands and is part of the Interim Measures Agreement area. Interim Measures Agreements (IMAs) are in place with the Akaitcho and Northwest Territories Metis Nation (WTMN) and there is a 100% overlap between these agreements. The IMAs clarify how the Government of Canada works with the Aboriginal groups on decisions that may affect rights and interests during the negotiation process and before a final agreement. In the Akaitcho process, interim land withdrawals are in place to temporarily protect some lands against the establishment of new land rights while negotiations proceed.

.4 The results of previous assessments have identified known and potential hazards remaining on site to include, but are not limited to, the following:

.1 Two large partially water filled trenches (deep water, >6 m) and two smaller shallow trenches at the Main Showing;
.2 A trench at the West Showing;
.3 Short/shallow exploration trenches at both the East and Upland Pond Showings;
.4 Miscellaneous mine equipment (including timber cribbing, rods and a drive chain);
.5 Non-Hazardous Waste and Debris:
.1 At the Mine Showings (drums, scrap/wood metals, drill rods)
.2 At the Former Camp Area (empty drums, waste dumps, and tent frames, etc.)
.6 Waste Rock and Ore;
.7 Trenches and steep slopes/side walls (falling rock)
.8 Soils Impacted by Petroleum Hydrocarbons
.9 Hazardous materials (partially full drums of waste fuel)
.10 Site conditions (remoteness of and access to site);
.11 Mine openings;
.12 Debris;
.13 Metals or Petroleum hydrocarbon contaminated soils;
.14 Wildlife;
.15 Unexploded ordnances (UXOs).
.16 Variability of ice formations along winter road during mobilization and demobilization.
.17 Confined space in trenches with sidewalls >1.2 m and only one means of egress.

.5 Supporting Documents are provided with the RFP package.

1.5 Background Information for Wilson and Waldron Mine Shafts

.1 The Wilson (Aurous) mine was mined for gold on and off from 1919 to 1928. Two shafts located approximately 80 meters apart were advanced to four meters deep. No work was reported after 1928 and the only building reported on site in 1992 (a windlass headframe over the main shaft) was removed in 1994.

.2 The Wilson Mine is located approximately 88 km southeast of Yellowknife on Wilson Island at the entrance to the Hearn Channel of Great Slave Lake, in the Northwest

Territories, Canada. The mine site coordinates are 61.7958°N, 113.1750°W. Summer access to the site is currently by fixed-wing aircraft on floats, helicopter, or watercraft. Winter access would be via ice road for vehicles, snow machines or aircraft equipped for landing on snow or ice. Access on site is limited and defined by the limitations resulting from an undulating bedrock surface.

.1 Winter road construction must be done in accordance with the regulatory requirements, including the Land Use Permit, and meet with the approval of the AHJ.

.2 Any barge access during the course of the site work must comply with federal Transport Canada and Navigation Protection requirements.

.3 The Waldron mine was originally mined for copper in the 1930s by the Ryan brothers. The reportedly sank two shafts, one 20 feet deep and the other 16 feet deep. Exploratory drilling was undertaken by Polaris Mines in 1967/68 but no further mining took place (NWT Geoscience Office).

.4 The Waldron Mine is located approximately 200 km due east-northeast of Yellowknife west of Waldron River on the north shore of McLeod Bay, Great Slave Lake, in the Northwest Territories, Canada. The mine site coordinates are 62.9294°N, 110.5936°W. Summer access to the site is currently by fixed-wing aircraft on floats, helicopter, or watercraft. Winter access would be via ice road for vehicles, snow machines or aircraft equipped for landing on snow or ice. Access on site is limited and defined by the limitations resulting from an undulating bedrock surface.

.1 Winter road construction must be done in accordance with the regulatory requirements, including the Land Use Permit, and meet with the approval of the AHJ.

.2 Any barge access during the course of the site work must comply with federal Transport Canada and Navigation Protection requirements.

.5 Both site lies within the traditional Akaitcho and NWT Metis lands and is part of the Interim Measures Agreement area. Interim Measures Agreements (IMAs) are in place with the Akaitcho and Northwest Territories Metis Nation (WTMN) and there is a 100% overlap between these agreements. The IMAs clarify how the Government of Canada works with the Aboriginal groups on decisions that may affect rights and interests during the negotiation process and before a final agreement. In the Akaitcho process, interim land withdrawals are in place to temporarily protect some lands against the establishment of new land rights while negotiations proceed.

.6 Limited information is available on the respective site and for the purposes of the current program only the rehabilitation of the existing mine shaft caps is being considered. Other environmental or physical hazards as may be present on these sites are considered outside the purview of this contract but subject to amendment if authorized by the custodial agency

.7 Supporting Documents are provided with the RFP package.

1.6 Description of Work

.1 Work for this Contract comprises the site remediation activities at the Outpost Island, Blanchet and Copper Pass Mine Sites, including, but not limited to, the following:

.1 Preparation of Planning documents and submittals including, but not limited to, Site Specific Health and Safety Plan (includes On-Site Contingency and Emergency Response Plan, Spill Contingency Plan and Fire Safety Plan, Camp Plan (describes fuel, power, waste disposal facilities, perimeter bear fence and their location and setbacks relative to shorelines, site topography, prevailing winds etc to ensure protection of camp kitchen facilities, sleeping quarters etc), Waste Management Plan (in accordance with MVLWB Guidelines), Sediment and Erosion Control Plan, Preventive Maintenance Plan for all equipment and Inventory Control Plan (to track WHIS materials on site), and Mobilization and Demobilization Plan as well as other plans as noted in Section 01 33 00 – Submittal Procedures.

.1 Camp Design Plan needs to be developed in accordance with the AANDC Northern Land Use Guidelines: Camp and Support Facilities (2010) and relevant Federal and Territorial Legislation. At a minimum the plans need to include: camp location and distance from shore; number and type of structures; square footage of the structures and number of personnel stationed in the camp; number of person days required to complete the operation per calendar year per site; and water sources and maximum volume of water to be used per day to support the camp.

.2 Mobilization and demobilization of personnel, equipment, support facilities and materials required to complete the Work.

.3 Assessment, inventory, photo documentation and destruction of Unexploded Ordnance (UXO) as part of mobilization and site preparation work and prior to commencement of site remediation, in accordance with NWT Mine Health and Safety Act (MHSA).

.4 Upgrading and Maintenance of on-site access routes, docking areas and barge landings, camp pads and laydown areas, as required, to facilitate construction activities and temporary storage including any winter route preparations required to access the sites.

.5 Segregating, packaging, secure storage and full documentation of:

.1 Waste POL and POL-impacted media;

.2 Lead and PCB-amended paint;

.3 POL or metal-impacted wood;

.4 Incinerator ash exceeding on-site disposal criteria;

.5 Batteries; and,

.6 the transportation and disposal of these materials at an Approved Off-Site Disposal Facility in accordance with TDGA where applicable.

.6 Containerization, transport and disposal of Liquid Waste (partially full drums of waste fuel) at Contractor's Designated Off-Site Contaminated Materials Disposal Facility.

.7 Demolition, segregation and disposal of building and infrastructure.

.8 Management of waste rock and tailings at the Outpost Island mine site.

.9 Management of waste rock and ore residual impacted soils at the Blanchet Island Mine site.

.10 Management of waste rock and ore at the Copper Pass mine site.

.11 Consolidation and containerization of ore concentrate for transport off-site to the Contractor's Designated Off-Site Disposal Facility.

.12 Excavation and containerization of petroleum hydrocarbon contaminated soil as well as transportation and disposal of these materials at the Contractor's Designated Off-Site Disposal Facility.

.13 Collecting, segregating and consolidation of non-hazardous waste and debris

from across the sites as well as transportation of these materials to the Contractor's Designated Off-Site Disposal Facility for disposal.

.14 Consolidation, transportation and disposal of residual mine equipment off-site at the Contractor's Designated Off-Site Disposal Facility.

.15 On-site burning of non-painted and non-treated wood if permitted and once the permit to burn has been obtained.

.16 Construction of permanent seals for the mine openings at the respective sites as identified.

.17 Re-slope and cover waste rock materials at Blanchet Island Mine.

.18 Excavate ore stained soils and waste rock at Blanchet Island Mine and place under low permeability cover.

.19 Consolidate in trenches and cap under a low permeability cover; ore and ore stained waste rock and metal impacted soils at Copper Pass mine.

.20 Dewatering and regrading of site works.

.21 Management of water identified in the two main trenches at the Copper Pass mine by discharging to a soak-away sump pit.

.22 Provision of the following site support services:

.1 Construction Camp as specified in Section 01 54 00 — Camp facilities, including supply, operation, maintenance, catering, janitorial service and bear fence as well as temporary dockage for transfer of supplies the camps at the respective remedial sites.

.2 Provision and maintenance of Departmental Representative's vehicles, as specified.

.3 Safety, fire protection, office and medical services, as specified in Section 01 35 32 — Site Specific Health and Safety Plan for Contaminated Sites.

.4 Transportation services for Departmental Representative and Departmental Representative Authorized Personnel from Yellowknife to the respective mine sites as specified in Section 01 54 00 – Camp Facilities.

.5 Communication services for the Contractor, Departmental Representative, and Departmental Representative's support staff.

.6 Provision of Wildlife Monitors, as specified in Section 01 35 32 – Site Specific Health and Safety Plan for Contaminated Sites.

.23 Carry out site restoration of disturbed shorelines, pads, stream crossings, access roads/trail, quarries/borrow pits and capped/re-graded areas to promote re-establishment of natural surface drainage pathways, channel and stream flows and re-vegetation of all disturbed and constructed facilities using industry best practices for land restoration and bio-engineering.

.24 Drill, blast and re-slope mine trenches as required to satisfy NWTMHSA.

.25 Break up and re-grade concrete pads to surrounding topography and re-use clean concrete as required for backfilling and stabilization purpose.

.26 Quarry, excavate, process and transport borrow material as required for capping and re-grading purposes.

.27 Cutting down and disposal of dead (metal-impacted) vegetation.

.2 Work under this contract for the Wilson and Waldron Mine Sites is limited to the work required to upgrade the mine opening seals at the respective mine sites to the current territorial standards. It is not anticipated that an on-site camp will be required at these mine sites to complete the mine seal work.

1.7 Definitions

.1 Departmental Representative: Within the context of these Specifications, the term

Departmental Representative refers to the person exercising the roles and attributes of Canada under the contract.

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

.3 Contractor: Principle Contractor as defined by the NWT AHJs, retained to undertake the remediation Work as defined within the context of these specifications.

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

.5 The word “provide” means supply and install, operate, submit or any other procedure necessary to complete the work as intended.

.6 Authorities Having Jurisdiction (AHJ): Government agency or sub-agency that regulates the codes and standards that are to be met during the remediation processes.

1.8 Submittals

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

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 and responses.
.4 Addenda.
.5 Change Orders.
.6 Reviewed shop drawings.
.7 Other modifications to Contract.
.8 Field test reports.
.9 Copy of approved Work Schedule.
.10 Copies of any test results.
.11 Manufacturers' installation and application instructions.
.12 Posted in conspicuous location (Safety Board) in common area: EHS Policy (signed by AANDC and PWGSC), Camp Rules and Zero Tolerance Policy, Wildlife Policy, Site Hazards (Risk Register), MSDS binder(s), Wildlife Sightings, OSH Committee Meeting Minutes, H&S signs as required by AHJ (Fire Exit, Fire Extinguisher, First Aid Room, list of Medics and 1st Aid responders), Emergency Response Team members.
.13 Site Specific Health and Safety Plan. Response Plan:
.1 Spill Contingency Plan.
.2 Fire Safety Plan.
.3 Emergency Response Plan.
.14 Waste Disposal Work Plan.
.15 Kitchen permit and Food Handler Certification
.16 Copies of permits/approvals and/or authorizations

.17 Land Use Permit
.18 Labour conditions and wage Schedules.
.19 Site Medic Credentials.
.20 Up-to-date record drawings.
.21 License for Radio Communication.
.22 All applicable Territorial permits and licenses.
.23 All applicable Federal permits and licenses.
.24 Copies of manifests and bills of lading.
.25 Burn Permit.
.26 Demolition Audit.
.27 Hazardous Material Audit.
.28 Worker Training Program.
.29 Workers' Safety and Compensation Commission (WSCC) Notification of Project.
.30 Letter of Good Standing with WSCC.
.31 Mine Health and Safety Act.
.32 Environmental Assessment and Remedial Action Plan.
.33 Other documents as specified.

1.10 Work Schedule

.1 Provide and maintain Work Schedule in accordance with instructions of Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

.2 Keep the Departmental Representative advised of planned Work activities in accordance with the instructions of Section 01 33 00 – Submittal Procedures.

1.11 Contractor Use of Site

.1 Contractor's use of site is restricted to the terms and conditions of the issued permits, and all applicable guidelines and regulations.

.2 Coordinate use of facilities and services under direction of Departmental Representative.

.3 Use of site shall comply with the environmental requirements of Section 01 35 43 – Environmental Procedures

.4 Commencement of demobilization will not occur without completion of Final Inspection and approval by DR

.5 Sites are federal lands under AANDC custody and all access must be authorized by the DR or DR Representative.

1.12 Examination of Site

.1 Prior to mobilization of equipment and supplies, check the field conditions to ensure that the correct equipment, and supplies are being mobilized to site for the execution of the Work, and notify Departmental Representative in writing, of all matters which could prejudice proper execution of the Work. Provide a minimum of seven (7) days notice to Departmental Representative prior to examining the site.

.2 Commencement of mobilization constitutes acceptance of existing conditions, and verification of dimensions. Sites are federal lands under AANDC custody and all access must be authorized by the DR or DR Representative.

.3 Commencement of demobilization will not occur without completion of Final Inspection and approval by DR.

1.13 Departmental Representative Furnished Items

Not used.

1.14 Permits and Licenses

.1 Aboriginal Affairs and Northern Development Canada Representative will obtain a Land Use Permit and Quarry Permit. All restrictions and requirements of these apply to Contractor.

.2 Be responsible for obtaining and paying for all permits, licenses and approvals associated with the development and operation of any and all construction camps outside of the approved land use permit.

.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 for the duration of employment.

.4 Obtain and pay for any other licenses or permits required to perform the activities required on site.

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

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

1.15 Site Supervision

.1 Designate Contractor's Site Superintendent (including cross-shift superintendent) to be on site at all times during construction, to have full authority to make decisions for Contractor, to be knowledgeable of the requirements of the contract, and to act upon Departmental Representative's instructions.

.2 Notify Departmental Representative two (2) week in advance of Site Superintendant change and provide updated organizational chart.

1.16 Additional Drawings

.1 Departmental Representative may furnish additional drawings to assist with proper execution of the Work. These drawings will be issued for clarification only. Such drawings have the same meaning and intent as if they were included with plans referred to in Contract documents.

1.17 Worker Orientation Seminar

.1 Develop, prior to the start of Work, course material for a Worker Orientation Seminar. The outline of this seminar will be approved by Departmental Representative and is intended to describe the remediation activities 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 will be prepared and presented in the English language and the local dialect. Provide a translator as required.

.2 Submit two (2) hard copies and one (1) electronic copy of the Worker Orientation Seminar course material to Departmental Representative for review at least 30 days prior to the seminar. Include information describing the facility to be used for conducting the seminars.

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

.1 General Site Specific Health and Safety
- .1 Site Hazards.
- .2 Site Orientation.
- .3 Restricted Access.
- .4 Emergency Response.
- .5 Team Work.
- .6 Work attitudes/productivity.
- .7 Anti-Harassment Policy.
- .8 First aid procedures.
- .9 Protective equipment and clothing.
- .10 Safe operation of equipment and tools.
- .11 WHMIS requirements.
- .12 Wildlife awareness.
- .13 AANDC EHS Policy.

.2 Project Communication
- .1 Roles of Departmental Representative and Departmental Representative's authorized representatives.
- .2 Roles of Contractor and Contractor's authorized representatives.
- .3 Lines of Project communication.

.3 Remediation Activities (Scope of Work).
- .1 Sealing of mine openings.
- .2 Collection and disposal of non-hazardous waste and debris.
- .3 Management of waste rock, tailings and ore residual.
- .4 Excavation, containerization, transportation and disposal of petroleum hydrocarbon and metals contaminated soil.
- .5 Collection, containerization, and transportation of hazardous waste material.
- .6 Demolition segregation and disposal of building infrastructure.
- .7 Consolidation, transportation and disposal of residual mine equipment.
- .8 Burning of non-painted and non-treated wood.
- .9 Dewatering and regarding.
- .10 Management of ponded water in mine openings.
- .11 Brushing and subsequent restoration and re-vegetation of wooded areas.
- .12 Drilling and blasting.
- .13 Quarrying to produce borrow material.

.4 Regional Overview of the Great Slave Lake Area
- .1 Land use of area (hunting, fishing activities, etc.).
- .2 Location of site relative to communities.
- .3 Heritage resources including location of gravesites.
- .4 Climate.
- .5 Geology and hydrology.

.6 Flora and fauna.

.5 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.

.6 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.

.7 Work Specific Task Requirements
- .1 Contaminated soil cleanup.
- .2 Demolition and material disposal.
- .3 Transportation of Dangerous Goods (TDG).
- .4 Environmental mitigation procedures.
- .5 Emergency spill response training.
- .6 Drum collection and disposal/containerization.
- .7 Unexploded Ordnance Assessment, Inventory and Destruction.

.4 Prior to the start of Work, conduct Worker Orientation Seminars for all supervisors, foremen, Contractor's general Workforce, Departmental Representative and Departmental Representative's Authorized Personnel staff based on the course material approved by Departmental Representative.

.5 Each person on site will attend one of the seminars. Require each attendee to sign a record of attendance upon completion of the seminar. Retain, for Departmental Representative's review at any time, this record of attendance.

1.18 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 Pricing Form.
- .2 Unit price items will be paid at the unit price tendered for each unit price item listed in the Basis of Pricing Form.
- .3 Miscellaneous Project costs will be paid at the lump sum price tendered for "Balance of Project Costs" (BOPC) on the Basis of Pricing 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 Pricing 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 Pricing Schedule.

.3 Direct costs include all costs directly attributable to a particular pay item including facilities maintenance, air charters, permitting, EHS supplies and materials, fuel 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 Pricing Schedule.

.4 Indirect costs include all costs not directly attributable to the pay items including profit, supervision, overhead, administration, CGL Insurance, Workers' Safety and Compensation Commission WSCC, Contractor's allowance for equipment maintenance and depreciation repairs, 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 Pricing 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 Pricing Schedule.

.6 Notify Departmental Representative of planned Work activities in accordance with requirements of Section 01 33 00 - Submittal Procedures, and at least two (2) days 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 in Yellowknife, 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 Pricing Schedule and provide an estimated amount per seminar for the entire contract duration.

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

.1 Sixty percent of the unit price for the Worker Orientation Seminar will be paid upon completion by Contractor and review by Departmental Representative of the Worker Orientation Seminar course material, and upon conducting the seminar prior to the start of Work.

.2 Forty percent of the unit price for the Worker Orientation Seminar will be paid upon demonstration by Contractor to Departmental Representative that all of Contractor's Workforce have attended the seminar. The Worker Orientation Seminar will be paid under Item 01 11 00 - 1.

.9 Except as otherwise indicated work under this section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

Not Used

PART 3 EXECUTION

Not Used

END OF SECTION

PART 1 GENERAL

1.1 General

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Departmental Representative are specified under various sections.

.2 Provide and pay for all transportation and analyses required for all Contractor's samples to an accredited laboratory to meet the requirements specified.

.3 Provide and pay for all transportation required for all Departmental Representative samples to the Departmental Representative's designated commercial analytical laboratory depot in Yellowknife, NWT.

1.2 Submittals

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

.2 Submit to the Departmental Representative within thirty (30) days of Contract Award, details of Contractors proposed methodology to complete sampling and testing requirements including but not limited to:

.1 The Contractor's proposed analytical laboratory
.2 Details of proposed sampling personnel and protocols
.3 Details of the proposed sampling packaging and transportation methods
.4 Quality Assurance and Quality Control procedures.

.3 Proposed methodologies are to meet or exceed requirements of specifications, certified laboratory requirements, and industry best practice. The Departmental Representative will review the Contractor's submittal.

.4 The analytical testing laboratory designated by the Contractor to carry out off-site tests is to be acceptable to the Departmental Representative and certified by the Canadian Analytical Laboratories Accreditation (CALA) for the specific tests required and in advance of analytical testing. Submit copies of the laboratory's CALA certification, including recommendations, to Departmental Representative upon request.

1.3 Testing Responsibilities and Payment

.1 Departmental Representative will appoint and pay for services of testing laboratory required for the following:

.1 Confirmatory testing as described in this Section
.2 Testing for the classification of hazardous contaminated soil for licensed disposal facility acceptance requirements.
.3 Testing associated with the characterization of drum contents as required in the 2009 INAC Abandoned Military Sites Remediation Protocol.
.4 Material compaction and gradation testing.
.5 Testing associated with the identification and characterization of hazardous waste materials.
.6 Testing required for quality assurance.

.2 Appoint and pay for testing services for quality control of Contractor's own work including the following:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities including, but not limited to, those prescribed in the Land Use Permit, Quarry Permit and Burn Permit.
.2 Inspection and testing performed exclusively for the Contractor's convenience.
.3 Periodic testing of potable water as described in these Specifications and the Guidelines for Canadian Drinking Water Quality (GCDWQ). Testing of hazardous waste materials in accordance with all appropriate regulations for packaging, transport, and off-site disposal.
.4 Testing to determine the disposal requirements of oil-absorbent material used as filter for liquid wastes resulting from equipment decontamination, fuel tank/pipeline cleaning and barrel processing operations.
.5 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.
.6 All tests required by Contractor to ensure conformance and quality control of Contractor's work.
.7 Inspection and testing required by the conditions of permits issued for the Work.

.3 Where tests or inspections by the designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as requested by Departmental Representative to verify acceptability of corrected Work.

1.4 Contractor's Responsibilities

.1 Provide labour, equipment and facilities to:

.1 Provide assistance and access to Work to be inspected and tested by Departmental Representative.
.2 Enable Contractor's testing requirements
.3 Make good Work disturbed by inspection and testing.

.2 Notify Departmental Representative sufficiently in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Instruct testing laboratory to include Departmental Representative on result distribution list via facsimile or e-mail.

.4 Costs for uncovering and making good Work that is covered before required inspection or testing is completed and reviewed by Departmental Representative shall be born by the Contractor.

.5 Maintain interior temperature of coolers at approximately 4°C during transport, using appropriate packaging methods consistent with industry practice.

.6 Assume all responsibility for samples compromised during transport including all costs for re-sampling, shipping, analysis, and any resulting delays.

.7 Work to be done in accordance with industry best practice standards for the transfer and transportation of samples as well as the Contractor's Quality Assurance and Quality Control Plan.

1.5 Confirmatory Testing

.1 Confirmatory testing will be carried out on contaminated soil areas by Departmental Representative's testing laboratory as follows:

.1 The actual location, frequency, and method of testing will be determined by Departmental Representative.

.2 Soil sampling will be carried out by Departmental Representative within the perimeter of each contaminated soil excavation and at depth within the completed excavation area, immediately upon completion of excavation.

.3 For areas with metal parameter contamination the Site Specific Target Levels (see Appendix A) established for each mine site, coupled with the applicable federal clean-up standards, will be used to guide the Departmental Representative in determining if the remediation work has been satisfactorily completed.

.4 For sites with petroleum hydrocarbon (PHC) contamination the CCME Canada Wide Standards will be used by the Departmental Representative, in conjunction with the CCME environmental clean-up standards, to determine when the PHC remediation works have been successfully completed.

.2 If required, classification testing will be carried out at Temporary Storage Area to classify and delineate contaminated soil and other materials.

.3 It is anticipated that test results will be available within approximately ten (10) calendar days from the date that samples are transported from the site for laboratory analysis. Deliver Departmental Representative's samples to Departmental Representative's designated testing laboratory or depot in Yellowknife within one (1) day maximum from the time of site departure.

.4 Be responsible for all costs associated with the packaging, preservation, handling, and transport of Departmental Representative's samples from the site to Departmental Representative's designated testing laboratory or depot in Yellowknife. It is critically important that Contractor ensures that the samples are expeditiously delivered from the site and transferred to the laboratory or laboratory depot.

.5 Assume all responsibility for samples damaged during transport including all costs for re-sampling, shipping, analysis and any resulting delays.

1.6 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 Pricing Schedule. Indicate cost of the Work of this section as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

.1 Not Used

END OF SECTION

PART 1 GENERAL

1.1 Definitions

.1 Project Start-Up Teleconference: conference call to be held within ten (10) days after Contract Award and to include the Contractor and representatives from AANDC and PWGSC,

.2 Pre-Construction Meeting: meeting to be held prior to Contractor Mobilization at location of Contractor's choice and to include the Contractor and representatives from AANDC and PWGSC.

.3 Pre-Mobilization Site Visit: Contractor's visit to the site to check field conditions and obtain actual conditions required to ensure correct execution of the Work prior to site mobilization.

.4 Inter-season Meeting: meeting to be held between construction seasons at location of Contractor's choice and to include the Contractor and Departmental Representatives from AANDC and PWGSC.

.5 Construction Meeting: meeting to be held on-site at approximately weekly intervals during the course of the work and to include the Contractor, major Sub-Contractor and Departmental Representative.

.6 Tailgate Meeting: meeting to be held on-site daily during the construction season and to include Contractor and all construction staff.

.7 Progress Meeting: meeting to be held on-site at approximately monthly intervals during the construction season and to include the Contractor and representatives from AANDC and PWGSC.

.8 Community Meeting: meeting to be held prior to the commencement of work and after each construction season in Yellowknife with Departmental Representative, AANDC, local leaders, officials, authorities and public.

.9 Contract Closeout Meeting: meeting to be held upon completion of the program in Yellowknife with the Departmental Representative, AANDC and will include lessons learned component.

1.2 Administrative

.1 Responsibilities of Departmental Representative:

.1 Schedule and administer Project meetings throughout the progress of the Work at the call of the Departmental Representative.
.2 Prepare agenda for meetings unless otherwise specified.
.3 Distribute written notice of each meeting five (5) days in advance of meeting date to the Departmental Representative.
.4 Preside at meetings unless otherwise specified.
.5 Record the meeting minutes unless otherwise specified. Include significant proceedings and decisions. Identify actions by parties.
.6 Reproduce and distribute copies of minutes within three (3) days after meetings and transmit to meeting participants and affected parties not in attendance.

.2 Responsibilities of Contractor:

.1 Provide physical space and make arrangements for meetings.
.2 Representative of Contractor, Sub-Contractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.3 Project Start-up Teleconference Meeting

.1 Within ten (10) days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities. The meeting will be a teleconference between all parties in attendance.

.2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting, notify parties concerned minimum five (5) days before meeting.

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

.1 Appointment of official representative of participants in the 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, camp facilities, equipment and proposed methods of mobilization and demobilization.
.5 Set-up of Pre-Construction Meeting.

1.4 Pre-Construction Meeting

.1 Request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerned minimum five (5) days before meeting.

.4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.

.5 Agenda to include:

.1 Appointment of official representative of participants in the Work.
.2 Schedule of Work: in accordance with Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.
.3 Schedule of submission of shop drawings, samples, etc. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
.4 Schedule of submission in accordance with Section 01 33 00 - Submittal Procedures including but not limited to:
.1 Specific Health and Safety Plan:

.2 Emergency Response Plan
.3 Spill Contingency Plan
.4 Wildlife Management Plan
.5 Insurances and transcripts.
.6 Equipment to be used by Contractor.
.7 Proposed camp facilities in accordance with Section 01 54 00 - Camp Facilities.
.8 Location of equipment and proposed methods for mobilization and demobilization.

.5 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
.6 Delivery Schedule of specified equipment.
.7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
.8 Departmental Representative provided products, if any.
.9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
.10 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.
.11 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
.12 Monthly progress claims, administrative procedures, photographs, hold backs.
.13 Appointment of inspection and testing agencies or firms.
.14 Regulatory Issues.
.15 Aboriginal involvement and reporting.
.16 Project photograph requirements.
.17 Regulatory Review of all permits required to perform Work.

1.5 Pre-Mobilization Site Visit

.1 Prior to mobilization, perform a Pre-Mobilization Site Visit to check field conditions and obtain actual conditions required to ensure correct execution of the Work. Notify Departmental Representative in writing by submitting a Pre-Mobilization Site Visit Report within seven (7) days of completing the visit, of all matters which could prejudice proper execution of the Work.

.2 Provide a minimum of seven (7) days notice to Departmental Representative prior to examining the site.

.3 Departmental Representative, Contractor, and AANDC will be in attendance.

1.6 Inter-Season Meeting

.1 Request a meeting of parties in contract to discuss the previous and upcoming construction season, and resolve issues arising from same.

.2 Departmental Representative, Contractor, AANDC, major Sub-Contractor, field inspectors, and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerns a minimum of ten (10) days before meeting.

.4 Departmental Representative will preside.

.5 Agenda may include:

.1 Summary of the previous season's site activities.
.2 Comparison of progress achieved with the Project Schedule.
.3 Schedules and action Contractor plans to get back on Schedule, if required.
.4 Confirmation of quantities.
.5 Health, safety, and security issues.
.6 Summary of all interactions with Authorities Having Jurisdiction (AHJ).
.7 Work plan for the following season, if any.
.8 Camp requirements.

.6 Departmental Representative will record minutes of meetings, circulate to attending parties, and affected parties not in attendance within seven (7) days after meeting.

1.7 Construction Meeting

.1 During course of Work and weeks prior to Project completion, Departmental Representative will schedule construction meetings weekly.

.2 Contractor, major Sub-Contractors involved in Work and Departmental Representative are to be in attendance.

.3 Departmental Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance shortly after meeting.

.4 Agenda to include the following:

.1 Review and approval of minutes of previous meeting.
.2 Regulatory review.
.3 Review of Work progress since previous meeting.
.4 Field observations, problems or conflicts.
.5 Problems which impede construction schedule.
.6 Review of off-site fabrication delivery schedules.
.7 Project Schedule review, identifying activities that are behind Schedule and providing measures to regain slippage.
.8 Corrective measures and procedures to regain Projected Schedule.
.9 Revision to construction Schedule.
.10 Progress schedule during succeeding Work period.
.11 Review submittal Schedules, expedite as required.
.11 Maintenance of quality standards.
.12 Review proposed changes for effect on construction Schedule and on completion date.
.13 Health, Safety and Security issues.
.14 Correspondence from or expected visits from AHJ.
.15 Camp requirements.
.16 Other business.

.5 Contractor to preside over daily tailgate meetings with all construction staff and document minutes with daily reporting requirements.

.6 Provide written explanations on activities that are overrunning estimated time. If any such activities are on the critical path, indicate what corrective action will be taken to bring them back on Schedule.

1.8 Progress Meetings

.1 Department Representative will schedule Progress Meetings to be held on-site.

.2 Departmental Representative, Contractor, AANDC, major Sub-Contractors, field inspectors, and supervisors will be in attendance.

.3 Departmental Representative will notify parties five (5) days prior to meetings.

.4 Representative will record minutes of meetings and circulate to attending parties and affected parties not in attendance shortly after meeting.

.5 Agenda may include the following:

.1 Summary of the previous month's site activities.
.2 Comparison of progress achieved with the project schedule.
.3 Schedules and action Contractor plans to get back on Schedule, if required.
.4 Confirmation of quantities.
.5 Health, Safety and Security issues.
.6 Summary of interactions with AHJ.
.7 Work plan for the following month.
.8 Camp requirements.
.9 Other business.

1.9 Community Meeting

.1 Prior to the commencement of work and upon completion, arrange meetings with AANDC, Departmental Representative, local leaders, officials, authorities and public in Yellowknife. Be prepared to discuss local hiring practices and any other items of operations which may impact upon the local communities. Minutes will be taken by Departmental Representative.

.2 Conduct presentations via computer and projector using "Power Point" software. Provide wording in English and simultaneous translation to the local dialect during the presentation. Submit presentations to Departmental Representative for review a minimum of fourteen (14) days prior to each community meeting.

.3 Provide and pay for the following associated with these meetings:

.1 Meeting facility rental
.2 Coffee, tea, pastries, cookies, etc.
.3 Costs associated with translation

1.10 Contract Closeout Meeting

.1 Request a meeting of parties in contract to discuss the results of the construction season, and document issues arising from same and the implemented solutions and lessons learned.

.2 Departmental Representative, Contractor, AANDC, major Sub-Contractor, field inspectors, and supervisors will be in attendance.

.3 Establish time and location of meeting and notify parties concerns a minimum of ten (10) days before meeting.

.4 Departmental Representative will preside.

.5 Agenda may include:

.1 Summary of the season's site activities.
.2 Comparison of progress achieved with the Project Schedule.
.3 Schedules and action Contractor plans to get back on Schedule, if required.
.4 Confirmation of quantities.
.5 Health, safety, and security issues.
.6 Summary of all interactions with Authorities Having Jurisdiction (AHJ).
.7 Work plan for the following season, if any.
.8 Camp requirements.
.9 Lessons learned

.6 Departmental Representative will record minutes of meetings, circulate to attending parties, and affected parties not in attendance within seven (7) days after meeting.

1.11 Submittals

.1 Submit, fourteen (14) days prior to mobilization, preliminary shop drawings, product data and samples in accordance with Section 01 33 00 – Submittal Procedures for review for compliance with Contract Documents; for field dimensions and clearances, for relation to available space, and for relation to Work of other contracts. After review, revise and resubmit for transmittal to Departmental Representative.

.3 Submit requests for payment for review, and for transmittal to Departmental Representative.

.4 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.

.5 Submit and process substitutions through Departmental Representative.

.6 Submit and process task authorizations and change orders through Departmental Representative.

.7 Deliver closeout submittals for review to Departmental Representative.

.8 Provide submittals to the Departmental Representative for review. Include submittals as noted on the table in Section 01 33 00 – Submittal Procedures.

1.12 Measurement of Payment

.1 All direct costs for the Pre-construction Meeting are to be included in the lump sum price bid for Pre-construction Meeting, Item 01 31 19-1, as indicated in Basis of Pricing Schedule.

.2 All direct costs for the Pre-Demobilization Meetings are to be included in the lump sum price bid for Pre-Demobilization Meetings at Location of Contractor's Choice, Item 01 31 19-2, as indicated in Basis of Pricing Schedule. Contractor will arrange for meeting facilities. Contractor will be responsible for travel and accommodation costs for its own personnel only.

.3 The facilitation of an Inter-seasonal Meeting will be measured for payment by the meeting held and paid under Item 01 31 19-3, Inter-seasonal Meeting, in the Basis of Payment Schedule.

.4 The facilitation of Progress Meetings will be measured for payment by the meeting held and paid under Item 01 31 19-4, Progress Meetings, in the Basis of Payment Schedule.

.5 The facilitation of Construction Meetings will be measured for payment by the meeting held and paid under Item 01 31 19-5, Construction Meetings, in the Basis of Payment Schedule.

.6 The provision of return transportation from Yellowknife to site of Departmental Representative's personnel during the Progress Meetings will be measured by the number of person return trips, as described in Section 01 54 00 - Camp Facilities, and paid under item 01 54 00-9, Return Transportation - Yellowknife to Site in the Basis of Payment Schedule.

.7 The facilitation of Community Meetings in Yellowknife will be measured for payment by the number of meetings held in Yellowknife and paid under Item 01 31 19-6, Community Meetings– Yellowknife in the Basis of Payment Schedule. Payment will include provision for transportation of three (3) Departmental Representative(s) and/or Authorized Personnel from the Contractor's Charter Base to Community Meeting Location.

.8 The facilitation of Closeout Meeting will be measured for payment by the meeting held and paid under Item 01 31 19-7, Closeout Meeting, in the Basis of Payment Schedule.

.9 Costs for the Project Start-up Teleconference are incidental to the work.

.10 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 18 -Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Definitions

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

.2 Bar (GANTT) Chart: 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: Monday to Sunday, inclusive, will provide seven (7) days Work week and define Schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: number of Work periods (not including holidays or other nonworking periods) required to complete activity or other Project element. Usually expressed as workdays or workweeks.

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

.7 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. 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.

1.2 Requirements

.1 Develop a practical schedule. Monitor and update the schedule so that it remains within specified Contract duration.

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

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

.4 Identify tasks that lie on the critical path. Show float where possible.

.5 Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate, as defined times of completion of this contract.

.6 Limit activity durations to maximum of approximately tem (10) working days to allow for progress reporting.

1.3 Submittals

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit the Bar (GANTT) Chart to Departmental Representative within seven (7) working days of contract award date.

1.4 Project Schedule

.1 Develop detailed Project Schedule.

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

.1 Award.
.2 Planning documents submittals, shop drawings, samples.
.3 Permits.
.4 Mobilization.
.5 Setup camp facilities.
.6 Structure demolition.
.7 Collection and disposal of non-hazardous materials.
.8 Collection and disposal of hazardous materials.
.9 Excavation and containerization of contaminated soils.
.10 Closure of mine openings
.11 Regrading.
.12 Camp shutdown.
.13 Interim Certificate of Completion.
.14 Demobilization.
.15 Closeout submittals.
.16 Final Certificate of Completion

.3 Submit preliminary construction progress Schedule in accordance with Section 01 33 00 - Submittal Procedures to Departmental Representative coordinated with Departmental Representative's Project Schedule.

.4 After review, revise and resubmit Schedule to comply with revised Project Schedule.

.5 During progress of Work revise and resubmit as directed by Departmental Representative.

1.5 Project Milestones

.1 At minimum, incorporate the following project milestones into the Project Schedule:

.1 Mobilization and Demobilization.
.2 Final Completion for all works divided by mine site.

1.6 Project Schedule Reporting

.1 Update Project Schedule on a monthly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule a narrative summary report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining

problem areas, anticipated delays and impact with possible mitigation.

.3 Submit with Monthly Invoice the following: health and safety related performance measures, socio-economic performance measures, and Aboriginal socio-economic performance indicators, as required by AANDC. This includes health and safety related performance. Templates are provided at the end of this Section.

1.7 Project Meetings

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind Schedule and provide measures to regain slippage. Activities considered behind Schedule are those with projected start or completion dates later than current approved dates shown on baseline Schedule.

.2 Weather related delays with their remedial measures will be discussed and negotiated.

1.8 Cost and Quantity Control

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

.1 CWBS to be an organization of the Work to be performed, services to be provided and data to be submitted by Contractor, as well as payments to be made to 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 Pricing Schedule. All unit price, lump sum, and provisional cost sum allowance pay items included in the Basis of Pricing Schedule to also be included in the CWBS.
.4 Prepare the CWBS in computerized spreadsheet format compatible with the most recent release of Microsoft Excel software. Provide CWBS in hard copy format.
.5 Submit the CWBS within thirty (30) days following contract award date.

.2 Equipment and Material Control:

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

.3 Manpower Performance Measures:

.1 Record and report manpower listing for each company employed under this Contract, including Sub-Contractors, detailing daily man-hours during the current month and cumulative total to date and report upon Departmental Representative's request.
.2 Provide statistical reporting.
.3 Provide statistics related to lost time accidents upon Departmental Representative's request.
.4 Monthly Performance Measures Templates are provided at the end of this section.

1.9 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 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Definition

.1 Shop Drawings: 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.

1.2 Administrative

.1 Submit to Departmental Representative submittals listed for review. Submittal list is bound into specification section and is for information only. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work or result in regulatory non-compliance. 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 is not to proceed until review is complete.

.3 Present shop drawings and product data, in SI Metric units.

.4 Where items or information is not produced in SI Metric units converted values are acceptable.

.5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to a specific Project will be returned without being examined and will be considered rejected.

.6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

.8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.

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

1.3 Shop Drawings Submission

.1 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications.

.2 Submit shop drawings bearing stamp and signature of qualified Professional Engineer registered or licensed in the Northwest Territories.

.3 Allow seven (7) days for Departmental Representative's review of each submission.

.4 Adjustments made on shop drawings by Departmental Representative are not intended to

change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.5 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of any revisions other than those requested.

.6 Verify in shop drawings:

.1 Field measurements.
.2 Field construction criteria.
.3 Catalogue numbers and similar data.

.7 Accompany submissions with transmittal letter, in duplicate, containing:

.1 Date.
.2 Project title and number.
.3 Contractor's name and address.
.4 Identification and quantity of each shop drawing, product data, and sample.
.5 Other pertinent data.

.8 Submissions to include:

.1 Date and revision dates.
.2 Project title and number.
.3 Name and address of:
.1 Sub-Contractor.
.2 Supplier.
.3 Manufacturer.
.4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
.5 Details of appropriate portions of Work as applicable:
.1 Fabrication.
.2 Layout, showing dimensions, including identified field dimensions, and clearances.
.3 Setting or erection details.
.4 Capacities and performance characteristics.
.5 Standards.
.6 Operating weight.
.7 Wiring diagrams.
.8 Single line and schematic diagrams.
.9 Relationship to adjacent Work.

.9 After Departmental Representative's review, distribute copies.

.10 Submit three (3) prints and an electronic copy of shop drawings for each requirement requested in specification and as Departmental Representative may reasonably request.

.11 Delete information not applicable to Project.

.12 Supplement standard information to provide details applicable to Project.

.13 If upon review by Departmental Representative, no errors or omissions are discovered or if

only minor corrections are made, two (2) copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.14 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.

.1 This review does not mean that Departmental Representative 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 drawings or of responsibility for meeting all requirements of construction and Contract Documents.

.2 Without restricting 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 Samples

.1 Submit for review samples in triplicate as requested in respective specification Sections. Label samples with origin and intended use.

.2 Deliver samples prepaid to Departmental Representative's business address site office.

.3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.

.4 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.

.5 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

.6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.5 Photographs

.1 Provide digital photos in “Joint Photographic Experts Group” (.jpg) format for Progress Photographs and Final Photographs.

.2 Digital photographs to have a minimum of 2,592 x 1,944 pixel (5 Megapixel) resolution.

.3 Progress and Final Photographs to be submitted on a compact disc (CD). Provide one (1) copy of the Progress Photographs, and two (2) copies of the Final Photographs.

.4 Printed (colour) copies of digital photographs to be provided for Final Photographs only:

.1 Size: 100 mm x 125 mm.

.2 Two (2) digital photographs per 215 x 280 mm page.

.3 Pages to be white, of photographic quality, paper and to be three-hole punched, ready for insertion into a three-ring binder. Binder(s) to be vinyl, hard-covered, 3

inch D ring, sized for 215 x 280 mm paper, with spine pocket.

.5 Identification: typewritten or generated by computer, the name and number of the Project on cover and spine of binder and CD case. Each photograph to be labelled with the digital photo file name positioned so as to not interfere with the view of the main activity or feature presented on the photograph. Also provide a description of each photograph in photographic log format. Photographic log to be included with each computer disk, CD, and binder. Description to include:

.1 Digital photograph file name
.2 Name and description of feature
.3 View direction
.4 Date of exposure.
.5 GPS location
.6 Before and after photographs of location.

.6 Quantity: provide sufficient number of photographs to adequately describe the Work activities carried out during the reporting period. A minimum of two (2) photographs taken from two (2) viewpoints are to be provided for each clean up/construction activity. Viewpoint locations for final digital photographs to be determined by Departmental Representative.

.7 Provide “Before” and “After” photographs of site showing key areas before remediation and after remediation. Provide ”After” photographs from the sample Photographic Viewpoint as the “Before” photographs, record the location of the Photographic Viewpoints with a handheld GPS and plot these locations on the record drawing mark-up. Consult with Departmental Representative to verify Photographic Viewpoints.

.8 Submit progress photographs monthly with last weekly report or as directed by the Departmental Representative.

.9 Provide two (2) sets in two (2) binders of final digital photographs.

.10 Submit final photographs prior to final progress payment request.

1.6 GIS Submissions

.1 All submissions relating to MVLWB Permit Requirements are to conform to the MVLWB document entitled standards for Geographic Information Systems (GIS) Submissions dated March 1, 2012.

1.7 Measurement of Payment

.1 All direct costs for the preparation of the photographic record as outlined above for the project are to be included in the lump sum price bid for Site Photographs, Item 01 33 00-1, as indicated in the Basis of Pricing Schedule.

.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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 Not Used

Specification Section	Description	Date
01 11 00	Worker Orientation Seminar Course Material	Thirty (30) days prior to seminar
01 29 83	CAEAL Laboratory Certification	Upon Departmental Representative's request
01 29 83	Contractor's methodology to complete sampling and testing requirements	Thirty (30) days following contract award date
01 31 19	Community Meeting Presentation	Fourteen (14) days prior to each meeting
01 31 19	Pre-mobilization Site Visit Report	Within seven (7) days after pre-mobilization site visit
01 31 19	UXO Assessment and Inventory Report	Within seven (7) days after pre-mobilization site visit
01 31 19	Blasting certificate (UXO destruction)	Within seven (7) days after pre-mobilization site visit
01 32 18	Bar (GANTT) Chart	Seven (7) days after contract award
01 32 18	Contractor Work Breakdown Structure (CWBS)	Thirty (30) days following contract award date
01 32 18	Cumulative and Daily Manpower Reports	Upon request of Departmental Representative
01 33 00	Preliminary Shop Drawings, Product Data	Reasonable promptness as to not delay the work
01 33 00	Samples	Reasonable promptness as to not delay the work
01 33 00	Progress Photographs	Monthly with last weekly report
01 33 00	Final Photographs	Prior to final progress payment request
01 35 15	Hazardous Material Audit	Thirty (30) days after contract award
01 35 15	Wastewater Management Plan	Thirty (30) days after contract award
01 35 32	Site Specific Health and Safety Plan	Fifteen (15) days after contract award
01 35 32	Site Assessment of Deficiencies in Health, Safety, Medical/First Aid Supplies	Upon request of Departmental Representative
01 35 32	Proof Of PPE Fit Testing For Personnel	Prior to task
01 35 32	Accidents Reports	Immediate verbal report, written report within twenty-four (24) hours
01 35 32	Wildlife Management Plan	With Health and Safety Plan
01 35 32	Qualification and Training Plans for Wildlife Monitors	With Health and Safety Plan
01 35 32	Details and Procedures for the Operation and Maintenance of an AED	With Health and Safety Plan
01 35 43	Copies of Environmental Agency Submittals/Approvals	As required
01 35 43	Fuel Storage Permit	Prior to start of construction
01 35 43	Erosion Sediment and Drainage Control Plan	Prior to performing work in fisheries or sensitive areas
01 35 43	Inventory of Environmental Protection Supplies	Prior to mobilization
01 35 43	Quarry Management and Operations Plan	Prior to mobilization
01 35 43	Dust Management Plan	Prior to mobilization
01 41 00	MSDS Data Sheets	Upon delivery of materials

Specification Section	Description	Date
01 45 00	Inspection and Test Reports	As received
01 52 00	Field Drawings	When required by Departmental Representative
01 53 00	Mobilization and Demobilization Plan	Twenty (20) days after Contract Award
01 53 00	Waste Management Plan	Twenty (20) days after Contract Award
01 53 00	Marine "worthiness" or vessel certication for all barges	Prior to mobilization
01 54 00	Plan of Construction Camp Layout and Siting	Twenty (20) days after Contract Award
01 54 00	Proof of Camp Licenses, Permits, Authorizartions	Prior to camp mobilization
01 54 00	Information on Botttled Water or Water Source and Quality Tests	Prior to opening camp
01 54 00	Set of Camp Rules	Prior to commencing camp operation
01 54 00	Detailed Inventory of First Aid Room Equipment and Supplies	Prior to opening camp
01 61 00	Material Equipment List	Twenty (20) days after Contract Award
01 71 00	Documentation Certifying Equipment Calibration	Prior to contruction season
01 71 00	Name and Address of Surveyor	After contract award
01 71 00	Survey Documentation	Upon request of Departmental Respresentative
01 71 00	Certificate of Completed Work	After construction
01 71 00	Drawings	After construction
01 77 00	Completion Certification	After construction
01 78 00	Record Drawings and Other Record Information	After construction (prior to project close out and 30 days prior to any mandated regulator submissions)
02 00 00	Catastrophic Incident Plan	Prior to commencement of winter road work
02 41 16	Details and Approvals for Use and Transport of Intermediate Containers	Prior to commencement of work
02 41 16	Details and Approvals for Marine Containers	Prior to commencement of work
02 41 16	Demolition Plan	Prior to commencement of work
02 55 13	Details of Contaiminated Soil Containers	Prior to commencement of work
02 61 33	Appprovals for Hazardous Waste Containers	Prior to commencement of work
02 61 33	Detail Layout of Temporary Storage Area	Prior to commencing remediation activities
02 61 33	Photographic Record of All Hazardous Waste Containers	At completion of work
02 61 33	Inventory of Containers and Contents	Prior to shipment offsite
02 61 33	Detailed Inventory of Temporary Storage Area	At the completion of the season
02 61 33	Waste Transport Manifests	Prior to shipment offsite
02 61 33	Hazardous Waste Material Disposal Certificates	Upon receipt from Receiving Site
03 05 11	Concrete Mix Design	Ten (10) days prior to work

END OF SECTION

PART 1 GENERAL

1.1 Definitions

.1 Wastewater: wash water, rinse water, water from decontamination activities, water from dewatering work areas, water from operation of camp facilities (grey and black water), and/or any other effluent stream created or encountered during Work activities

.2 Contact Water: water that has been in physical contact with known Hydrocarbon Contaminated Soil, either in defined soil excavations or excavated soil in treatment areas or stockpiles. Also water that has been in physical contact with metal contaminated material such as soil, ore or ore concentrate.

1.2 Regulatory Requirements

.1 Comply with federal, territorial, and local anti-pollution laws, ordinances, codes, and regulations when disposing of waste materials, debris, and rubbish.

.2 Comply with all terms and conditions of the Land Use Permit, Quarry Permit and any other conditional regulatory instruments.

1.3 Submittals

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

.2 Submit to the Departmental Representative a Wastewater Management Plan, conforming to requirements of AHJ and Specifications as part of the Erosion, Sediment and Drainage Control Plan, prior to the commencement of earth works.

.3 Submit to Departmental Representative, three (3) hard copies and one (1) electronic copy of the Hazardous Material audit thirty (30) days after contract award.

1.4 Wastewater Management Requirements

.1 Contain wastewater from the following sources separately:

.1 Work Activities: including, but not limited to, wastewater streams from dewatering work areas, decontamination, and Contact Water.
.2 Camp Operation: including, but not limited to, grey water, kitchen sumps and traps, and black water.

.2 Wastewater Management Soak Away Pits:

.1 Construct separate soak away pits to manage waste water from work activities and camp operations.
.2 Locate soak away pits sufficient distance from dewatering works or camp facilities as required under the Land Use Permit or as per any AHJ requirements.
.3 Camp Wastewater is to be released onto the ground at a location, approved by the Departmental Representative, that is a minimum of thirty (30) meters from natural drainage courses and one hundred (100) meters from fish bearing waters, and conform to discharge requirements set out by the AHJ.

.4 Soak away pits are to be sized to allow effluent to percolate into the subsurface without creating an erosion concern around or down gradient of the soak away pit.

.5 Operate the soak away pits in accordance with the Erosion, Sediment and Drainage Control Plan (which includes a Wastewater Management Plan).

.6 Stop pumping operations if directed by the Departmental Representative when discharge concerns arise. Complete a minimum of four inspections per day of the soak away pits during dewatering activities to confirm there are no erosion issues. Complete daily inspections of the camp soak away pit.

.7 No chemicals are to be discharged to the soak away pits.

.8 Measure the quantity of water being discharge by means of a flow meter and provide daily written confirmation to the Departmental Representative of the volume of water discharged.

.9 Provide suitable pumps and hoses with diffusors outlets for the management of all wastewaters.

1.5 Decommissioning of Soak Away Pits

.1 Upon completion of the work activities that require wastewater management backfill the sump pits with local site derived material. Place and compact the backfill as prescribed in Section 31 22 15 – Grading.

.2 Place a waste rock or coarse aggregate site derived cover a minimum of 300 mm thick over the former sump pit area.

1.6 Decontamination of Earthmoving Equipment

.1 Decontaminate equipment including buckets and tracks, after working in potentially contaminated work areas and prior to subsequent work or travel on clean areas.

.2 At minimum, perform following steps during equipment decontamination:

.1 Mechanically remove loose waste solids, dirt, grit, and debris by manual methods without using steam or high-pressure water to minimize water usage and potential for contaminated wastewater generated.

.2 Should decontamination not be achieved using above, use high-pressure, low-volume, hot water or steam supplemented by detergents or solvents as appropriate and approved by Departmental Representative. Perform assessment as directed by Departmental Representative, to determine effectiveness of decontamination.

.3 Collect and dispose of the removed material in existing contaminated soil areas.

.3 Contain any water created during removal process as wastewater. Contain soil removed from equipment with waste material.

.4 Perform final decontamination of equipment and materials, which may have come in contact with potentially contaminated materials, prior to final removal from site.

.5 Furnish and equip personnel engaged in equipment decontamination with protective equipment including suitable disposable clothing, respiratory protection, and face shields.

.6 Each piece of equipment may be inspected by Departmental Representative or designate after decontamination and prior to removal from site and/or travel on clean areas. Departmental Representative will have right to require additional decontamination to be

completed, if deemed necessary.

.7 Take appropriate measures necessary to minimize drift of mist and spray during decontamination, including provision of wind splash screens, as required.

.8 Take special precautions to mitigate the tracking of contaminated soil over the site area.

1.7 Water Control

.1 Maintain excavations free of water.

.2 Protect site from puddling or running water. Grade site to drain.

.3 Prevent surface water runoff from leaving Work areas.

.4 Do not discharge decontaminated water, or surface water runoff, or groundwater which may have come in contact with potentially contaminated material, off the.

.5 Prevent precipitation from infiltrating or from directly running off stockpiled waste materials. Cover stockpiled waste materials with an impermeable liner during periods of Work stoppage including at end of each working day and as directed by Departmental Representative.

.6 Direct surface waters that have not contacted potentially contaminated materials to existing surface drainage systems.

.7 Dispose of water in manner not injurious to public health or safety, to property, or to any part of Work completed or under construction in accordance with the provisions of the Erosion Sediment and Drainage Control Plan.

.8 Provide, operate, and maintain necessary equipment appropriately sized to keep excavations, staging pads, and other Work areas free from water.

.9 Contain water from stockpiled waste materials. Transfer potentially contaminated surface waters to wastewater sump pit.

.10 Have on hand sufficient pumping equipment in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment.

1.8 Site Specific Target Levels for Soil Remediation

.1 For the soil remediation work outlined herein Site Specific Target Levels (SSTLs) have been established for select parameters at each mine site as listed in Appendix A.

.2 Areas identified as requiring soil remediation are to be cleaned up to the satisfaction of the Departmental Representative using the SSTLs for the site as a guidance document in determining if additional remedial work is required.

.3 Undertake soil remediation work as per Section 31 22 15 - Grading

1.9 Dewatering

.1 Dewater various parts of Work including, without limitation, excavations, and Work areas.

.2 Employ construction methods, plant procedures, and precautions that ensure Work, including excavations, are stable, free from disturbance, and dry.

.3 Provide sufficient and appropriate labor, plant, and equipment necessary to keep Work free of water including standby equipment necessary to ensure continuous operation of dewatering system.

.4 Discharge water to the local sump pit designated for the work activity and protect excavations and the area around the sump pit from flooding and damage due to surface runoff.

1.10 Progress Cleaning

.1 Maintain cleanliness of Work and surrounding site to comply with federal, provincial, and local fire and safety laws, ordinances, codes, and regulations.

.2 Coordinate cleaning operations with disposal operations to prevent accumulation of dust, dirt, debris, rubbish, and waste materials.

1.11 Final Decontamination

.1 Perform final decontamination of construction facilities, equipment, and materials which may have come in contact with potentially contaminated materials prior to removal from site.

.2 Perform decontamination as specified to satisfaction of Departmental Representative. Departmental Representative will direct Contractor to perform additional decontamination if required.

1.12 Removal and Disposal

.1 Remove surplus materials and temporary facilities from site.

.2 Dispose of non-contaminated waste materials, litter, debris, and rubbish off site.

.3 Do not burn rubbish and waste materials on site unless approved by AHJ.

.4 Do not bury rubbish and waste materials on site.

.5 Do not discharge wastes into streams or waterways.

.6 Dispose of the following materials at an approved off-site facility identified by Contractor and approved by Departmental Representative: Debris including excess construction material, non-contaminated litter and rubbish; disposable PPE worn during final cleaning; and lumber from decontamination pads.

1.13 Testing

.1 Carry out and pay for all testing required to confirm that Wastewater comply with Wastewater Treatment and Discharge Criteria outlined in this Section and Section 01 35 43 – Environmental Procedures. Submit records of this testing to Department

Representative.

1.14 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Piping

.1 Suitable material type, of sufficient diameter and structural thickness for purpose intended; satisfactorily tested for leaks with potable water in presence of Departmental Representative before handling wastewater.

PART 3 EXECUTION

3.1 Installation, Operation, Decommissioning of Wastewater Management Installations

.1 Provide labour, materials, equipment, and do Work required for construction of wastewater soak-away sump pits.

.2 Construct the sump pits as per the Wastewater Management Plan.

.3 Following installation of sump pits, monitor the operation of the pumping equipment and the condition of the sump pit to ensure there is no surficial breakout of wastewater or failure of the pit sidewalls.

.4 Monitor the conditions within the respective sump pits to ensure that the amount of water entering the sump is percolating into the overburden at a rate than can be maintained by the local ground conditions. The sump conditions are to be reviewed with the Departmental Representative as indicated.

.5 Provide the labour, equipment and materials necessary to decommission the respective sump pits as prescribed in Part 1 of this Section.

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 AHJ.

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

.3 The intent of the compliance meeting is to review reporting and inspection requirements to meet the intent of the *NWT Safety Act, NWT Mine Health and Safety Act*, the Land Use Permit, regulatory, and other requirements as may be required.

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

.5 Departmental Representative 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 Sub-Contractors, and others as necessary.
.2 Departmental Representative, and representatives of Independent Inspection Agencies.

.7 Agenda:

.1 Review and approval of minutes of previous meeting.
.2 Review of items of significance that could affect Work.
.3 Review of site inspections: inspect the site on a monthly basis, more or less often, as determined by the Departmental Representative or as directed by the AHJ.
.4 Identify and record field observations, problems, and conflicts that must be noted in reports required by the AHJ.
.5 Identify corrective measures and procedures to regain approval from AHJ.
.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 three (3) hard copies and one (1) electronic copy of the Site Specific Health and Safety Plan no later than fifteen (15) days after contract award to the Departmental Representative for review. 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 the AHJ for review and recommendations to ensure all elements required by the NWT Safety Act, OSHA Regulations, other AHJ, and Contract Specifications have been addressed.

.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 Results of safety and health risk or hazard analysis for construction activities.
.5 Procedures for, but not limited to, cold weather survival, remote Work and general worker health and safety.
.6 Name and telephone number of Contractor's corporate Safety Officer and on-site Safety Representative.
.7 Emergency Response Plan.
.8 Fire Safety Plan
.9 Spill Contingency Plan
.10 Wildlife Management Plan
.11 Corporate Policies on Workplace Harassment and Workplace Violence.
.12 Catastrophic Incident Plan (winter road specific plan)

.4 The On-site Contingency and Emergency Response Plan is to address standard operating procedures to be implemented during emergency situations. Plans including procedures are to meet Safety Requirements below:

.1 Departmental Representative will have Contractor’s On-site Contingency and Emergency Response Plan reviewed by AHJ and may request modifications or additions as necessary for the work.

.5 Conduct and submit to the Departmental Representative a site assessment of deficiencies in health, safety, medical/first aid supplies. Submit to Departmental Representative, upon request, a Schedule for upgrading deficiencies to meet requirements of AHJ.

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 (WSCC), the applicable Occupational Health and Safety Regulations, and Territorial and local statutes and authorities. Exceed standards and requirements of applicable regulatory agencies and industry best practice standards

.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, five (5) safety hats with liners, five (5) pairs of safety clear glasses, and five (5) safety hi-visibility vests for use by Departmental Representative and visitors. Maintain a supply of ear plugs.

.4 Comply with all applicable health and safety policies and procedures including the Copper Pass Winter Road Rules as appended herein.

.5 Departmental Representative 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, but not limited to, *Government of NWT Safety Act*, 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 and meets WSCC and ESDC requirements including but not limited to CLC Occupational Health and Safety regulations for remote sites and Wilderness First Aid qualifications; NWT Mine Health and Safety Act and the NWT Safety Act. First aid facilities and First Aid personnel must be in compliance with the *NWT Mine Health and Safety Act*.

.8 Review Best Practice and GNWT Winter Road Safety Guidance documentation to ensure appropriate health and safety measures are being documented and implemented during the construction and operation of the winter road.

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

.10 Working Procedures and Decontamination procedures consistent with requirements OSHA's 29 CFR 1910.120 HAZWOPER and territorial environmental regulations for:

.1 Working activities, where employees are likely to be exposed to 50% of Threshold Limit Values (TLV) listed by American Conference of Governmental Hygienists (ACGIH), TLVs and BEIs based on documentation of Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices (BEI) 2004 and amendments thereto.

.11 Hazardous Material Discovery

.1 Immediately stop Work and notify Departmental Representative for further instructions with respect to abatement procedures required for asbestos or any other potentially hazardous conditions encountered when Work occurs in areas having materials resembling asbestos or other potentially hazardous materials during course of Work.

1.4 Filing of Notice

.1 File Notice of Work with Territorial AHJ prior to commencement of Work.

1.5 Regulatory Requirements

.1 Comply with specified standards, regulations and orders of AHJ to ensure safe operations on site.

.2 All equipment brought to the site must meet the *NWT Mine Health and Safety Act*, equipment must have rotating beacons and vehicles should 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, Worker Orientation Seminar, 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 regularly and in accordance with all applicable acts and regulations.
.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, bandages) products.

.5 A Level II, or higher, Mine Supervisor, as prescribed in the *NWT Mine Health and Safety Act,* must be on site at all times during the course of the remediation works.

1.7 Hazard Communication Requirements

.1 Comply with Work Site Hazardous Materials Information System Regulations of the AHJ.

.2 Provide Departmental Representative 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.

.3 Communicate known and potential hazards to workers and all site visitors.

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 Departmental Representative verbally and in writing.

.2 Monitor potential low oxygen and Lower Explosive Limits areas with oxygen/LEL monitor when working in and around area. These areas include but are not limited to the above ground tanks, trenches, excavations and areas near machinery exhaust.

1.9 Safety and Hygiene

.1 Provide training for all persons entering the 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 suitable safety clothing and equipment as

required by legislation.

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

.3 Ensure all clothing and personal protective equipment used on site, must remain on site, to be either decontaminated or disposed of. No Work clothing is to leave Work site without having been properly decontaminated.

.4 Outline and designate PPE for each site and Work activity in accordance with AHJ.

.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.

.3 Dispose of or decontaminate PPE worn on site at end of each workday.

.4 Decontaminate reusable PPE before reissuing.

.5 Provisions for decontamination arising from entry or exit into contaminated areas.

.4 Develop a written Respiratory Protection program to be included in the Site Specific Health and Safety Plan and ensure that the program is strictly followed by site personnel; include the following procedures as minimum:

.1 Provide site personnel with extensive training in usage and limitations of, and qualitative fit testing for, air purifying and supplied air respirators in accordance with specified regulations.

.2 Monitor, evaluate, and provide respiratory protection for site personnel.

.3 Verify that levels of protection as listed have been chosen to be consistent with site specific potential airborne hazards associated with major contaminants identified on site.

.4 Immediately notify Departmental Representative when level of respiratory protection required increases.

.5 Verify that appropriate respiratory protection during Work activities is available and readily accessible; all personnel entering potentially contaminated Work areas will be supplied with and use appropriate respiratory protection.

.6 Assess ability for site personnel to wear respiratory protection.

.7 Verify that site personnel have passed respirator fit test prior to entering potentially contaminated Work areas. Verify that facial hair does not interfere with proper respirator fit.

.8 Submit proof of fit testing for site personnel to Departmental Representative. Update submission when new personnel are added to the Work or when new Work activities occur.

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

.6 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/radios.

.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. Identify emergency stations.

.4 Implement measures consistent with best practices for communications during winter road construction and operations.

1.11 Safety Meeting

.1 Conduct daily task specific safety meetings (toolbox) as per Project requirements and as directed by Departmental Representative.

.2 Conduct safety meetings with workers engaged in outdoor Work under summer or winter conditions. Topics must include hot and cold stress, exhaustion, snowmobile safety, buddy systems, and any other items inherent in working outdoors in winter in isolated environments.

.3 Conduct mandatory daily safety meetings (toolbox) 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 AHJ. Keep records of meetings on file.

1.12 Fuel Management

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

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

.3 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 or equipment is in operation.

.2 Speed limits must be set and obeyed.

.3 If road conditions are unsafe or marginally unsafe, maintain roads to acceptable standards. Do not risk property damage or injury.

.4 Vehicles are to not be idled for longer than ten (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 Departmental Representative.

.5 Perform vehicle maintenance and lubrication of equipment in a manner that avoids spillage of fuels, oils, grease, and coolants. When refuelling 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.

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

.7 All mobile equipment brought to the site must have rotating beacons and vehicles should have beacons and buggy whips.

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 Departmental Representative is to be notified when disposal is required.

.6 Dispose of all flammable liquids in accordance with all applicable environmental regulations and with the requirements of Section 02 61 33 - Hazardous Waste Material.

1.15 Storage and Handling of Fuel

.1 Locate fuel storage areas as approved by Departmental Representative.

.2 Inspect fuel storage and dispensing facilities daily. Make available fire fighting and spill response 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 stored in accordance with the Land Use Permit and labelled with INAC's name and Contractor's name, as required by the Land Use Permit. All tanks require registration, including of assignment of a registration number, with Environment Canada (EC) FIRSTS.

.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 (2) fuel pumps, empty 200 L drums and absorbent material sufficient to clean up a 1,000 L spill at all fuel storage sites. Maintain spill mats or pan under mobile fuelling containers and a spill kit at the refuelling area.

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

1.16 Spill Contingency Plan

.1 Submit to Departmental Representative 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.
.11 Spill response and containment plans for all materials that could potentially be spilled.

.2 A separate section of the plan must address the spill contingency measures unique to the construction and operation of a winter road.

1.17 Medical

.1 Provide and maintain first aid and medical care and facilities for all workers as required by the Statutes of the *NWT Mine Health and Safety Act*.

.2 Maintain first aid supplies and sick quarters separately from general living quarters.

.3 Provide the appropriate first aid kit, based on the number of workers, in accordance with

the *NWT Mine Health and Safety Act*.

.4 Establish an emergency response plan acceptable to Departmental Representative, for the removal of any injured person to medical facilities or a doctor's care in accordance with applicable legislative and regulatory requirements. In the event that the Emergency Medical Technician (EMT) departs site with the patient, replace the EMT as soon as possible.

.5 Provide proof of First Aid credentials to Departmental Representative prior to the start of each construction season. Provide the appropriate number of first aid attendants on site in accordance with the *NWT Mine Health and Safety Act*.

.6 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 sufficient self-contained breathing apparatus units; blankets and towels; stretcher; and one (1) hand held emergency siren in all confined access locations.
.3 Locate and maintain an Automated External Defibrillator (AED) in an appropriate location on site. Submit details and procedures related to the operation and maintenance of the AED unit following the “Best Practice Model for implementation of an Automatic External Defibrillator Program.”
.4 Provide a minimum of one (1) qualified first aid attendant on site at all times when Work activities are in progress; duties of first aid attendant may be shared with other light duty Work related activities.
.5 Provide a full time EMT - Emergency Medical Technician, c/w 1000 hours of classroom and practical training, 6 weeks of practical experience with required number of emergency response calls. The EMT will be territorially certified by a required exam and refresher exams every 2 years. An EMT is a highly trained medical professional who responds to medical and trauma emergencies in the pre-hospital setting ("in-field") for the purpose of stabilizing a patient's condition before and during transportation to an appropriate medical facility. Provide name and number of medic in the Contractor’s Site Specific Health and Safety Plan.

1.18 Accidents and Accident Reports

.1 Immediately report, verbally, followed by a written report within twenty-four (24) hours, to Departmental Representative, 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 Departmental Representative 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 Sub-Contractor on account of any accident, promptly report the facts in writing to Departmental Representative, 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 Departmental Representative or Contractor.

1.20 Wildlife Management

.1 Develop a wildlife management 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 Departmental Representative for review.
.2 All wildlife encounters and sightings must be reported to Departmental Representative as part of the weekly report.
.3 A minimum of one person must be designated as a wildlife monitor and trained in firearms and wildlife deterrent use.

1.21 Wildlife Monitors

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

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

.3 All Wildlife Monitors are required to have a valid Firearm Certificate as per AHJ. Copies of the firearms certificates to be provided upon request by the Departmental Representative.

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

.5 Supply one All Terrain Vehicle (ATV) per wildlife monitor to facilitate his duties. Ensure wildlife monitors are fully trained in the safe use of the ATV equipment.

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

.7 Qualifications and training plans for wildlife monitors must be submitted to Departmental Representative as part of the Site Specific Health and Safety Plan.

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 Departmental

Representative 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 Sub-Contractors 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 NWT Safety Act.
.2 NWT Mine Safety Act
.3 National Fire Code of Canada.

.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 applicable legislation.

1.23 Reporting Fires

.1 A person discovering a fire and all fire related incidents will report immediately, by fastest available means, to Departmental Representative 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 the camp buildings.

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

.6 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 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 in accordance with Section 02 61 33 - Hazardous Waste 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 Departmental Representative 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 Departmental Representative 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 and Clarifications

.1 Direct any questions or clarification to Departmental Representative.

1.29 Unique Hazards

.1 Ensure workers receive training specific to the PPE requirements for working with site-specific unique hazards including safe handling, disposal, and emergency procedures.

.2 Special precautions during construction of winter roads are to be adhered to so as to ensure the safety of all workers.

.3 Issue to all workers special procedures pertaining to safety while constructing winter roads. Procedures must include requirements for working in teams, communications, procedures in the event of breaking through the ice (i.e. whiskers on Snowcats), open doors or roof hatches in lead equipment, and any other items vital to the safety of employees to the satisfaction of WCB of the Northwest Territories.

.4 Issue copies of procedures to attendees at the pre-construction meeting for review.

1.30 Measurement of Payment

.1 All costs for the preparation and completion of the Site Specific Health and Safety Plan, are to be included in the lump sum price paid for under Item 01 35 32-1, as indicated in Basis of Pricing 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 Departmental Representative.

.2 The provision of Wildlife Monitors, including ATV, will be measured for payment by the 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 Pricing Schedule.

.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 Pricing Schedule BOP-1. Indicate the cost of work as a separate line item in the Contract Work Breakdown Structure (CWBS) specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 Not Used

END OF SECTION

PART 1 GENERAL

1.1 Definitions

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants

1.2 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 Departmental Representative to conduct the Work.

.3 Pay specific attention to the Land Use Permits, and Quarry Permit.

.4 Pay specific attention to the *Migratory Birds Convention Act*, as amended in 1994.

1.3 Submittals

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

.2 Submit one (1) complete copy of all submittals and agency approvals to Departmental Representative.

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

1.4 Relics and Antiquities

.1 Relics and antiquities and items of historical or scientific interest such as cairns, tent-rings, commemorative plaques, inscribed tablets, and similar objects found on-site will remain the property of the appropriate AHJ.

.2 Prior to commencing Work at the site, review the following with Departmental Representative:

.1 The extent of the archaeological sensitive areas including gravesites.
.2 The methods to be used by Contractor to mark and protect the areas from construction/remediation activities.

.3 Give immediate notice to Departmental Representative if evidence of archaeological finds are encountered during construction/remediation activities, and await Departmental Representative's written instructions before proceeding with Work in this area.

.4 Protect archaeological finds and similar objects found during course of Work.

1.5 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 Departmental Representative and the Land Use Permit.

1.6 Fires

.1 Open pit fires and burning of rubbish on-site is only permitted when approved by the Departmental Representative and must be done in a controlled manner in accordance with the provisions of the Burn Permit.

.2 Where fires or burning is permitted, prevent staining or smoke damage to structures, materials or vegetation which is to be preserved. Restore, clean and return to new condition stained or damaged Work.

.3 Provide supervision, attendance and fire protection measures as directed.

.4 Ash from any burning activities is to be disposed of in accordance with federal and territorial regulations. Departmental Representative is responsible for any testing required for the off-site disposal of ash waste.

1.7 Disposal of Wastes

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner, or any other deleterious substances into waterways.

1.8 Fuel Storage

.1 Comply with Canadian Environmental Protection Act (CEPA) Storage Tank Systems for Petroleum Products Regulations, CCME Codes of Practice and any regulations obtained from Territorial and other regional authorities, for setting up and operating temporary fuel tanks. Provide Departmental Representative with copies of permits prior to the start of construction.

1.9 Site Clearing and Plant Protection

.1 Protect vegetation, including plants on site and adjacent properties, where indicated.

.2 Minimize stripping of topsoil and vegetation.

.3 Where stripping is required the topsoil and organic soils are to be stockpiled for reuse as cover to promote re-vegetation of the disturbed areas of the site.

1.10 Erosion and Sediment Control

.1 Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas, from stockpiles, staging areas, and other Work areas. Prevent erosion and sedimentation.

.2 Minimize amount of bare soil exposed at one time. Stabilize disturbed soils as quickly as practical. Strip vegetation, re-grade, or otherwise develop in such a way as to minimize surfaces. Remove accumulated sediment resulting from construction activity from adjoining surfaces, drainage systems, and water courses, and repair damage caused by soil erosion and sedimentation as directed by Departmental Representative.

.3 Provide and maintain temporary measures which may include, but are not limited to, silt, fences, hay or straw bales, ditches, geotextiles, drains, berms, terracing, riprap, temporary drainage piping, sedimentation basins, vegetative cover, dikes, and any other construction required to prevent erosion and mitigation of silt, mud, sediment, and other debris off-site or to other areas of site where damage might result or that might otherwise be required by Laws and Regulations. Make sediment and erosion control measures available during all project stages including but not limited to work area preparation, mobilization, construction, post-construction and demobilization activities. Place silt fences and/or hay or straw bales in ditches to prevent sediments from escaping from ditch terminations.

.4 Plan construction procedures to avoid damage to Work or equipment encroachment onto water bodies or drainage ditch banks. In the event of damage, promptly take action to mitigate effects. Restore affected bank or water body to pre-existing condition.

.5 Do not disturb existing embankments or embankment protection.

.6 Inspect earthwork as required to detect evidence of erosion and sedimentation; promptly apply any corrective measures in accordance with the provisions of the Erosion and Sediment Control Plan.

.7 If soil and debris from site accumulate in low areas, ditches, or other areas where in Departmental Representative's determination is undesirable, remove accumulation and restore area to original condition.

.1 Do not pump water containing suspended materials into waterways or drainage systems.
.2 Control disposal or runoff water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.11 Erosion, Sediment and Drainage Control Plan

.1 Provide Erosion, Sediment, and Drainage Control Plan that identifies type and location or erosion and sediment controls to be provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Territorial, and Municipal laws and regulations as well as industry best practices in the NWT. The Plan is to also reference manufacturer's installation procedures and protocols for the respective materials being supplied to provide Erosion, Sediment and Drainage Control.

.2 Submit and Erosion, Sediment, and Drainage Control Plan to Departmental Representative for review and approval prior to commencing earth works which is to

address as a minimum the following:

.1 Details of grading Work to prevent surface drainage into or out of Work areas.
.2 Details of erosion control works and materials to be used, including the deployment of silt fencing, floating silt curtains and containment booms during construction and excavation activities.
.3 Work Schedule including the sequence and duration of all related Work activities.
.4 The treatment of site runoff to prevent siltation of watercourses.
.5 Dewatering procedures for excavated materials including silt removal procedures prior to discharge.
.6 Stabilizing procedures during excavation.
.7 Maintenance of filters and sedimentation traps.
.8 Contingency plans must also be included to address unexpected sediment and erosion risk including those associated with rain events with greater than 5 mm of precipitation.
.9 Comply with the requirements of all AHJ and the Crown EHS-MS.

.3 Any dewatering activities will be released to the local sump pit that is a minimum of 30 metres from natural drainage courses and 100 m from fish bearing waters.

.4 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment

1.12 Work Adjacent to Waterways

.1 Do not operate construction equipment in waterways.

.2 Do not use waterway beds for borrow material.

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

.4 Design and construct temporary crossings to minimize erosion to waterways.

.5 Do not skid logs or construction materials across waterways.

.6 Avoid spawning beds when constructing temporary crossings of waterways.

.7 If stream or drainage course crossing is required, use methodologies in accordance with DFO requirements.

1.13 Dust and Particulate Control

.1 Contractor shall develop a Dust Management Plan that addresses the high arsenic levels associated with waste ore and waste ore/waste rock co-mingled wastes at each site.

.2 Execute Work by methods to minimize raising dust from decontamination operations. Implement and maintain dust and particulate control measures as determined necessary by applicable regulations and standards during Work and in accordance with AHJ.

.3 Provide positive means to prevent airborne dust from dispersing into atmosphere. The use of oil for dust control is prohibited. Provide details on the dust suppressant to the Departmental Representative for approval prior to use.

.4 Prevent dust and dust suppressant from spreading to beyond the immediate work area.

.5 Departmental Representative or designate may stop work at any time when Contractor's control of dusts and particulates is inadequate for worker exposure relative to indoor conditions during demolition activities, or when air quality monitoring indicates that release of fugitive dusts and particulates into the work areas equals or exceeds specified levels.

.6 If Contractor's dust and particulate control is not sufficient for controlling dusts and particulates into atmosphere, stop work. Where concerns exist discuss procedures with the Departmental Representative that result in resolving any problems or concerns. Make all necessary changes to operations prior to resuming work that may cause release of dusts or particulates.

.1 Prevent sandblasting and other extraneous materials from contaminating air beyond application area, by providing temporary enclosures.
.2 Cover or wet down dry materials and rubbish to present blowing dust and debris. Provide dust control for temporary roads.

1.14 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.

.2 Provide a minimum of 100 m, or more as required by the Erosion, Sediment and Drainage Control Plan, of polypropylene silt fence (typical height of 0.9 m) and the necessary stakes for installation. This will be used as necessary to prevent sediment transport into water bodies. Product acceptance will be based on compliance with the following minimum/maximum average values:

.1 Minimum Grab Tensile Strength (ASTM D4632):520 N.
.2 Maximum Elongation (ASTM D4632):15 %.
.3 Minimum Puncture Strength (ASTM D4833):250 N.
.4 Maximum Apparent Opening Size (ASTM D4751)500 µm.

.3 Provide a minimum of 50 lineal metres, or more as required, of 200 mm diameter hydrophobic, sorbent booms. This will be used as necessary to prevent the potential migration of hydrocarbons.

.4 Supply, transport, install and maintain erosion, sediment and drainage controls necessary to complete the Work in accordance with the requirements of Departmental Representative.

.5 Supply a Standard Spill Response Kit at each work site which includes a spill response kit designated for a marine or aquatic spill.

.6 At the completion of construction, dispose of used silt fence off-site as non-Hazardous Waste. Dispose of used absorbent boom in accordance with Section 02 61 33 - Hazardous Waste Material.

.7 Unused Erosion, Sediment and Drainage Control supplies will remain the property of Departmental Representative until the end of the contract at which time they will be transferred to Yellowknife and placed in the care of the Crown.

.8 Provide a written inventory of environmental protection supplies to the Departmental Representative for review prior to mobilization.

1.15 Historical Archaeological Control

.1 Provide historical, archaeological, cultural resources, biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands known to be on Project site; and/or identifies procedures to be followed if historical archaeological, cultural resources, biological resources and wetlands not previously known to be onsite or in area are discovered during construction.

.2 Plan: include methods to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

.3 Review the contents of the Plan with staff prior to commencement of the work on site.

1.16 Notification

.1 Departmental Representative will notify Contractor in writing of observed non-compliance with Federal, Provincial or Municipal environmental laws or regulations, permits, etc.

.2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.3 Departmental Representative will issue stop order of Work until satisfactory corrective action has been taken.

.4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

1.17 Measurement of Payment

.1 Include all direct costs for the supply and transport of the specified Environmental Protection Supplies including silt fence, floating turbidity curtain, sorbent booms, erosion control blankets and all necessary stakes and connecting hardware in the lump sum price for Environmental Protection Supplies, Item 01 35 43-1, as indicated in the Basis of Pricing Schedule.

.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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Polypropylene Silt Fence

.1 Silt Fence: an assembled, ready-to-install unit consisting of geotextile attached to driveable posts. Geotextile to be uniform in texture and appearance, having no defects, flaws, or tears that would affect its physical properties; and contain sufficient ultraviolet ray inhibitor and stabilizers to provide minimum 2-year service life from outdoor

exposure.

.1	Minimum Grab Tensile Strength (ASTM D4632):	520 N.
.2	Maximum Elongation (ASTM D4632):	15 %.
.3	Minimum Puncture Strength (ASTM D4833):	250 N.
.4	Maximum Apparent Opening Size (ASTM D4751):	500 µm.

.2 Net Backing: industrial polypropylene mesh joined to geotextile at both top and bottom with double stitching of heavy-duty cord, with minimum width of 750 mm.

.3 Posts: sharpened wood, approximately 50 mm square, protruding below bottom of geotextile to allow minimum of 450 mm embedment; post spacing 2.4 m maximum. Securely fasten each post to geotextile and net backing using suitable staples.

2.2 Hydrophobic Sorbent Boom

.1 200 mm diameter polypylene material.

.2 Minimum gallons adsorbed per 3 m length: 50 L.

PART 3 EXECUTION

3.1 Temporary Erosion Sedimentation Control

.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff to adjacent properties, according to requirements of AHJ.

.2 Inspect, repair, and maintain erosion and sedimentation control measures during Work.

.3 Implement silt curtains and other erosion control methods as directed by Departmental Representative.

3.2 Installation

.1 Construct temporary erosion control items as indicated. Actual alignment and/or location of various items as directed by Departmental Representative.

.2 Do not construct bale barriers and silt fences in flowing streams or in swales.

.3 Check erosion and sediment control measures weekly after each rainfall; check daily during prolonged rainfall.

.4 Bales and/or silt fences may be removed at beginning of workday but will be replaced at the end of workday.

.5 Whenever sedimentation is caused by stripping vegetation, re-grading, or other development, remove it from adjoining surfaces, drainage systems, and watercourses, and repair damage as quickly as possible.

.6 Prior to or during construction, Departmental Representative may require the installation or construction of improvements to present or correct temporary conditions on site. Improvements may include berms, mulching, sediment traps, detention and retention basins, grading, planting, retaining walls, culverts, pipes, guardrails, temporary roads,

and other measures appropriate to specific condition. Temporary improvements must remain in place and in operation as necessary or until otherwise directed by Departmental Representative.

.7 Repair damaged bales, end runs, and undercutting beneath bales.

.8 Unless indicated or directed by Departmental Representative, remove temporary erosion sediment control devices upon completion of Work. Spread accumulated sediments to form a suitable surface for seeding or dispose of, and shape area to permit natural drainage to satisfaction of Departmental Representative. Materials once removed become property of Contractor.

END OF SECTION

PART 1 GENERAL

1.1 References and Codes

.1 Perform Work in accordance with National Building Code of Canada (NBC) including all amendments 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 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 the NWT. Advise Departmental Representative of any discrepancies in the codes, standards and regulations applicable to the Work.

1.2 References and Codes - Federal

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

.1 Canada Labour Code - Occupational Health and Safety (R.S. 1985, c.L-2).
.2 Canada Mining Regulations (C.R.C.C. 1516)
.3 Canada Occupational Health and Safety Regulations (SOR/86-304)
.4 *Canadian Environmental Protection Act*, PCB Regulations (SOR/2008-273)
.5 Controlled Products Regulations (SOR/88-66) a.SOR/2001-254
.6 Inter-provincial Movement of Hazardous Waste Regulations (SOR/2002-301)
.7 National Fire Code of Canada, 1995 a. 2002
.8 Ozone Depleting Substances Regulations, 1998 (SOR/99-7)
.9 *Transportation of Dangerous Goods Act,* 1992 (S.C. 1992, c.34) a.1999, c.31
.10 Transportation of Dangerous Goods Regulations (SOR/2001-286) a.SOR/2003-400
.11 Territorial Land Use Regulations (C.R.C., c.1524) a.98-430
.12 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (SOR/2008-197)
.13 *Migratory Birds Convention Act*
.14 Environmental Code of Practice for Aboveground Storage Tank Systems Containing Petroleum Products (CCME, 1994)
.15 Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (EC, 2008)
.16 Canadian Soil Quality Guidelines for the Protection of Environment and Human Health (SSME, 1999).
.17 Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME, 1999).
.18 *Canadian Environmental Protection Act* (EC, 1999)
.19 Contaminated Sites Management Policy (INAC, 2002)
.20 Northern Affairs Contaminated Sites Management Policy (INAC, 2002)
.21 A Federal Approach to Contaminated Sites (CSMWG, 2002)
.22 Risk Management Guidance Document (INAC, 2006)
.23 Contaminated Sites Cost Estimating Guide (AANDC, 2013)

.24 Treasury Board Policy on Management of Real Property (TB, 2006)
.25 Risk Management Tool & Reporting Tool User Guide (TB, 2006)
.26 Canada-Wide Standard for Petroleum Hydrocarbons (PHC) in Soil (CCME, 2008)
.27 Environment, Health & Safety Management System Manual (INAC, 2008)
.28 Environment, Health & Safety Standard Operating Procedures Manual (INAC, 2008)
.29 Environment, Health & Safety Control Framework, Northern Contaminates Site Program (INAC, 2008)
.30 Environment, Health & Safety Audit Program Guide (INAC, 2008)
.31 Construction Project Safety Management Guide, 5th Edition (PWGSC, 2008)
.32 Abandoned Military Site Remediation Protocol (INAC, 2009)
.33 Guidelines for Canadian Drinking Water Quality (April 2007)
.34 Environment, Health and Safety Management System Manual (INAC, 2006)
.35 National Building Code of Canada (2010)
.36 Navigable Waters Protection Act (R.S.C, 1985, c.N-22)
.37 Canadian Environmental Assessment Act (S.C. 1992, c.37)
.38 Mackenzie Valley Resource Management Act (S.C. 1998, c.25)
.39 Fisheries Act (R.S.C., 1985, c.F-14)
.40 Species at Risk Act (S.C., 2002, c.29)
.41 Canadian Electrical Code, 2012

1.3 References and Codes - Northwest Territories

.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 which will include but not be limited to:

.1 *Environmental Protection Act* (R.S.N.W.T. 1988, c. E-7) a. 1998, c.21, c.24.
.2 Labour Standards Act (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
.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 Used Oil and Waste Fuel Management Regulations, November 2003
.8 Work Site Hazardous Materials Information System Regulations (R.R.N.W.T1990, c.S-2)
.9 *Northwest Territories Mine Health & Safety Act* (S.N.W.T. 1994, c.25 in force December 15, 1995 SI-014-95)
.10 Asbestos Safety Regulations (R-016-92)
.11 Environment, Health and Safety Management System Manual (INAC, 2006)
.12 Guideline for the Management of Waste Batteries (September 1998)
.13 Guideline for the Management of Waste Lead and Lead Paint (April 2004)
.14 Guideline for the Management of Waste Solvents (September 1998)
.15 Guideline for Contaminated Site Remediation (November 2003)
.16 Guideline for Ambient Air Quality (December 2002)
.17 Guideline for Dust Suppression (February 1998)
.18 Guideline for the General Management of Hazardous Waste (February 1998)
.19 Guideline for Ozone Depleting Substances (February 1998)
.20 Guideline for the Management of Waste Asbestos (2004)
.21 *Northwest Territories Waters Act* (C.S 1992. c39)
.22 Safety Act (R.S.N.W.T., 1988, c.S-1)
.23 Environmental Tobacco Smoke Work Site Regulations (R-082-2003)
.24 Mine Site Reclamation Guidelines for the Northwest Territories (AANDC 2007)

.25 Northern Land Use Guidelines - Access: Roads and Trails (AANDC 2010)
.26 Northern Land Use Guidelines - Camp and Support Facilities (AANDC 2010)
.27 Northern Land Use Guidelines - Pits and Quarries (AANDC 2010)
.28 Guidelines for Spill Contingency Planning (AANDC 2007)
.29 Guidelines for Developing a Waste Management Plan (MVLWB 2011)
.30 Wildlife Act (R.S.N.W.T., 1988, c.W-4)
.31 Species at Risk (NWT) Act (S.N.W.T., 2009, c.16)
.32 NWT Archeological Sites Regulation (SOR/2001-219)

1.4 Permits and Licenses

.1 The following permits and licenses will be held by AANDC and will be provided to Contractor once issued:

.1 Type "A" Land Use Permit, granted by the Mackenzie Land and Water Board in accordance with the *Mackenzie Valley Resource Management Act*.
.2 Quarry Permit.

.2 Any deviations from the current remediation plan may require Land Use Permit amendments or field authorizations. Notify Departmental Representative of any proposed deviations so AANDC can contact the appropriate agency to obtain approval for the deviation.

.3 Obtain permits from the respective AHJs as required to complete the work including but not limited to Burn Permits.

1.5 Hazardous Material Discovery

.1 Stop Work immediately and notify Departmental Representative upon discovery of following materials during course of Work:

.1 Designated substances such as PCBs, asbestos, and mercury.
.2 Unknown and/or potentially hazardous substances.
.3 Items that may have archaeological, cultural or scientific significance.
.4 Unexploded Ordnance (blasting caps).

.2 Work at site will involve contact with:

.1 Metal impacted soil.
.2 PHC (total petroleum hydrocarbons) impacted soils.
.3 Hazardous liquids and petroleum-based sludges.
.3 Demolition debris with lead-based and PCB-amended paints.

1.6 WHMIS

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

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

.3 Provide inventory system to track movement of all workplace hazardous materials on and off site.

1.7 Submittals

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

1.8 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 Not Used

END OF SECTION

PART 1 GENERAL

1.1 Inspection

.1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

.4 Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such Work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative will pay cost of examination and replacement.

1.2 Submittals

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

1.3 Independent Inspection Agencies

.1 Independent Inspection/Testing Agencies will be engaged by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.

.2 Provide equipment required for executing inspection and testing by appointed agencies.

.3 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.

.4 If defects are revealed during inspection and/or testing, appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by Departmental Representative at no cost to Departmental Representative. Pay costs for retesting and re-inspection.

1.4 Access to Work

.1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.

.2 Co-operate to provide reasonable facilities for such access.

1.5 Procedures

.1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 Rejected Work

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 Make good other Contractor's Work damaged by such removals or replacements promptly.

.3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Departmental Representative may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.7 Reports

.1 Submit three (3) copies of inspection and test reports to Departmental Representative.

.2 Provide copies to Sub-Contractor of Work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

1.8 Tests and Mix Designs

.1 Furnish test results and mix designs as may be requested.

.2 The cost of tests and mix designs beyond those called for in Contract Documents or beyond those required by law of Place of Work will be appraised by Departmental Representative and may be authorized as recoverable.

1.9 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 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 remediation of the site. Temporary utilities to meet requirements of Land Use Permit issued for the Work, satisfy requirements of Federal, Territorial and local AHJ, and comply with the requirements of Section 01 35 43 - Environmental Protection.

1.2 Submittals

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

1.3 Existing Services

.1 The location of equipment specified or indicated on the Drawings is to be considered as approximate.

.2 Before commencing Work, establish location and extent of services in area of Work, and notify Departmental Representative of findings.

.3 Where unknown services are encountered, immediately advise Departmental Representative and confirm findings in writing.

.4 Record locations of maintained, joined, re-routed and abandoned service lines indicating horizontal distances and vertical elevations.

.5 Take necessary precautions and prevent damage to existing services and facilities.

.6 Repair and replace services or facilities damaged as a result of Contractor’s operations at no additional cost to Departmental Representative.

1.4 Water Supply

.1 Provide continuous supply of potable water for personnel on site.

.2 Provide continuous supply of water from local water bodies for construction and non-drinking camp use (e.g. dust control, fire fighting, equipment decontamination and general washing).

1.5 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 Departmental Representative's approval.

.3 Provide lighting and power at site for use during Work by Contractor, Sub-Contractors, and Departmental Representative's support personnel including outdoor lighting for night shift as applicable.

1.6 Temporary Heating and Ventilation

.1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.

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

.3 Provide temporary heat and ventilation in enclosed areas as required to:

.1 Facilitate progress of Work.
.2 Provide adequate ventilation to meet health regulations for safe working environment.
.3 Protect Work and products against dampness and cold.
.4 Prevent moisture condensation on surfaces.
.5 Provide ambient temperatures and humidity levels for storage and installation of materials.

.4 Maintain temperatures of minimum 10ºC in areas where construction is in progress.

.5 Provide ventilation for temporary facilities as follows:

.1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
.2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
.3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
.4 Ventilate storage spaces containing hazardous or volatile materials.
.5 Ventilate temporary sanitary facilities.
.6 Continue operation of ventilation and exhaust system for time after cessation of Work process to assure removal of harmful elements.

.6 Maintain strict supervision of operation of temporary heating and ventilating equipment to:

.1 Conform with applicable codes and standards.
.2 Enforce safe practices.
.3 Prevent abuse of services.
.4 Prevent damage to finishes.
.5 Vent direct-fired combustion units to outside.

.7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 Temporary Communication Facilities

.1 Provide and pay for temporary telephone fax data hook up, lines equipment necessary for Contractor use and use of Departmental Representative.

1.8 Fire Protection

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

1.9 Drainage

.1 Refer to Section 01 35 43 - Environmental Protection

1.10 Signs and Notices

.1 Safety and Instruction Signs and Notices:

.1 Signs and notices for safety and instruction to be in English.

.2 Maintenance and Disposal of Site Signs:

.1 Maintain approved signs and notices in good condition for duration of Project, and dispose of off site on completion of Project, or earlier if directed by Departmental Representative.

1.11 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

PART 3 EXECUTION

3.1 Not Used

END OF SECTION

PART 1 GENERAL

1.1 Installation and Removal

.1 Provide construction facilities in order to execute Work expeditiously.

.2 Remove from site all such Work after use.

.3 Provide all temporary facilities consisting of the design, supply, construction, maintenance, operation and removal of the facilities and services required to support the remediation of the site. Provide temporary facilities as specified at the work site, and any other location where temporary facilities are essential to the Work. Temporary facilities to meet requirements of Land Use Permit issued for the Work, satisfy requirements of Federal, Territorial and local AHJ, and comply with the requirements of Section 01 35 43 - Environmental Protection.

1.2 Location of Equipment and Fixtures

.1 Location of equipment indicated or specified are to be considered as approximate.

.2 Inform Departmental Representative of impending installation and obtain his approval for actual location if deviation from specified location is contemplated.

.3 Submit field drawings to indicate relative position of various services and equipment when required by Departmental Representative.

1.3 Access and Dust Control

.1 Provide and maintain adequate access, including snow removal, to all working areas of the site, camp, utilities and offices during all periods of work by Contractor, Sub-Contractor's and other Contractor s performing Work for Departmental Representative.

.2 Access includes removal of snow, as may be required, to gain access to site, as required, to meet the Project Schedule.

.3 Control site remediation operations to eliminate all excessive dust-creating activities, or as directed by Departmental Representative. The use of oil for dust control is prohibited. Use only water.

1.4 Vehicles

.1 Provide two (2), two-passenger four-wheel drive all-terrain vehicles (ATVs), complete with hard enclosures, glass windshield, and windshield wipers. ATVs will have an original equipment manufacturer-supplied pick-up style rear box, suitable for carrying samples and equipment. Equip ATV with buggy whips. Supply tire-repair kit and air pump.

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

.3 Vehicles provided for purposes of this contract are accepted at risk of supplier whether in possession of supplier or Departmental Representative.

.4 Deliver vehicles to location designated by Departmental Representative at the site.

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

.6 Maintain all vehicles in good running order for duration of Project. If vehicles are out of commission for any period of time, provide other replacement vehicles.

.7 Repair and maintain vehicles expeditiously.

.8 Provide and pay for all fuel and lubricants required to operate vehicles for the duration of the Project.

1.5 Drainage

.1 Refer to Section 01 35 43 – Environmental Protection and to specific sections in Division 2 of these Specifications for site drainage and pumping requirements.

1.6 Scaffolding

.1 Construct and maintain scaffolding in a rigid, secure and safe manner.

.2 Erect scaffolding independent of walls and/or structural frames on equipment. Remove promptly when no longer required.

.3 Conform to safety requirements of Section 01 35 32, Site Specific Health and Safety Plan for Contaminated Sites.

1.7 Removal or Shut-Down Facilities

.1 Schedule and obtain approval of Departmental Representative to remove temporary facilities from site.

.2 When project is closed down at end of construction season, keep facilities operational until close down is approved by Departmental Representative.

1.8 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 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 site. This will include all Departmental Representative provided supplies, equipment and material.

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

.4 Preparation of the site access, barge landing areas and former winter road routes to facilitate the mobilization and demobilization of equipment and materials to and from the site will require clearing and grubbing depending on the nature of equipment used to mobilize equipment and supplies to the site as well as demobilization of all wastes, equipment and materials at the end of the project.

.1 Blanchet mine has restricted barge access at the Beach Area as indicated.

.5 Decontaminate and clean all equipment used on the Project prior to demobilization according to Section 01 35 15 - Special Project Procedures for Contaminated Sites.

.6 Do not mobilize to the site without written authorization from the Departmental Representative.

.7 Summarize the proposed mode, route, equipment, labour and all other requirements for the mobilization and demobilization of all required equipment, materials, waste and personnel to complete the remediation project, as indicated in these specifications, in a Mobilization and Demobilization Plan. Submit the Mobilization and Demobilization Plan to the Departmental Representative a maximum of 20 days after contract award.

.8 All mobilization and demobilization methods to comply with the requirements of all applicable codes, standards, guidelines, best practices (Appendix E) and Land Use Permit.

.1 Winter access will be via the winter road constructed to support the equipment used to mobilize equipment, materials and supplies to and from the site.
.2 The winter roads will be constructed in accordance with AHJ and all local regulations as well as the terms and conditions set out in the Land Use Permit.
.3 Construct winter roads using historical routes wherever possible or as otherwise authorized by the Inspector.
.4 Any marine vessels used shall meet all certification and fitness requirements as specified by the AHJ and all marine operators shall be suitably qualified.

.9 All personnel supervising or operating equipment via overland routes will be properly certified.

.10 A Post-Demobilization site visit will be required as part of the Post-Demobilization Inspection as per Section 01 77 00 – Closeout Procedures.

.11 Use of a barge/watercraft, helicopter or fixed wing aircraft to transfer equipment, supplies as well as debris and wastes for off-site disposal may be considered and a temporary storage area may be prepared at the trailhead of the site access or former winter road routes.

1.2 Submittals

.1 Submit Mobilization and Demobilization Plan in accordance with Section 01 33 00 - Submittal Procedures for review by Departmental Representative.

.2 As part of the Mobilization and Demobilization Plan where barges are used for camp operation a stand alone Waste Management Plan is to be submitted to the Departmental Representative 20 days after contract award.

.3 Submit to Departmental Representative, 3 hard copies and 1 electronic copy of the Mobilization and Demobilization Plan 20 days after contract award.

.4 Submit to Departmental Representative, 3 hard copies and 1 electronic copy of the Spill Contingency Plan, Emergency Response Plan, Fire Safety Plan and Waste Management Plan 15 days after contract award.

.5 Provide submittals to the Departmental Representative for review. Include submittals as noted in Table 01 33 00-1, in Section 01 33 00 – Submittal Procedures, or as noted elsewhere in the specification.

1.3 Measurement of Payment

.1 All costs for mobilization of all equipment and materials, including the submission of the Mobilization and Demobilization Plan, are to be include in the lump sum price for Mobilization to the Outpost Island mine, Item 01 53 00 -1, as indicated in the Basis of Pricing Schedule. The lump sum price for mobilization is to include all labour, equipment, materials, meals, accommodation, flight and any other costs necessary to undertake Wok required.

.2 All costs for mobilization of all equipment and materials, including the submission of the Mobilization and Demobilization Plan, are to be include in the lump sum price for Mobilization to the Blanchet mine, Item 01 53 00 -2, as indicated in the Basis of Pricing Schedule. The lump sum price for mobilization is to include all labour, equipment, materials, meals, accommodation, flight and any other costs necessary to undertake Wok required.

.3 All costs for mobilization of all equipment and materials, including the submission of the Mobilization and Demobilization Plan, are to be include in the lump sum price for Mobilization to the Copper Pass mine, Item 01 53 00 -3, as indicated in the Basis of Pricing Schedule. The lump sum price for mobilization is to include all labour, equipment, materials, meals, accommodation, flight and any other costs necessary to undertake Wok required.

.4 All costs for demobilization of all equipment and materials are to be included in the lump sum price for Demobilization from the Outpost Island mine, Item 01 53 00 - 4 as indicated in the Basis of Pricing Schedule. The lump sum for Demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other

costs necessary to undertake the work required. Payment for Demobilization will be made after satisfactory cleanup of the site, removal from the site of all equipment, materials, site debris materials and contaminated soils as indicated and submission to Departmental representative of all Contractor submittals as per Section 01 78 00 - Closeout Submittals

.5 All costs for demobilization of all equipment and materials are to be included in the lump sum price for Demobilization from the Blanchet mine, Item 01 53 00 - 5 as indicated in the Basis of Pricing Schedule. The lump sum for Demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other costs necessary to undertake the work required. Payment for Demobilization will be made after satisfactory cleanup of the site, removal from the site of all equipment, materials, site debris materials and contaminated soils as indicated and submission to Departmental representative of all Contractor submittals as per Section 01 78 00 - Closeout Submittals

.6 All costs for demobilization of all equipment and materials are to be included in the lump sum price for Demobilization from the Copper Pass mine, Item 01 53 00 - 6 as indicated in the Basis of Pricing Schedule. The lump sum for Demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other costs necessary to undertake the work required. Payment for Demobilization will be made after satisfactory cleanup of the site, removal from the site of all equipment, materials, site debris materials and contaminated soils as indicated and submission to Departmental representative of all Contractor submittals as per Section 01 78 00 - Closeout Submittals

.7 All costs for the mobilization and demobilization of all equipment, supplies and materials are to be included in the lump sum price for mobilization/demobilization to and from the Wilson mine, item 01 53 00-7 as indicated in the Basis of Pricing Schedule. The lump sum for Mobilization and Demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other costs necessary to undertake the work required. Payment for Mobilization and Demobilization will be made after satisfactory cleanup of the site, removal from the site of all equipment, materials, and debris materials associated with the mine shaft capping work as indicated and the submission, to the Departmental Representative, all Contractor submittals as per Section 01 78 00 - Closeout Submittals.

.8 All costs for the mobilization and demobilization of all equipment, supplies and materials are to be included in the lump sum price for mobilization/demobilization to and from the Waldron mine, item 01 53 00-8 as indicated in the Basis of Pricing Schedule. The lump sum for Mobilization and Demobilization is to include all labour, equipment, materials, meals, accommodation, flights and any other costs necessary to undertake the work required. Payment for Mobilization and Demobilization will be made after satisfactory cleanup of the site, removal from the site of all equipment, materials, and debris materials associated with the mine shaft capping work as indicated and the submission, to the Departmental Representative, all Contractor submittals as per Section 01 78 00 - Closeout Submittals.

.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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 General Information

.1 This Section applies in the event that camp facilities are to be constructed on site for the duration of the remediation program. In the event that workers are mobilized to site via daily aircraft then provisions must be made for emergency shelter to house all workers on site and up to four additional Crown personnel. This emergency shelter must meet the applicable standards and include for shelter, water, food and the like as required.

.2 Latrine facilities must be provided on site as per the conditions outlined herein and in accordance with the applicable regulations.

1.2 Preliminary Requirements

.1 The location of the construction camp at the respective mine sites must be approved by the Departmental Representative and comply with all applicable federal and territorial requirements. This includes any camps prepared in support of the winter road construction.

.2 Provide layout of the respective camps and associated services no more than 20 days after Contract award. This includes identifying where potable water is to be sourced.

.3 Camp facilities to be established and operated in accordance with local regulations and Authority Having Jurisdiction (AHJ).

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

.5 Provision of camp facilities services consisting of:

.1 Design, supply, installation, and operation and maintenance of camp facilities including:

.1 All associated facilities.
.2 Utilities and services required for camp facilities such as heating, lighting, fuel, potable, and domestic water systems.
.3 Sewage collection.
.4 Wastewater disposal systems.
.5 Waste, refuse and garbage collection and disposal system.
.6 Camp facilities fire prevention.
.7 Alarm and fire fighting system.
.8 Camp facilities safety and security service.
.9 Meals and catering service.
.10 Shower/wash facilities.
.11 Sleeping and washroom facilities.
.12 Bedding and bedding laundry services ***(to be done off-site)***.
.13 Janitorial services.
.14 Personnel laundry facilities.
.15 Recreational facilities.
.16 Snow removal services.
.17 Floating dock.
.18 Bear fence.

.2 Provide and pay for all portable and domestic water systems; sewage collection, waste water disposal systems; refuse and garbage collection and disposal

systems; power, heating and lighting systems associated with the operation of the construction camp at the respective mine sites.

.3 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.

.4 Provide camp facilities services for own workforce, Departmental Representative, specialist inspectors and for four (4) overnight visitors. Separate space is to be provided for cook(s), cook's helpers and for female staff.

.5 Demobilize camp facilities from the respective mine sites at completion of the remediation works for each location.

.6 Provide camp facilities services for own workforce, Departmental Representative, and Departmental Representative's authorized personnel as follows:
.1 Resident Departmental Representative: duration of the Project.
.2 Specialist Inspectors: as required for the duration of the Project.
.3 Departmental Representative's Authorized Personnel, PWGSC and AANDC Office Personnel: on an as required basis: maximum of three 3 persons at any one time.

.7 Camp Facilities are to be less than 10 years old except as noted.
.1 Departmental Representative will arrange to have the proposed camp facilities inspected by a third-party building inspector prior to mobilization.
.2 Provide written notice two (2) weeks prior to mobilization for Departmental Representative to arrange inspection. Camp can only be occupied if it passes inspection.
.3 Payment for the camp is conditional on the camp passing inspection or all recommended amendments/upgrades to the camp are completed to the satisfaction of the inspection.
.4 Barge camps are not required to be less than 10 years old however the facilities must comply with applicable standards for marine vessels.

.8 Provide and maintain a digital communication system for the siute consisting of full duplex and secure voice, real time fax and high speed internet. Provide three (3) separate phone lines for the Departmental Representative. The communication system is to be based on monthly charges with unlimited internet access. Provide wireless B/G network access points such that the entire camp area has wireless network access. Maintain one (1) handheld satellite telephone on-site for emergency purposes or when the main communication system is non-functional. Use of the handheld satellite telephone for primary site communications for extended periods is not acceptable.

.9 Shared use areas, kitchen dining areas and sleeping quarters shall be maintained as smoke-free areas. Provide a smoking area at Contractor’s discretion, in accordance with Federal, Territorial and local regulations and guidelines including the NWT Environmental Tobacco Smoke Work Site Regulations.

1.3 Requirements of Regulatory Agencies

.1 Camp facilities including utilities, services, location and operation is subject to Departmental Representative's review and is to be designed, established and operated in

accordance with applicable Federal, Territorial and local codes, regulations and requirements governing camp facilities.

.2 Camp facilities location to be established at a location which does not interfere with operations undertaken on site. Camp facilities and service area locations are subject to Departmental Representative's review.

.3 Obtain applicable licenses, permits and authorizations prior to mobilization and establishing camp. Submit proof of same to Departmental Representative. Pay for all costs for inspection of camp facilities and electrical facilities by AHJ.

.4 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 Departmental Representative prior to opening the camp facilities.

.5 Collect samples each week from the potable water source (after treatment – if required) and have analysed at a CAEAL accredited laboratory for all Health Canada Guidelines for Canadian Drinking Water Quality requirements. Submit results to Departmental Representative upon receipt.

.6 Comply with all requirements of the Land Use Permit and all other licenses, permits and authorizations.

.7 Operate the camp in accordance with the camp rules as specified in this Section.

1.4 Environmental Requirements

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

.2 Display all applicable regulatory permits at the camp.

.3 Adhere to applicable guidelines and in accordance with AHJ and more specifically the terms and conditions outlined in the Land Use Permit as it pertains to the management of grey and black water as well as other camp derived wastes.

.4 Provide and pay for sampling and analyses of any construction camp water supply, as indicated in Section 01 29 83 – Payment Procedures for Testing Laboratory Services, to prove that the water quality satisfies the Health Canada Guidelines for Canadian Drinking Water Quality. The sampling and analysis is to be provided at the water supply source and at the water distribution source prior to consumption.

.5 Provide commercially sealed bottle water that meets Health Canada Guidelines for Canadian Drinking Water Quality until it is demonstrated, by a minimum of two consecutive sets of analytical test results, that the local source meets the Health Canada Guidelines for Canadian Drinking Water Quality. In the absence of analytical test results, local sources must not be used, and the supply of bottled water must be maintained. Submit information on bottled water, including the source and water quality test results to the Departmental Representative prior to opening the camp.

.6 Provide and pay for equipment, supplies and materials required to treat the water in accordance with the Health Canada Guidelines for Canadian Drinking Water Quality.

.7 The Contractor will carry out quality control sampling and testing of the camp water

source as long as the camp is operational.

.8 Comply with sewage treatment, disposal and closure requirements as outlined in Section 01 35 15 – Special Project Procedures for Contaminated Sites.

.9 Install and maintain fire protection equipment as specified in Section 01 35 32 - Site Specific Health and Safety Plan.

.10 Identify local water bodies to be used as water supplies for construction and non-drinking camp use (e.g. dust control, fire fighting, equipment decontamination and general washing). All water intakes must follow DFO guidelines.

1.5 Camp Facilities Installation and Removal

.1 Establish approved temporary buildings, shops, offices and facilities required.

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

.3 Carry out all Work necessary to protect environment prior to actual installation of camp facilities.

.4 Locate camp generators and incinerators at a minimum of 30 m from any sleeping facility, camp kitchen or an area with constant human presence.

.5 Winterize and secure camp, equipment, and vehicles at the end of the construction season.

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

1.6 Site Location

.1 Locate camp facilities at a site that provides for the safety and welfare of its residents for the duration of the Work. Contractor is responsible for the camp facilities location.

.2 Locate camp facilities within walking distance of the Work site, if possible.

.3 Locate camp facilities up wind of any locations in which materials may be burned.

.4 Locate camp facilities on competent ground or bedrock as dictated by local site conditions.

.5 Locate camp facilities in an area of native overburden, and not on waste rock.

.6 Locate camp facilities in an area that has been previously disturbed, but outside of any remedial work areas, if possible. If camp is located on waste rock, provide sufficient material to maintain a trafficable surface.

.7 Locate the medic's center within one (1) kilometre of the Work site. Co-locate the medic's center with an office, or other facility where other workers are present.

.8 Locate the medic's center in the camp facilities, if the camp facilities are within one (1) kilometre of the Work.

.9 Locate the communications center within one (1) kilometre of the Work.

.10 Co-locate the communications centre with an office, or other facility where other workers are present.

.11 Locate the communications center in the camp facilities, if the camp facilities are within one (1) kilometre of the Work.

.12 Locate any temporary shelter to be used as a workshop near the Work.

.13 Construct an access road to the selected location, as needed or as directed by Departmental Representative.

.14 Do not locate the camp or camp facilities in culturally sensitive areas (archaeological areas) as identified in the Golder Archaeological Report (Golder, 2013 – to be provided on CD-ROM at bidder's meeting).

1.7 Construction Camp

.1 Provide and maintain camp in good operating condition and provide adequate and suitable furnishings.

.2 Construction camp must not be located in any off-limit or contaminated soil areas. Location must be approved by the Departmental Representative.

.3 Provide an alarmed trip wire around the camp to provide warming of wildlife intrusions whenever bear monitors are not patrolling.

.4 Demobilize and remove the construction camp from the site at the completion of the Contract. Grade as necessary to match surrounding terrain and to ensure positive drainage as directed by Departmental Representative.

.5 Place all camp facilities so as not to interfere with any construction or other site activities. Obtain Departmental Representative's approval for location of construction camp. The camp is to be located on site unless otherwise approved in writing by Departmental Representative.

.6 Carry out all work necessary to protect the environment prior to actual installation of the camp facilities.

.7 Consider the possibility of wildlife encounters when determining the layout of the camp. Refer to bear or wildlife safety literature when selecting the camp layout, facility spacing, and location of the kitchen, food storage, washroom and sleeping facilities. Ensure a working wildlife deterrent is provided and that a replacement will be made available within 24 hours should the primary system fail.

.8 Incinerate all kitchen wastes in order to avoid attracting wildlife.

.9 Consider all applicable aspects of health and safety when determining the layout and construction of the camp and associated facilities. The Health and Safety Plan is to include details of the topics related to the layout, construction and operation of the camp.

1.8 Maintenance

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

.2 Heat camp facilities to provide environmentally controlled conditions between 20 and 22ºC continuously.

.3 Clean camp facilities daily. Clean and sanitize toilets, washbasins, and showers daily.

.4 Keep common areas free of insects, pests and wildlife through garbage control, proper screens, pesticides and other non-smoke producing methods.

.5 In the event of temporarily vacating camp, clean up and leave camp facilities in a safe, tidy and secure condition.

1.9 Departmental Representative's Requirements

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

.2 Provide one room for sleeping for the sole use of the specialist inspectors (Geotechnical and/or Environmental Specialists). Provide space for up to four (4) overnighting or occasional site visitors when required in the camp facilities.

.3 Departmental Representative and specialist inspectors require office space. Space must also accommodate laboratory testing personnel, surveyors and additional specialist inspectors on a periodic basis. Shared office and living space for the Departmental Representative is not acceptable.

.4 Furnish office space with two (2) desks with top service not less than 150 cm (60") by 75 cm (30"), two (2) desk chairs and two (2) stacking-type chairs, two (2) 4-drawer file cabinets, with locking mechanism, one (1) plan table, stationary as required to support a small office and a standard refrigerator with a total minimum capacity of 0.48 cubic metres (17 cubic feet). The refrigerator will remain the property of the Contractor upon completion of the project.

.5 Provide one (1) remote communications device compatible with all site communications, one (1) plug for computer connections. Equip with surge protectors and an UPS (uninterruptible power supply) bar. Provide access to reliable communications systems for Departmental Representative and support staff.

.6 Provide, for the use by Departmental Representative and Departmental Representative’s Authorized Personnel, three (3) mobile communication radios, complete with charging units. The radios are to allow for on-site communication between Departmental Representative, Departmental Representative’s Authorized Personnel and Contractor. The radios are to have a minimum range of 5 km.

.7 It is critically important that the communication equipment provided by Contractor for Departmental Representative’s use is reliable and of the highest quality and should be provided in sufficient number to support operational requirements. Immediate repair or replace faulty equipment. The equipment is to be provided during the full length of work

activities.

.8 Provide for use by Departmental Representative, inspectors and support personnel 1 printer/copier/scanner/fax all-in-one type device. Provide network connections or hubs to permit Departmental Representative, inspectors and support personnel to remotely print to the device.

.9 Sleeping quarters for Departmental Representative and his authorized personnel to be segregated from those for Contractor's staff.

.10 It is anticipated that Departmental Representative's workforce will include both male and female personnel. Design and operate the camp facilities with due consideration of the separate and private requirements for male and female workforce.

.11 Provide for a single facility with a minimum floor area of 6 m^2 for use of the Departmental Representative.

.12 Sleeping quarters for other Departmental Representative's support personnel, as indicated in this Section, to provide for maximum double occupancy with a minimum floor area of 9.2 m^2. Design camp facilities such that specialist inspectors generally are accommodated in single occupancy rooms. Double occupancy of specialist inspectors' accommodations will be considered by Departmental Representative for short periods of time only, and at Departmental Representative's discretion.

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

.14 Provide one (1) each of telephone, fax, and Ethernet to Departmental Representative's office.

1.10 Field Laboratories

Not Used

1.11 Kitchen Dining Complex

.1 Functional design of kitchen to include all equipment necessary for food storage, preparation, cooking and serving three (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 and in accordance with Territorial Health Legislation.

.6 All food preparation staff are to have Foodsafe Certification with records provided to the Departmental Representative prior to mobilization.

.7 Supply and operate kitchens as required to comply with federal and territorial regulations and obtain any necessary inspections, permits or approvals prior to operating the camp kitchens. Provide a copy of all documentation to the Departmental Representative upon receipt from the AHJ.

1.12 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 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 Departmental Representative and Departmental Representative's support staff.

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

.5 Supply and provide the supplies required to operate hand washing stations as required by regulation.

1.13 Fire Protection Equipment

.1 Install and maintain fire protection equipment as specified in Section 01 35 32 – Site Specific Health and Safety for Contaminated Sites.

1.14 Linen, Bedding and Laundry

.1 Supply linen and bedding. Provide each person living in camp with three (3) blankets, two (2) sheets, one (1) pillow, and one (1) pillow cover.

.2 Change two (2) sheets and one (1) pillow case weekly or whenever a change in occupancy occurs.

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

.4 Provide clean blankets to all camp occupants.

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

1.15 Food Schedule

.1 Provide food of the highest quality giving a balanced diet and served under acceptable standards of cleanliness by experienced personnel. Eggs and dairy products to be grade "A".

.2 As a minimum, provide three (3) meals a day. Provide casual meals or fourth meals if irregular shifts are worked or irregular travel by personnel is required. Consult with Departmental Representative, or his designated representative to set meal times for casual or forth meals.

.3 Provide choices of traditional food. Provide healthy choices in food preparation.

.4 Main courses to be served at meals are classified as follows:

.1 First Line: Beef steak, roast beef, roast pork, veal cutlets, baked ham, ham steak, chicken, turkey, pork chops, roast lamb, roast veal, vegetarian lasagne, pasta with meatless sauce, quiche.

.2 Second Line: Fish, short ribs, spare ribs, stews, meat pies, liver, curried dishes, spaghetti and meatballs, sausages, tongue, Salisbury steak, Swiss steak, ground beef, corned beef, vegetarian chilli, omelettes, vegetarian baked beans, vegetarian patties.

.3 Third Line: Hot dogs, vegetarian hot dogs, omelettes, chili con carne, baked beans, chicken and turkey turnovers, dishes using leftover meats, bagels and cream cheese, soup and sandwiches.

.4 Breakfast Line: Eggs, toast, bacon, sausage, ham, toast, hash browns, waffles, porridge, cereal, fruit, yogurt, milt, and fruit juice.

.5 Serve breakfast line daily. At supper, serve hot main course, one first line and a choice between a second and third line. At lunch, serve a hot main course, one second line and one third line. Do not repeat the same selection more thank twice weekly. Beef steak is to be served at least once per week. Provide a vegetarian option upon request.

.6 Provide box lunches for all camp occupants who will not be in camp facilities for noon meal.

.7 Supper to include one first line and a choice between a second and third line. Do not repeat the same selection more than twice weekly. Beef steak to be served at least once per week. A vegetarian option to be available on request.

.8 Breakfast to include fruit juice or fruits, coffee, tea, milk, hot and cold cereals, porridge, toast and preserves, peanut butter, hot cakes, eggs, bacon, ham and sausages.

.9 Contractor will be given twelve (12) hours notice to serve fourth and/or casual meals to workforces of other Contractors and Departmental Representative.

.10 Provide "Mug Up" nightly at 2100 hours consisting of tea, coffee, hot chocolate, fruit juice and any left over pastries at cook's discretion. Make coffee available at coffee breaks.

.11 Make available daily apples and oranges; serve other types of fresh fruit at least once per week.

.12 Fresh salads are to be provided daily.

.13 Provide whole milk each day; powdered milk is not acceptable for drinking, but may be used for cooking.

.14 Provide pure juice each day.

.15 Schedule food re-supply flights, as necessary, to ensure that variety in the menu is

maintained and that fresh produce, milk and juice is continually available.

.16 Traditional country foods may be substituted for the above referenced foods upon the approval of the Departmental Representative.

1.16 Service Facilities

.1 Install, hook-up, test and make necessary repairs to sewage, water supply, heating, and electrical services.

.2 Situate power plant in camp facilities area to minimize noise, and prevent exhaust fumes from blowing through camp facilities during prevailing winds.

.3 Ground all buildings and electrical equipment with an approved grounding system.

1.17 Recreation

.1 Provide an area for recreation for all camp occupants.

.2 Area to be of a size suitable for accommodating at least 50% of camp occupants, and to be suitably furnished with lounger and stacking chairs.

.3 Provide a TV and DVD player for use by camp occupants or alternatively, provide a satellite system.

.4 Provide a minimum of 20 DVD movies and rotate these movies every two weeks or provide a TV with satellite link.

.5 Provide an assortment of books (soft cover) and magazines for reading.

1.18 Camp Rules

.1 Prepare a set of camp facilities rules, for approval by Departmental Representative, prior to commencing operations.

.2 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, any other safety equipment or electrical outlets/fixtures.
.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.

.3 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.

.4 Make all camp residents 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.

.5 Keep living areas as clean as possible.

.6 Have warm emergency clothing available at all times during the wet or cold weather.

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

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

.9 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.

.10 Provide a copy of camp facilities rules to all camp occupants prior to or upon arrival in camp.

.11 Enforce Camp Rules.

1.19 Security

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

1.20 Access to Work

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

1.21 Transportation

.1 Provide return air transportation services for Departmental Representative and Departmental Representative's Authorized Personnel from Yellowknife to the Site.

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

.3 Departmental Representative will advise Contractor of Departmental Representative's and Departmental Representative's personnel air transportation requirements seven (7) days in advance of trip departure.

1.22 Measurement of Payment

.1 All costs for the supply, transportation, erection, connection, inspection of camp and electrical facilities by AHJ officials, shutdown, takedown, packaging, and cleanup of camp facilities are to be included in the lump sum payment for Camp Supply and Start-up, Items 01 54 00-1 through 01 54 00-3, for Outpost Island Mine, Blanchet Mine, and Copper Pass Mine, respectively, as indicated in the Basis of Payment Schedule.

.2 All costs for the operation and maintenance of all camp facilities and equipment, including waste water and sewage management, on-site mobile communication equipment, as well as the provision of catering, rooms, and laundry and janitorial services for the camp are

to be included in the unit price cost per day for Outpost Island Mine, Blanchet Mine, and Copper Pass Mine, under Items 01 54 00-4 through 01 54 00-6 Departmental Representative and Authorized Personnel Room and Board, respectively, in the Basis of Payment Schedule.

.3 The provision of room and board and associated services for Departmental Representative and Authorized Personnel will be measured for payment by the person-day for each day that personnel reside overnight at the camp facilities. Departmental Representative's room and board will be paid under Item 01 54 00-7 Departmental Representative and Authorized Personnel Room and Board in the Basis of Pricing Schedule.

.4 Provision of casual meals to visiting Departmental Representative's authorized personnel will be measured for payment by the number of meals served. Casual meals will be paid under Item 01 54 00-8, Casual Meals-Departmental Representative's Authorized Personnel in the Basis of Pricing Schedule.

.5 The provision of air transportation from Yellowknife to any of the mine sites for the Departmental Representative's Authorized Personnel will be measured for payment by the number of person return trips and will be paid under Item 01 54 00-9 Departmental Representative Return Transportation – Yellowknife to any of the mine sites in the Basis of Pricing Schedule.

.6 All costs for the supply and installation of satellite and/or long distance communication links for Departmental Representative and Authorized Personnel will be paid as a lump sum price under Item 01 54 00-10, Departmental Representative's Communication Links as indicated in the Basis of Pricing Schedule.

.7 Costs for the provision of Departmental Representative's consumable office supplies, including Departmental Representative's charges for satellite and/or long distance telephone and e-mail charges, will be paid as a lump sum under Item 01 54 00-11, Consumable Office Supplies in the Basis of Pricing Schedule.

.8 Except as otherwise indicated herein, Work under this section will not be measured. Include all costs in Item BOPC, Balance of Project Costs in the Basis of Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 General

.1 Use new material and like new equipment acceptable to Departmental Representative unless otherwise specified.

.2 No later than twenty (20) days after contract award, submit the following information for materials and equipment proposed for supply:

.1 name and address of manufacturer,
.2 trade name, model and catalogue number,
.3 performance, descriptive and test data,
.4 manufacturer's installation or application instructions,
.5 evidence of arrangements to procure.

.3 Provide material and equipment of specified design and quality, performing to published ratings and for which replacement parts are readily available.

.4 Use products of one manufacturer for material and equipment of same type or classification unless otherwise specified.

.5 Provide material and equipment of specified design and quality, performing to published ratings, and for which replacement parts are readily available.

1.2 Submittals

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

1.3 Reference Standards

.1 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.

.2 Cost for such testing will be born by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

.3 Conform to latest date of issue of referenced standards in effect except where specific date or issue is specifically noted.

1.4 Quality

.1 Products, materials, and articles (referred to as products throughout specifications) incorporated in Work to be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Should any dispute arise as to quality or fitness of products, decision rests strictly with

Departmental Representative based upon requirements of Contract Documents.

.4 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

1.5 Availability

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.6 Storage, Handling and Protection

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Store cementitious products clear of earth or concrete floors, and away from walls.

.5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.

.6 Store sheet materials, lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.

.7 Store and mix paints in heated ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

.8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

.9 Touch-up damaged factory-finished surfaces to Departmental Representative’s satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.7 Transportation

.1 Pay costs of transportation of products required in performance of Work.

1.8 Manufacturer's Instructions

.1 Unless otherwise indicated in specifications, comply with manufacturer's latest printed instructions for materials and installation methods.

.2 Notify Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

1.9 Quality of Work

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.10 Coordination

.1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.11 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 18 - Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 - PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 - EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Qualifications of Surveyor

.1 Qualified registered surveyor, licensed to practice in the Northwest Territories, acceptable to Departmental Representative.

.2 Surveyor cannot be an employee of Contractor.

1.2 References

.1 Departmental Representative's identification of existing survey control points and property limits.

1.3 Survey Reference Points

.1 Establish a minimum of one base horizontal and vertical control point are designated on drawings.

.2 Locate, confirm, and protect control points prior to starting site Work. Preserve permanent control points during construction.

.3 Make no changes or relocations without prior written notice and approval from the Departmental Representative.

.4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.4 Survey Requirements

.1 Establish two (2) 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 Establish lines and grades, locate and lay out, by instrumentation.

.3 Prepare a topographic map of the excavation sites and demolition work site areas after work has been completed and as directed by Departmental Representative.

.4 Prepare drawings showing areas where remedial works were undertaken.

1.5 Survey Equipment

.1 Maintain at site, for duration of the construction period, a complete set of survey equipment for occasional use by the Departmental Representative. Shared use of Contractor’s survey equipment is acceptable.

.2 Equipment to include:

.1 Surveying Total Station with data recording capability, tripod, spare battery, battery charger, downloading hardware and software and all associated ancillary items cables, hardlock, etc.). Preference to be for equipment that operates in

both English and French.
.2 Automatic level with tripod.
.3 Single prism with 5 metre collapsible range pole.
.4 Triple prism with tripod.
.5 50 metre cloth tape (steel reinforced)
.6 5 metre collapsible level rod.
.7 Magnetic pin finder (high frequency).
.8 One 1.2 m carpenter's level.

.3 The use of either a Total Station unit or a GPS Real Time Kinetic unit is acceptable.

.4 Calibrate all equipment prior to each construction season. Prior to mobilizing survey equipment to the site submit to the Departmental Representative documentation certifying the calibration of the equipment.

1.6 Survey Markers

.1 Provide all survey markers and other items required to complete Work as specified, including, but not limited to:

.1 Pointed stakes (minimum 1.2 m in length, 12 mm thick, 38 mm wide)
.2 Pointed hubs (minimum 0.5 m in length, 20 mm thick, 38 mm wide)
.3 Nails (100 mm long), spikes (250 mm long), pins (1 m long), etc.
.4 Fluorescent paint, flagging, etc.
.5 Felt markers, chalk, wax pens, etc.

.2 Maintain supply of survey markers for Departmental Representative's use.

1.7 Records

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

1.8 Submittals

.1 Submit name and address of Surveyor to Departmental Representative after contract award.

.2 On request of Departmental Representative, submit documentation to verify accuracy of field Work.

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

.4 Submit all drawings electronically in accordance within PWGSC protocols for AutoCAD drawings and by hard copy. Hard copy drawings must be signed by a professional engineer registered in the Territories.

.5 Submit all drawings, as noted above, to the Departmental Representative within 30 days of completing the remediation earthworks excluding work associated with demobilization.

.6 Provide all survey data required under the terms of the respective permits in the GIS format as stipulated in the Land Use and Quarry Permits or as outlined in Section 01 33 00 - Submittals.

1.9 Measurement of Payment

.1 Work identified in this section will be paid by lump sum for under Item 01 71 00 - 1 Survey in the Basis of Pricing 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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Closeout Procedures

.1 Notify Departmental Representative when Work is considered ready for substantial performance.

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

.3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed Certificate of Substantial Completion.

.4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

1.2 Inspection and Declaration

.1 Contractor's Inspection: or and all Sub-Contractors to conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
.2 Request Departmental Representative's Inspection.

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

.3 Completion: submit written certificate to the Departmental Representative that the 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 Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

.5 Post-Demobilization: when demobilization is completed, request Post-Demobilization inspection of Work by Departmental Representative and Contractor. If Work is deemed incomplete by Departmental Representative complete outstanding items and request re-inspection.

.6 Participate in Contract Closeout Meeting as specified.

1.3 Measurement of Payment

.1 All direct costs for the completion of Post-Demobilization Inspection work are to be included in the lump sum price bid for Post-Demobilization Inspection, Item 01 77 00-1, as indicated in the Basis of Pricing Schedule.

.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 Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Format

.1 Organize data in the form of an instructional 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 Arrange content by site feature under Section numbers and sequence of Table of Contents.

.6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

.7 Text: manufacturer's printed data, or typewritten data.

.8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

.9 Provide CAD files in AutoCAD 2004 format on CD.

.10 Provide GIS files as stipulated in the applicable site permits.

1.2 Contents – Each Volume

.1 Table of Contents: provide title of Project;

.1 Date of submission; names,
.2 Addresses, and telephone numbers of Contractor with name of responsible parties
.3 Schedule of products and systems, indexed to content of volume
.4 Summary of Health and Safety issues, Environmental issues and performance indicators.

.2 For each product or system:

.1 List names, addresses and telephone numbers of Sub-Contractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to clearly identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified.

1.3 Final Survey

.1 Submit final site survey certificate, in accordance with Section 01 71 00 – Survey Requirements, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.4 As-Builts

.1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:

.1 Contract Drawings.
.2 Specifications.
.3 Addenda.
.4 Task Authorizations
.5 Change Orders and other modifications to the Contract.
.6 Reviewed shop drawings and product data.
.7 Field test records.
.8 Inspection certificates.
.9 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 Recording Actual Site Conditions

.1 Record information on set of black line opaque drawings, and in copy of Project Manual, provided by Departmental Representative.

.2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:

.1 Field changes of dimension and detail.
.2 Changes made by change orders.
.3 Details not on original Contract Drawings.

.5 References to related shop drawings and modifications, including:

.1 Field changes of dimension and detail.
.2 Changes made by Task Authorization, Change Order or Field Order.

.6 Specifications: legibly mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
.2 Changes made by Task Authorization, Addenda and change orders.

.7 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.

1.6 Record Drawings

.1 Departmental Representative will provide to Contractor, two sets of white prints for record drawing purposes.

.2 Maintain Project record drawings and record accurately deviations from Contract documents on one set of prints.

.3 Record changes in red.

.4 At completion of Project and prior to final inspection, neatly transfer record notations to second set of drawings and submit both sets to Departmental Representative. Forward information on completed areas at the end of the construction season.

1.7 Other Records

.1 After completion of construction (prior to project close out and at least 30 days before mandated regulatory submissions as per the AHJ), submit the following to the Departmental Representative:

.1 Copies of all documents and permits obtained by the Contractor.
.2 Results of all testing carried out by the Contractor.
.3 Any other pertinent information.
.4 Copies of all shipping documents identifying the shipper, the receiver and all carriers involved in the transport of materials.
.5 Information as required by the Land use Permit.
.6 Information as required by the Quarry Permit.
.7 Information as required by all other applicable regulatory bodies and AHJ.
.8 Photographic log on a CD-ROM.

.2 Consolidate the above information in one document and submit five (5) copies to the Departmental Representative.

1.8 Measurement of Payment

.1 All direct costs for the completion of the project record documents are to be included in a lump sum price bid under Item 01 78 00-1, Project Record Documents as indicated in the Basis of Pricing Schedule.

.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 Pricing Schedule. Indicate the cost of this work as a separate line item in the Cost Work Breakdown Structure (SCBS)

specified in Section 01 32 18 - Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Not Used

.1 Not used.

END OF SECTION

PART 1 GENERAL

1.1 Location of Work

.1 The Copper Pass winter road will be approximately 12 km in length extending from the barge landing area in Hamilton Bay on Great Slave Lake (approximate coordinates 62.342523°N,111.9255315°W) to the Copper Pass mine site on Lake Sachowia (approximate coordinates 62.415293° N, 111.861329° W).

.2 Historically the site was accessed via a winter road originating from Yellowknife. The overland route originated from Great Slave Lake as indicated.

.3 The winter road for this assignment is to follow the historical routes as indicated.

.4 The winter road must follow one of the routes identified in the Land Use Permit. Any deviation will require an amendment to the permit and Board or Inspector approval prior to construction.

1.2 Winter Road Submittals

.1 Submit to the Departmental Representative, via fax or e-mail attachment, the following information at the commencement of work and every Monday morning thereafter during the construction and operation of the winter road:

- .1 Start date for construction of the winter road.
- .2 Progress in winter road construction, indicating location and distance under construction, and distance and location completed.
- .3 Completion date of initial construction.
- .4 Estimated winter road carrying capacity during construction, and date when required winter road capacity requirements have been met.
- .5 Profile the ice thickness and quality as often as necessary during construction to confirm that minimum weight limits are reached and during maintenance to confirm that those weight limits are maintained (at least 2 profiling missions are expected over the winter road construction and maintenance season). Fax/e-mail profiling results to the Departmental Representative as soon as they are available.
- .6 During the operating/maintenance phase, report dates when inspections were carried out.
- .7 Summarize maintenance activities undertaken and nature of maintenance carried out, on a weekly basis.
- .8 Report date of closures due to reduced winter road weight capacity, adverse weather condition (including storms or thaw).
- .9 Report date of final closure, and date when decommissioning is complete.
- .10 Schedule assessment: In the event that progress of project work is likely behind schedule, indicate measures to be taken to bring project back on schedule, and inform the Departmental Representative in writing.

.2 When the Departmental Representative is on site, submit required information directly to the Departmental Representative.

.3 The centerline and width of the winter road will be established based on available data through a qualified 3rd party professional survey and ice profiling firm retained by the contractor.

.4 Provide information as stipulated in the appended AANDC Winter Road Rules document (see Appendix E).

.5 A description of the work related to the construction and operation of the winter road is to be included in the following plans: Site Specific Health and Safety Plan; Mobilization and Demobilization Plan; Waste management , as well as any other relevant submittals as outlined in Section 01 33 00 - Submittals.

.6 Copies of all required documentation is to be kept at the camp established for the winter road construction. The Departmental Representative is to have access to these documents upon request.

1.3 References

.1 The Land Use Permit states requirements for minimal packed snow or ice thickness on the road; equipment requirements; control or prevention of flooding, erosion and subsidence of land; stream crossings; debris and brush removal; petroleum storage, and any other items deemed necessary for protection of the environment during the construction and maintenance of the winter road.

. 2 The Land Use Permit specifies the "spring break-up" date, beyond which date the Permittee will not conduct any activity associated with the land-use operation unless otherwise authorized by a Land Use Inspector.

.3 The Land Use Permit specifies the route and alignment of the road.

.4 Guidelines for the methods and procedures for winter road construction are contained in the following publications:

.1 A field Guide to Ice Construction Safety" Department of Transportation, NWT, November 1996 Edition.
.2 Environmental Operating Guidelines: Access Roads and Trails" DIAND (1990).
.3 Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories" by Stanley Associates for the Department of Transportation (Oct 1993).
.4 Best Practice for Building and Working Safely on Ice Covers in Alberta, Government of Alberta (October 2009)

.5 The road will be constructed to withstand a minimum of 40,000 kg Gross Vehicle Weight.

.6 The road will be a minimum 10 m wide on portages and a minimum 30 m wide on the lakes.

.7 The road will be designed to withstand vehicle traffic at a speed of 40 km/hr.

1.4 Catastrophic Incident Plan

.1 Due to the nature of the work, incidents have occurred where equipment has broken through the ice, with, or without, loss of life. The contractor will prepare a plan to address catastrophic incidences of this nature. The plan should include as a minimum the following:

.1 Work area inspection and safety verification prior and during progress of active work.
.2 Action to be taken by the first person at the scene of a catastrophic incident, who should be the partner, if the crew is working in close proximity to each other.
.3 Rescue, if equipment is only partially submerged and operator did not jump free.
.4 Rescue, if equipment is submerged and operator did not jump free.
.5 Communications. List persons to be contacted and method of contact.
.6 Medivac procedures.
.7 Methods to contain any fuel/oil spills resulting from the incident.
.8 Planned method to extract equipment.
.9 Reporting.

.2 Submit to Departmental Representative the Catastrophic Incident Plan in accordance with requirements of Section 01 33 00 - Submittal Procedures prior to commencement of work.

1.5 Schedule

.1 Provide the winter road schedule to the AHJ and DR for review.

.2 Winter road will not be used unless directed or authorized by the Land Use Inspector or Departmental Representative.

1.6 Measurement of Payment

.1 Payment of all costs for the construction of the winter road up to a minimum of 40,000 kg Gross Vehicle Weight will be on lump sum basis and paid out based on performance milestones as outlined under item 02 00 00-1 of the Basis of Payment schedule.

.2 Payment of all costs for the maintenance of the winter road at a minimum of 40,000 kg Gross Vehicle Weight will be measured for each day. The road maintenance up to 40,000 kg Gross Vehicle Weight will be paid under Item 02 00 00-2, as indicated in the Basis of Payment Schedule.

.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.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Construction

.1 The road will be a minimum 10 m wide on portages and a minimum 30 m wide on the lakes.

.2 The winter road will be designed to withstand a minimum of 40,000 Kg Gross Vehicle Weight.

.3 The road will be designed to withstand vehicle traffic at a speed of 40 km/hr.

.4 Notwithstanding requirements specified in guidelines and Land Use Permit, the following conditions must be met:

- .1 No new ground disturbances (cut/fill) are anticipated while constructing the winter road for this project.
- .2 The winter road will be constructed and maintained with a minimum of 10 cm packed snow at all times of its use. If this cannot be met with existing site conditions, additional water will be placed to create an ice surface to protect underlying ground surface, vegetation, etc.
- .3 Only water and/or snow will be used in the construction of ice bridges.
- .4 Any ice bridges created will not hinder the flow of water.
- .5 No stream banks will be cut.
- .6 Approach grades on all lake and stream crossings will be minimized.
- .7 All ice bridges and snow fills will be removed prior to break-up.
- .8 A Spill Contingency Plan will be in place and spill kits available during construction and maintenance periods.

3.2 Maintenance

.1 Maintenance of the road will be on an as needed basis, yet will be continuous for the period of operation.

.2 Maintenance will include winter road repair work to maintain minimum weight limits, dragging, clearing and compacting snow after storms.

.3 Maintenance will include leveling areas (wash boarding) where a vehicle traffic speed of 40 Km/hr cannot be maintained.

.4 The road will be re-opened for traffic within 24 hours of a road closure due to weather.

.5 Maintenance will include rebuilding sections of portages where the required compacted snow or ice thickness is less than the thickness specified in the Land Use Permit or where road bases have been damaged through the over-use of chains, spin outs or ditching.

3.3 Signage

.1 Speed signs will be posted at either end of the road. Alternatively, the Contractor may incorporate speed limits in the signboards at the beginning and end of the road. Speed signs to be posted at all the portages.

.2 Post speed and warning signs at any locations where visibility is reduced and/or where curvature warrants a reduction in speed at each turn and hills.

.3 Maintain existing direction, speed and warning signs along route.

.4 Kilometre Signs: With kilometre “0” being at the junction of the start of the winter road at Hamilton Bay Barge Landing, place a kilometre sign every 2 kilometres up to the Copper Pass Mine. Signs need not be elaborate, but lettering should be a minimum 150 mm. The material selection and posts will be capable of withstanding arctic winter storms. Signs will be driven into the snow along the route, with lettering clearly visible to vehicles travelling in either direction.

3.4 Testing

.1 Thickness of winter road to be tested/evaluated as often as necessary until minimum design load of 40,000 Kg Gross Vehicle Weight is obtained along the entire winter road covered by the contract.

.2 Once minimum weight limit is achieved, then testing can be reduced to monitoring of weak locations and occasional testing during maintenance of road.

.3 Test results are to be submitted to the Departmental representative as they become available.

3.5 Final Inspection

.1 This winter road portion of this contract will be deemed to have been completed when a final inspection has been undertaken by the Departmental Representative, Contractor, Land Use Inspector, and all deficiencies have been corrected.

3.6 Decommissioning

.1 Prior to closure of the winter road, remove signs on lakes and rivers and covers.

.2 Prior to closure of the winter road, cover signs at either end of the road with 1200 mm x 2400 mm “Road Closed” signs and remove all equipment and other materials that may have been left along the road.

.3 Clean-out all stream crossings in accordance with Land Use Permit.

.4 Correct any deficiencies that the Land Use Inspector a may have noted in their final inspections.

END OF SECTION

PART I GENERAL

1.1 Description

.1 This section specifies the requirements for the demolition, decommissioning, and dismantling of all site structures as indicated on the Drawings and Specifications.

.2 Containerization, haulage, temporary storage and disposal of demolition debris is covered under Section 02 41 23.

.3 Prepare and complete work in accordance with the Demolition Plan for the respective sites upon review by the Departmental Representative.

1.2 Definitions

.1 Untreated Wooden Debris: Wooden debris that is designated by Departmental Representative as suitable for on-site burning.

.2 Leachable-Lead Painted Material: Material that is coated with lead based paint that has been analyzed and determined to contain leachable lead concentrations in excess of 5 mg/L (as specified in TDGA regulations for TCLP test - leachable lead).

.3 Lead-Painted Material: Material that is coated with lead based paint that has been analyzed and determined to contain total lead concentrations in excess of 600 ppm, but less than 5 mg/L of leachable lead.

.4 Non-Hazardous Waste Material: Material which is non-hazardous as defined in Section 02 61 33 - Hazardous Waste Material.

.5 Metal Impacted Vegetation: Dead trees, bushes and other vegetation located within work areas where metal impacted soils are present. This material is to be buried under low permeability barrier at the Blanchet and Copper Pass Mine Sites.

1.3 Reference Standards

.1 Canadian Council of Ministers of the Environment (CCME) Documentation.

.2 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.

.3 National Building Code of Canada, Current Edition.

.4 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No. 85-115.

.5 Hazardous Waste Worker Training Manual: Canadian LIUNA Contractors Training Council, 1992.

.6 Conduct all work in accordance with all appropriate Federal and Territorial legislation, and international conventions including, but not limited to:
- .1 Transportation of Dangerous Goods.
- .2 Guidelines for the packing of cargo, other than bulk cargo into or onto cargo transport units (CTU's) applicable to transport operations by all surface and water modes of transport.
- .3 Canadian Federal Legislation

.1 *Canadian Environmental Protection Act.*
.2 Canadian Labour Code (Part II)

.4 Territorial Legislation
.1 *Safety Act*, R.S.N.W.T.
.2 *Northwest Territories Safety Ac*t
.3 General Safety Regulations, R.R.N.W.T.
.4 Mine Health and Safety Act S.N.W.T.
.5 Mine Health and Safety Regulations
.6 Guidelines for the Management of Waste Lead and Lead Paint, Northwest Territories
.7 Asbestos Safety Regulation

1.4 Environmental Protection

.1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Protection, and the Land Use Permit.

1.5 Work Description

.1 Demolition, removal, and disposal of all structures (primarily derelict camp structures) as indicated in the Appendices and Drawings, and in accordance with the Demolition Plan, including the following:
.1 Demolishing, and sorting of all non-hazardous waste building components, mine equipment and structures identified for demolition.
.2 Remove, Containerize and Dispose of hazardous waste material in accordance with Section 02 61 33 - Hazardous Waste Material.
.3 Restore and grade all areas affected by demolition work in accordance with Section 31 22 15 - Grading.
.4 Protect Heritage Items as identified during the course of any site remediation work including but not limited to concrete foundation demolition.

.1 To date only the two large generator/pump equipment at the Outpost Island mine is being considered by the Community and the Mine Heritage Society as historically significant and is to remain on site in its present location.

.2 On-site burning of untreated wood is permitted, only if a burn permit is obtained prior to the work.

1.6 Existing Conditions

.1 The information presented that describes the structures to be demolished is based upon site conditions described in the reference documents. These reports are attached herein. A summary of these reports is provided in the Appendices herein.

.2 Take over structures to be demolished based on their condition and quantity on the date that Contractor mobilizes to the site.

.3 The information presented in the Appendices, including inventory tables, provides a brief description of the structures to be demolished. These tables and drawings indicate only the major work elements, and are not to be construed as exact for final demolition requirements. Contractor is responsible for all work described in this Section, which includes the complete demolition of all facilities and structures designated for demolition unless otherwise noted on the Drawings or identified by the Departmental Representative

as structures that are to remain.

.4 The information presented in the Appendices indicates types and quantities of hazardous waste materials that have been previously identified, and must be removed and disposed of prior to commencement of general demolition. Should other potentially hazardous waste material, other than that already identified, be encountered in the course of demolition work, stop work immediately, and notify the Departmental Representative. Do not proceed until written instructions have been received from Departmental Representative.

.5 The Site Photographs in the Appendices are for illustration purposes only and show the condition of the facilities and structures during various field investigations and site visits since 2010. These photographs are intended to provide information on the general condition of the buildings and structures to be demolished. Photographs are of a selected group of structures, and are not intended to depict the total scope of work.

.6 Existing Structures are shown on drawings, as indicated, for the respective mine sites. Details on the structures are provided in the Phase III ESA and RAP documents for each site and summarized in the Appendices herein.

1.7 Demolition Drawing

.1 Where required by authorities having jurisdiction, submit for approval drawings, diagrams or details showing sequence of disassembly work or supporting structures and underpinning. Submissions to bear stamp of qualified professional Engineer registered in the Northwest Territories.

.2 Do not commence demolition work until the Contractor has demonstrated to the Departmental Representative that all required permits to be acquired by the Contractor for the work have been obtained.

1.8 Protection

.1 Install sediment controls and/or silt curtains in accordance with Section 01 35 43 - Environmental Protection where working adjacent to water or as directed by Departmental Representative.

.2 Take precautions to support structures and if safety of item being demolished or adjacent structures or services appear to be endangered, cease operations and notify the Departmental Representative.

.3 Prevent damage and minimize stripping of natural terrain, features and vegetation. Make good all damage.

.4 Ensure safe passage of persons around area of demolition.

.5 Do not proceed with demolition work when weather conditions constitute a hazard to the workers and site. Prevailing weather conditions and weather forecast are to be considered.

.6 Cover dry materials, ash and rubbish to prevent blowing dust and debris, Provide dust control for site activities, including, but not limited to, existing and temporary roads.

1.9 Fires

.1 Comply with all regulatory requirements and obtain a Burn Permit, if required.

.2 Burning of any painted and/or chemically treated materials is prohibited unless authorized in writing by Departmental Representative.

.3 Where fires or burning is allowed, prevent staining or smoke damage to structures, materials or vegetation which are to be preserved. Restore, clean and return to new condition stained or damaged materials, structures or vegetation.

.4 Provide supervision, attendance and fire protection measures in accordance with Section 01 35 32 - Site Specific Health and Safety Plan for Contaminated Sites.

.5 The burning of structures on site is not permitted.

1.10 Measurement of Payment

.1 Include all direct costs for the following work items in the lump sum prices for Demolition for Outpost Island Mine, Items 02 41 16-1 for each work area at the Outline Island mine site where facilities are to be demolished as indicated in the Basis of Pricing Schedule:
- .1 Demolition and dismantling of structures as shown on drawings and in the specifications.
- .2 Sorting of non-hazardous waste, as required, for disposal.
- .3 Burning of untreated wood, paper and cardboard.
- .4 The above work items will not be measured for payment and payment for off-site disposal will be as per Section 02 41 23.

.2 Include all direct costs for the following work items in the lump sum prices for Demolition for Blanchet Mine, Items 02 41 16-2 for each work area at the Blanchet mine site where facilities are to be demolished as indicated in the Basis of Pricing Schedule:
- .1 Demolition and dismantling of structures as shown on drawings and in the specifications.
- .2 Sorting of non-hazardous waste, as required, for disposal.
- .3 Burning of untreated wood, paper and cardboard.
- .4 The above work items will not be measured for payment and payment for off-site disposal will be as per Section 02 41 23.
- .5 Management of metal impacted vegetation is incidental.

.3 Include all direct costs for the following work items in the lump sum prices for Demolition for Copper Pass Mine, Items 02 41 16-3 for each work area at the Copper Pass mine site where facilities are to be demolished as indicated in the Basis of Pricing Schedule:
- .1 Demolition and dismantling of structures as shown on drawings and in the specifications.
- .2 Sorting of non-hazardous waste, as required, for disposal.
- .3 Burning of untreated wood, paper and cardboard.
- .4 The above work items will not be measured for payment and payment for off-site disposal will be as per Section 02 41 23.
- .5 Management of metal impacted vegetation is incidental.

.4 Except as indicated above, work described in this Section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in

Section 01 32 18 -Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Work

.1 Before commencing demolition, remove all hazardous materials as specified herein and in Section 02 61 33 - Hazardous Waste Material. Hazardous material removal work must be completed and accepted in writing by the Departmental Representative prior to the start of general demolition.

.2 Demolish existing structures as indicated and dispose of demolition debris as specified in this section and in Section 31 22 15 - Grading.

3.2 Safety and Personnel Protection

.1 Unless otherwise specified, carry out demolition work in accordance with Section 01 11 00 - Summary of Work and Section 01 35 32 - Site Specific Health and Safety Plan for Contaminated Sites.

3.3 Preparation

.1 Inspect site and verify prior to demolition with the Departmental Representative all buildings, structures and utilities designated for demolition.

3.4 Demolition, Decommissioning and Dismantling

.1 All structures are to be demolished to the base of the concrete foundation slab level unless otherwise indicated. Any exposed foundations are to be excavated and broken down to have a longest dimension of less than 600 mm prior to placement into the Main Raise on Outpost Island.

.2 Remove all piping above ground as indicated and described in Section 02 61 33 - Hazardous Waste Material.

.3 Cut structural steel and bulk fuel tanks in accordance with referenced standards.

.4 Cut non-hazardous materials in such shapes and sizes so as to optimize containerization of the material in preparation for off-site disposal at the Contractor's Designated Waste Disposal Site.

.5 At end of each day's work, leave work in safe condition so that no part is in danger of toppling or falling.

.6 Demolish in a manner that minimizes dust creation.

.7 Demolish concrete walls, piers and foundations in small sections. Remove and lower structural framing and other heavy or large objects in a safe manner.

.8 The final decommissioned building sub-structure must meet all applicable guidelines outlined in the Northwest Territories Mine Health and Safety standards.

3.5 On-Site Burning of Untreated Wooden Debris

.1 Collect, sort and transport all untreated wood to the burning location

.2 Contain and collect all ash generated from the burning location and dispose as required and as described in this Section.

.3 A leachate extraction test is to be carried out by Departmental Representative on the solid residual material resulting from the burning process. The leachate toxicity of the material will be determined in accordance with Appendix 4 of Part 2 of the TDGA. Disposal of materials found to be non-hazardous are to be relocated to the Giant mine site for disposal at the location provided by the Departmental Representative as per the conditions in Section 02 41 23 Debris Removal. Package leachate toxic material in accordance with TDGA regulations, as required, and dispose of as described in Section 02 61 33 Hazardous Waste Material.

.4 Adhere to all requirements of the Burn Permit.

.5 Metal impacted vegetation is not to be burned.

3.6 Site Grading and Restoration

.1 Upon completion of demolition work, remove debris and leave work sites clean to a condition satisfactory to the Departmental Representative.

.2 Reshape or grade areas excavated to facilitate demolition requirements in accordance with Section 31 22 15 -Grading.

.3 Do not begin grading of demolition areas until approval to do so is given in writing by the Departmental Representative.

END OF SECTION

PART 1 GENERAL

1.1 Description

.1 This Section specifies the requirements for the recovery, consolidation, segregation, on-site handling, containerization, off-site transport and disposal of scattered debris located across the respective mine sites.

.2 A summary of the known debris areas is provided in Appendix A, Environmental Impacts as well as other Appendices.

1.2 Definitions

.1 Known Debris: All scattered debris across the Mine and former Camp sites associated with each mine on the existing ground surface consisting of hazardous and non-hazardous material, and that:

.1 has been identified in Appendices and/or Drawings as to be removed (including demolition debris); or
.2 is located within a water body, within 10 metres of shore; or
.3 is located within 50 m of any access road or water coarse on the site.

.2 Unknown Debris: Scattered debris on the existing ground surface and/or partially buried debris consisting of hazardous and non-hazardous material other than the Known Debris described above.

.3 Untreated Wooden Debris: Wooden debris that is designated by Departmental Representative as suitable for on-site incineration.

.4 Hazardous Waste Materials: Waste materials that are designated as hazardous under Territorial or Federal Legislation or as dangerous goods under the TDGA or CEPA (See Section 02 61 33 - Hazardous Materials).

.5 Non-Hazardous Waste Materials: Waste materials that are not designated as hazardous under Territorial or Federal Legislation, including double-bagged asbestos.

.6 Non-Hazardous Waste Container: Containers suitable for shipping non-hazardous contaminated soil or debris by ground (including winter road).

.7 Lead-Painted Materials: materials painted with lead amended paint that contains leachable lead levels below 5 mg/L but total lead concentrations above 600 ppm.

.8 Contractor's Receiving Site: Is the location the Contractor has selected for the disposal of the various waste streams that will be generated during the course of the site remediation works. The site must have the appropriate operating license to receive the material to be disposed at the facility. Provide to the Departmental Representative upon award of work documentation confirming the respective waste receiving sites to be used during the course of the remediation program.

1.3 Measurement for Payment

.1 Include all direct costs for the collection, sorting, containerization and off-site disposal of all known non-hazardous debris from across the respective sites to the Contractor's Receiving Site in the lump sum price bid for each mine site under Item 02 41 23-1 to 02

41 23-3, Debris Removal, in the Basis of Pricing Schedule.

.2 The scope of work for payment Items 02 41 23-1 to 02 41 23-3 (Debris Removal) is to include, but is not limited to:

.1 Collection, segregation, consolidation and sorting of all known non-hazardous debris from the respective areas indicated.
.2 Packing, containerization and interim storage of debris for transport off-site to the Contractor's Receiving Site.
.3 Transportation and disposal of packaged and containerized debris at the Contractor's Receiving Site.
.4 All costs for the collection and disposal of unknown debris will not be considered for payment under Section 02 41 23 - Debris Removal, but will be negotiated with Departmental Representative using the basis of the Alberta Road Builder's Guide.

.3 The scope of work for Burning of Untreated Wood is to include, but not limited to:

.1 Obtain necessary burn permits from AHJ.
.2 Collection, sorting and onsite transport of all untreated wood to the burning location as indicated.
.3 No separate payment will be made for this work.

.4 All direct costs for consolidation, crushing, packaging/containerization and disposal of all known drums to the Contractor's Receiving Site will be measured for payment by each drum at the respective mine sites under Item 02 41 23-4 to 02 41 23-6, Consolidation and crushing of empty drums (excluding drums with product), in the Basis of Pricing Schedule.

.5 Collection and disposal of liquids from within equipment to be disposed of will be negotiated with Departmental Representative using the basis of the Alberta Road Builder's Guide..

.6 The following work items will be incidental to the work described in this Section, and will not be measured separately:

.1 Cutting, crushing and readying of this material for transport to the Contractor's Receiving Site.
.2 On-site management of the debris material pending relocation to the Contractor's Receiving Site.

.7 Collection, transport and disposal of Unknown Debris identified to contain hazardous materials will be negotiated with Departmental Representative using the basis of the Alberta Road Builder's Guide.

.8 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 Pricing Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18-Construction Progress Schedules – Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Materials

.1 Hazardous Waste Containers for hazardous waste materials in accordance with Section 02 61 33 - Hazardous Waste Material.

PART 3 EXECUTION

3.1 Protection Procedures

.1 When excavating in the vicinity of a drainage course or a body of water, erect silt fences and/or floating turbidty curtains to prevent the release of sediment or deleterious materials into the water in accordance with Section 01 35 43 - Environmental Protection.

.2 Environmental protection measures, including containment of ash from burning of untreated wood, are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Protection.

.3 Remove oil and fuel, if present, from equipment to be disposed of as per Section 02 61 33 - Hazardous Waste Material.

.4 Maintain supply of overpack drums during debris removal activities to contain leaking hazardous materials.

.5 Erect sorbent booms around debris removal area during work.

3.2 Removal and Sorting

.1 Examine the area(s) to assess the material type and nature of the debris.

.2 Proceed with the collection and removal of debris if, based on the visual assessment, the debris is determined to be non-hazardous.

.3 Contractor's Hazardous Materials Specialist to continuously monitor the operation to identify potentially hazardous material.

.4 Immediately suspend the operation if suspected hazardous material or debris is identified and allow visual confirmation of the nature of the material or debris to be established.

.5 Store suspicious materials in a secured area in secured containers, if the nature of the material or debris can't be confirmed, notify Departmental Representative about the findings. Testing for classification of hazardous products will be carried out and paid for by Departmental Representative.

.6 Completely remove partially buried debris.

.7 Advise Departmental Representative of any stained soils encountered during debris removal operations. If authorized by Departmental Representative, excavate stained and contaminated soil areas, identified during debris removal operations, in accordance with the requirements of Section 02 55 13 - Contaminated Soil. Testing for classification and confirmatory testing will be carried out and paid for by Departmental Representative.

3.3 On-Site Burning of Untreated Wooden Debris

.1 Collect, sort and transport untreated wood to a designated burning location.

.2 Carry out all burning subject to the conditions and restrictions of an authorized permit to burn for the site.

.3 Contain and collect all ash generated from the burn area and dispose of as required and as described in this Section.

.4 Containerize or package all non-hazardous ash and burn residual in a manner suitable for transfer off-site to the Contractor's Receiving Site for disposal. This work is incidental to the Debris Removal work.

END OF SECTION

PART 1 GENERAL

1.1 Description

.1 This Section specifies the requirements for the excavation, containerization and transfer or disposal of contaminated soils, including the following:

.1 Petroleum Hydrocarbon (PHC) Contaminated Soil at identified locations within the limits of the site.
.2 Metal Contaminated Soil, Waste Rock and Ore at identified locations within the limits of the site.

1.2 Definitions

.1 Petroleum Hydrocarbons (PHC): Hydrocarbon products described by laboratory analyses as lubricating oil and grease, fuel oil, diesel and/or gasoline.

.2 Petroleum Hydrocarbon Contaminated Soil: Soil containing petroleum hydrocarbons at concentrations exceeding at least one applicable CCME remediation criterion as follows:

PHC Fractions	CCME Standards for Site (ug/g)
Fl (C_6 to C_{10})	130
F2 (>C_{10} to 016)	150
F3(>C_{16}toC_{34})	400
F4 (>C_{34})	2800

.3 Tailings: finely ground rock particle material rejected from a mill after most of the recoverable ore minerals have been extracted. The tailings on-site contain elevated concentrations of metal parameters however for the purposes of this project are not deemed to be contaminated soils requiring off-site disposal unless otherwise indicated. Tailings are only present at the Outpost Island mine site and are often mixed with waste rock around the North Bay.

.4 Ore and Ore Concentrate: mineralized rock that was extracted during the mining operations and has since weathered and broken down into a material with the consistency of a fine powder. The ore and ore concentrate on-site contain elevated concentrations of metal parameters. For the purposes of this program the ore concentrate at the Blanchet mine will be classified as a hazardous contaminated soil to be consolidated and removed from site while at the Copper Pass mine site the ore and ore concentrate is not classified as hazardous and is to be buried within Trench #1 or #2 at the Main Showing as indicated.

.5 Hazardous Contaminated Soil: Contaminated soil is classified as hazardous in accordance with the Transportation of Dangerous Goods Act and Regulations (including CEPA and leachable soil).

.6 Metal Impacted Soils: Soils not generated from mining activities (i.e. not tailings or waste rock) which have been impacted by mine operations. For example soils impacted by broken batteries or stained by ore concentrated. The areas of metal impacted soils are

as indicated and are to be reviewed with the Departmental Representative prior to undertaking remediation works at the respective mine sites.

.7 Clean Soil: Soil that has been sampled, analyzed, and determined to have concentrations of Petroleum Hydrocarbons lower than the applicable criteria identified in 1.2.2.

.8 Non-Hazardous Soil Containers: Containers which do not necessarily meet the requirements of TDG Acts and Regulations for the transportation of contaminated soil.

.9 Contaminated Soil Containers: Lined, leak proof, collapsible wooden containers with an interior volume of 2.3 cubic metres or 205 Litres drums, suitable for shipping non-hazardous contaminated soil and debris by ground or sea and suitable for use as an Intermediate Container within the Marine Barge Containers for consolidating dimensionally small hazardous materials.

.10 Site Specific Target Levels (SSTL): SSTLs represent maximum levels of Contaminants of Potential Concern in water or soil that are not expected to result in adverse effects to humans and ecological receptors, based on the assumed receptor characteristics and exposures from the site. The SSTLs are to be applied only to non-vegetated areas of a remediation site where ore impacted soils are encountered. SSTLs are not to be applied to waste rock piles. A description of the SSTLs for the respective media and mine site are provided in Appendix A.

1.3 Qualifications

.1 Contractor's Superintendent responsible for the work of this Section is to have a minimum of five years of experience in the area of hazardous waste management.

.2 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No.85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA – Contractors Training Council, 1992.

.3 All activities involving the handling of hazardous materials, are to be directly supervised by Contractor's personnel who have successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program.

.4 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.

.5 Provide workers, Department Representative and Department Representative's staff when required with protection appropriate to the potential type and level of exposure. Establish specific safety protocols in the Site Specific Health and Safety Plan.

.6 Provide suitable safety clothing and equipment as required during the course of the work.

.7 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.

1.4 Site Conditions

.1 Suspend operations whenever climatic conditions are unsatisfactory for excavating or backfilling to conform with this Specification.

.2 After occurrence of heavy rains, do not operate equipment in designated areas until the material has dried sufficiently to prevent excessive rutting.

.3 Prior to the commencement of the work, remove debris, snow, ice and standing water from areas to be excavated and backfilled.

.4 During excavation of contaminated soil, maintain a stable excavation and dewater as required or as directed by Department Representative.

1.5 Protection

.1 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Protection.

.2 The release of all water resulting from the dewatering of ponded water in contaminated soil areas or mine workings, and the decontamination of equipment is to conform to the Wastewater Discharge Criteria outlined in Section 01 35 43 - Environmental Protection and Section 01 35 15 – Special Project Procedures for Contaminated Sites. The work must be done in accordance with the Wastewater Management Plan.

1.6 Personnel Protection

.1 Some areas designated for cleanup under this contract involve soils and hazardous materials which contain inorganic elements, hydrocarbons, and other contaminants which are considered hazardous to human health.

.2 When working with contaminated soil or tailings, workers are to wear protective clothing and equipment acceptable to Labour Canada or Territorial Labour Department as suitable for exposure in the work area. Follow National Institute for Occupational Safety and Health (NIOSH) guidelines in providing protection for on-site personnel including contract employees and subcontractor, Department Representative and other authorized site personnel. Provide details of protective clothing and equipment required for each work area in the Site Specific Health and Safety Plan as required by Section 01 35 32 – Site Specific Health and Safety Plan for Contaminated Sites.

.3 Supply sufficient quantities of designated protection equipment to fit all site personnel including Department Representative and authorized visitors. Educate workers as to risks, and train in safe work practices.

1.7 Measurement for Payment

.1 The excavation, consolidation, management, transfer and disposal of petroleum hydrocarbon contaminated soil to the Contractor's Receiving Site will be measured for payment by tonnage based on the weigh bills of the Contractor's Disposal Facility. Excavation, management, transfer and disposal of Petroleum Hydrocarbon Contaminated Soil for the respective mine sites will be paid under Items 02 55 13-1 to 02 55 13-3 of the Basis of Pricing Schedule.

.2 The excavation, consolidation, management, transfer and disposal of ore and/or ore

concentrate to the Contractor's Receiving Site will be measured for payment by the tonne based on the weigh bills of the Contractor's Disposal Facility. Excavation, management and transfer of Ore and Ore Concentrate Off-site will be paid under Items 02 55 13-4 of the Basis of Pricing Schedule for the Blanchet mine site only.

.1 incidental to this work will be the transfer of existing drum overpacks that contain ore concentrate which was containerized during earlier site remedial works. The overpacks are located at the Beach Area of the Blanchet mine. More information is provided in Appendix A.

.3 The excavation, consolidation, management, transfer and disposal of metal impacted soils related to camp waste and broken batteries to the Contractor's Receiving Site will be measured for payment by tonnage based on the weigh bills of the Contractor's Disposal Facility. Excavation, management, transfer and disposal of Metal Contaminated Soil for the respective mine sites will be paid under Items 02 55 13-5 to 02 55 13-7 of the Basis of Pricing Schedule.

.1 Metal impacted soils related to mineralized rock or from residual ore concentrate at the Blanchet and Copper Pass mines will be risk managed on-site and work associated with these impacted soils is not part of these payment items. Payment for the risk management work associated with these impacts will be as prescribed in Section 31 22 15 – Grading.

.4 No extra payment will be made for soil removed from beyond the specified limits of excavation, unless such removal has been specifically directed by Departmental Representative. The volume of contaminated soil excavation beyond the specified limits that have been approved by Departmental Representative will be determined by survey.

.5 All costs associated with the cleanup of contamination of areas within or surrounding the treatment areas due to the migration of contaminants from the soil being treated as a result of Contractor's actions or inactions are to become the responsibility of Contractor. These costs are to include all costs of investigation to determine the extent of contamination migration, as well as soil excavation and treatment costs.

.6 The following activities are considered incidental to the work identified by Items 02 55 13-1 through 02 55 13-7 and will not be measured separately:

.1 Provision of all necessary safety equipment and clothing.
.2 Any necessary excavation to facilitate testing
.3 Equipment decontamination.
.4 Any requirements of permits.
.5 Grading of excavations to prevent ponding and blend in with the surrounding terrain, as directed by Departmental Representative.

.7 Dewatering will not be measured. Include all costs for dewatering in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule.

.8 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 Pricing Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Materials

.1 Environmental Protection Supplies: as per Section 01 35 43 — Environmental Procedures.

PART 3 EXECUTION

3.1 Excavation of Contaminated Soil, Ore and Ore Concentrate

.1 Lay out and excavate areas of contaminated soil, ore, and ore concentrate to the limits as indicated. All layouts are to be field verified by Department Representative prior to excavation.

.2 Remove all surface debris prior to excavation. Remove all debris from excavated soil, sort, and containerize appropriately.

.3 Suppress dust generated during excavation operations with a water spray. Prevent surface water from entering the excavated area.

.4 Dewater ponded contaminated soil areas, as required. Maintain soil excavations free of standing water during soil removal, confirmatory sampling and backfilling activities. Comply with the requirements of Section 01 35 15 - Special Project Procedures for Contaminated Sites.

.5 When excavating in the vicinity of a drainage course or a body of water, erect silt fences, floating silt curtains and/or containment berms to prevent the release of sediment and deleterious materials into the water in accordance.

.6 Clean the excavating equipment including the bucket, tracks, etc., of soil lumps and particles prior to mobilizing to the next contaminated soil area. Collect and dispose of the removed material in accordance with the contaminated soil designation. Take special precautions to mitigate the tracking of contaminated soil over the site area.

.7 Decontaminate the equipment used for the excavation of Contaminated Soil in accordance with this section before commencing contaminated soil excavation at another location.

.8 Notify Departmental Representative so that confirmatory soil samples can be collected after reaching the design depth of the contaminated soil. No further excavation of the soil will proceed until the results of confirmatory samples are assessed by the Departmental Representative.

.9 Do not operate equipment in contaminated soil or waste rock areas that have been excavated until Department Representative has confirmed, based on the results of confirmatory testing, that no further excavation of contaminated soil in the area is required.

3.2 Erosion, Sediment and Drainage Controls

.1 Prior to commencement of the work, install temporary erosion, sediment and drainage controls to prevent siltation and disruption of water bodies in accordance with this Section and Section 01 35 43 - Environmental Protection.

.2 Erosion, sediment and drainage controls are to be maintained during all stages of work.

.3 At the completion of contaminated soil excavation, remove the erosion, sediment and drainage controls, as directed by Department Representative. Dispose of all non-granular erosion, sediment and drainage control materials off-site.

3.3 Equipment Decontamination

.1 Decontaminate equipment which comes into direct contact with the contaminated soils in accordance with Section 01 35 15 - Special Project Procedures for Contaminated Sites.

END OF SECTION

PART 1 GENERAL

1.1 Description

.1 This section specifies the requirements for the collection, containerization, transportation and disposal of hazardous waste.

.2 An inventory of known hazardous waste materials is provided in Appendix A, Environmental Impacts.

1.2 Definitions

.1 Hazardous Waste Materials: Wastes materials that are designated as “hazardous” under Territorial or Federal legislation or guidelines; or as “dangerous goods” under the TDGA. The following items are designated as “hazardous” in accordance with the aforementioned legislation:

- .1 Batteries.
- .2 Solvents.
- .3 Oils Containing Polychlorinated biphenyls (PCB) in excess of 2 ppm.
- .4 Petroleum Distillates, including free product that may be recovered during contaminated soil excavation work.
- .5 Drum Sludge.
- .6 Soils and paint containing PCBs at concentrations in excess of 50 ppm (mg/kg) and/or leachable lead in excess of 5 ppm (mg/L).
- .7 Material, including wastewater, groundwater and surface water, identified to be hazardous as the result of testing.
- .8 Electrical equipment including, but not necessary limited to, capacitors, transformers, and regulators which contain or are suspected to contain PCBs at concentrations in excess of 50 mg/kg.
- .9 Chemicals
- .10 Miscellaneous Hazardous Materials defined as those materials not classified as 1 to 9 above but suspected to fall under the definition of Hazardous Wastes and Materials as stated in this Section.
- .11 Ore concentrate defined as mineralized (ore) rock that has broken down to the consistency of powder.

.2 Known Hazardous Material: material designated as hazardous in accordance with the definition of hazardous waste material in this Section, and which is included in the Waste Inventory in Appendix A.

.3 Unknown Hazardous Material: material designated as hazardous in accordance with the definition of hazardous waste material in this Section, and which has not been specifically identified for collection and disposal as part of other work components.

.4 Known and Unknown Debris: As defined in Section 02 41 23 - Debris Removal.

.5 Processing: the sampling, testing, packaging, and containerization of hazardous materials.

.6 Shipping Container: a container which meets applicable TDGA Requirements for the transport of hazardous material and contains hazardous material.

.7 Temporary Storage Area: the designated area, approved by Departmental Representative, for the storage of packaging and/or shipping containers prior to transport

off-site. Requirements for the Temporary Storage Area are outlined in this Section.

.8 Drum: for the purposes of these specifications a drum is a 205 L or smaller steel container used to hold fuel or other liquids.

.9 Free Product: a visible layer of separated phase liquid petroleum hydrocarbon product

.10 Contractor's Receiving Site for Hazardous Materials: The Licensed Hazardous Waste Disposal Facilities, designated by Contractor and pre-approved by Departmental Representative, for the disposal of all hazardous waste specified under the provisions of this contract. Contractor must be able to provide documentation from the Designated Hazardous Waste Disposal Facilities indicating full responsibility for all hazardous waste accepted from the respective GSL mine sites.

.11 Leachable Lead Painted Material: Material that is coated with lead based paint that has been analyzed and determined to contain leachable lead concentrations in excess of 5 mg/L.

.12 Calibrated Scale: Scale certified by Measurement Canada for legal trade.

1.3 Qualifications and Personnel Protection

.1 Be thoroughly familiar with and knowledgeable about existing site conditions, scope of work and requirements of the Specifications.

.2 Only Contractor's personnel capable of demonstrating a history of satisfactory experience in the area of hazardous waste management and can satisfy Federal and Territorial requirements will be permitted to supervise and direct the work of this Section. Contractor's Superintendent responsible for the work of this Section is to have appropriate level of experience in the area of hazardous waste management.

.3 Follow at all times, guidelines such as those established in Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities: NIOSH Publication No.85-115, or Hazardous Waste Worker Training Manual: Canadian LIUNA-Contractors Training Council, 1992.

.4 All activities involving the handling of hazardous materials are to be directly supervised by Contractor's Hazardous Waste Specialist who has successfully completed a 40 hour training course for Hazardous Waste Activities in compliance with OSHA 29 CFR 1910.120 or other approved equivalent training courses such as the Canadian Hazardous Waste Workers Program.

.5 Contractor's personnel trained as described in this Section are to instruct and direct all workers with respect to the waste management procedures and labour and safety practices to be followed in carrying out the work.

.6 Provide workers with protection appropriate to the potential type and level of exposure. Establish specific safety protocols prior to commencing cleanup activities.

.7 Provide suitable safety clothing and equipment as required during the course of the work. Supply sufficient quantities of protection equipment to fit all site personnel including Departmental Representative, Departmental Representative's staff, and site visitors.

.8 Trained and certified personnel are required to complete all Transportation of Dangerous Goods Act (TDGA) documentation and recording requirements.

1.4 Measurement for Payment

.1 The supply of Shipping Containers for the containerization of hazardous materials including identification labels, signage and materials to be placed within the base of the Shipping Containers to serve as a means for containing materials within the container (drip trays), and all bracing, locks, dunnage and strapping, will be measured for payment by lump sum for all containers required by Contractor for the anticipated Hazardous Waste Materials at the respective mine sites. The transportation of these containers to the respective sites is to be charged under mobilization. Supply of Shipping Containers - Hazardous Waste Materials will be paid under Items 02 61 33-1 to 02 61 33-3, as indicated in the Basis of Pricing Schedule.

.2 The containerization of known hazardous solid materials at the respective mine sites will be measured for payment by lump sum for containerization of hazardous solid materials to applicable Federal and/or Territorial requirements for shipment off-site. Containerization of Known Hazardous Materials will be paid under Items 02 61 33-4 to 02 61- 33-6 as indicated in the Basis of Pricing Schedule.

.3 The containerization of known hazardous liquid materials as indicated will be measured for payment by the drum for containerization of hazardous liquid materials to applicable Federal and/or Territorial requirements for shipment off-site. Containerization of Known Hazardous Materials will be paid under Item 02 61 33-7 as indicated in the Basis of Pricing Schedule.

.4 Off-site transport of containerized hazardous solid or liquid waste, consisting of, Hazardous Debris and Hazardous Liquid Waste from the respective mine sites to the Contractor's Receiving Site for Hazardous Materials will be measured by lump sum paid under Items 02 61 33-8 to 02 61 -33-10, Off-site Transport of Containerized Hazardous Waste to Contractor's Receiving Site in the Basis of Pricing Schedule. Claims will be paid upon proof of acceptance from Contractor's Receiving Site for each waste stream.

.5 The scope of work for payment Items 02 61 33-8 to 02 61 33-10 (Off-site Transport and Disposal of Containerized Hazardous Waste: Hazardous Debris and Hazardous Liquid Waste to Contractor's Receiving Site) is to include, but is not limited to:

.1 Preparation and submission to Departmental Representative of waste transport manifests to meet all required relative to the TDG Regulations.

.2 Provision of transportation for the containerized hazardous waste to Contractor's Receiving Site.

.3 On-site transport of the containerized hazardous waste to the off-site transport staging area and loading onto transport.

.4 Transport and Off-loading of the containerized hazardous waste to Contractor's Receiving Site.

.5 Provision of Certificates of Destruction or acceptance of responsibility from the Contractor's Receiving Site.

.6 Include all costs for other elements of work not specifically described herein in the appropriate lump sum cost items described above.

.7 Contractor is to be responsible for all costs associated with any additional repackaging of container contents resulting from the failure by Contractor to properly pack and secure the container contents.

.8 Development of the Temporary Storage Area, including signs and barricades, will not be

measured for payment. Include all costs for signs and barricades in Item BOPC-1, Balance of Project Costs.

.9 Contractor is responsible for any soil contamination resulting from the removal, storage, handling and disposal of hazardous materials from the site. In the event of such contamination, Contractor is to submit to Departmental Representative a plan for site remediation in accordance with all Federal, Provincial and Territorial regulations to be enacted immediately upon approval by Departmental Representative. Contractor is to bear all costs for remediation. Departmental Representative will carry out sampling of the storage area.

.10 Costs for the collection and containerization of unknown hazardous waste material will be negotiated with Departmental Representative using the basis of the Alberta Road Builder's Guide. The scope of work for the Collection and Containerization of Unknown Hazardous Waste Material includes, but is not limited to the following:

.1 Supply and transport of containers to the site for unknown hazardous waste materials.

.2 Equipment and labour for the containerization and on-site transportation of unknown hazardous waste materials to the Temporary Storage Area on site.

.3 Collection, sorting, and classification of unknown hazardous waste for disposal requirements.

.4 Collection of contaminated surface water, groundwater and/or waste water encountered during contaminated soil excavation or generated during cleanup operations.

.5 Off-site Transport and disposal of hazardous waste material to Contractor's Designated Hazardous Waste Disposal Facility.

.11 Departmental Representative is to carry out baseline and post-use soil sampling and analyses of the Temporary Storage Area prior to placement, and upon removal, of the Hazardous Material Containers. Contractor is responsible for any soil contamination resulting from the improper storage and handling of hazardous materials over the duration of site remediation activities. In the event of such contamination, submit to Departmental Representative a plan for site remediation in accordance with all Federal, Provincial and Territorial Regulations to be enacted upon immediately following approval by Departmental Representative. All cleanup costs will be borne by Contractor.

.12 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 Pricing Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18- Construction Progress Schedules — Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Hazardous Waste Material Containers:

.1 Hazardous Waste Containers:

.1 Containers are to satisfy the requirements of the latest edition of the *Transportation of Dangerous Goods (TDG) Act* and Regulations, and in meant the requirements related to the transport of material over ice roads or my marine transport methods.

.2 Submit details of the containers to Departmental Representative for review prior to commencement of the work. These details are to include written confirmation from Transport Canada that Contractor's proposed containers satisfy TDGA regulatory requirements for marine transport.

.3 Containers are to include all necessary liners to satisfy the TDGA requirements for ground transport via the winter road and local highway system.

.2 For packaging and containerization requirements of hazardous waste materials, all requirements of the *TDG Act* and Regulations must be met.

.3 Provide access for Departmental Representative to inspect all Hazardous Material Packaging as directed by Departmental Representative.

PART 3 EXECUTION

3.1 General Requirements

.1 Conduct all work in accordance with all appropriate Federal, Provincial and Territorial legislation, and international conventions.

.2 Individuals shipping and receiving hazardous waste materials are to be licensed under the *TDGA* and Regulations, and appropriate territorial environmental acts and regulations.

.3 Only trained individuals or individuals working under the direct supervision of trained persons are to handle or transport dangerous goods.

.4 Where Hazardous Materials are part of demolition items, proceed with demolition in accordance with Section 02 41 16 - Structure Demolition Provide protection and precautions as outlined in this Section.

.5 Establish Temporary Storage Areas at each mine site, subject to approval by Departmental Representative, to provide a secure area for Hazardous Waste Material prior to shipment for disposal as described in this Section.

3.2 Protection

.1 Perform work in an environmentally acceptable manner. Comply with requirements of Section 01 35 43 – Environmental Protection.

.2 Avoid releasing any hazardous materials into the environment during handling of hazardous waste materials.

.3 In the event of a spill, invoke the emergency response plan and take appropriate action.

.4 Provide a full range of cleanup and protective equipment at the site to contain and cleanup spills, and protect personnel, as required. The cleanup equipment is to include booms (sorbent and containment), sorbents for cleanup, fire extinguishers for A-B-C fires, overpacks for contaminated soils, pumps, hand shovels, picks and containment barriers, such as plastic sheeting. Personnel protective equipment is to include clothing, protective suits, respirators, etc. to comply with potential emergency conditions and in accordance with NIOSH guidelines.

.5 Site personnel handling hazardous waste material are required to wear environmental protection equipment in accordance with NIOSH guidelines.

.6 Establish a Temporary Storage Area as indicated.

.7 Handle tailings in accordance with Section 02 55 13 – Contaminated Soil with shipping containers, transport and disposal to comply with the requirements of *TDGA* and other applicable regulations.

3.3 Temporary Storage Area

.1 Establish a Temporary Storage Area at each mine site for the purpose of:
- .1 Sorting, packaging, sampling, and processing hazardous waste materials;
- .2 Consolidation of compatible liquids and solids, packaging for shipment; and
- .3 Consolidation of crushed drums and non-hazardous debris prior to transfer off-site to the Contractor's Receiving Site.

.2 Establish the Temporary Storage Area to:
- .1 be of sufficient size and capacity to accommodate the volume of hazardous material and equipment to be disposed of off-site, and the volume of non-hazardous debris as well as the number of drums to be transferred to the Contractor's Receiving Site, and
- .2 isolate hazardous materials, and drum contents and wash water from other work operations.

.3 Immediately clean up any spills, leaks, or other releases of liquid or sediment from this area as per Section 01 35 43 - Environmental Protection, and in accordance with the Site Specific Health and Safety Plan for Contaminated Sites.

.4 Submit details of the Temporary Storage Area to Departmental Representative for review and approval prior to commencing remediation activities.

.5 Submit to Departmental Representative a detailed inventory of the Temporary Storage Area indicating the location and contents of each container and assigned Environment Canada Registration numbers (as required) and packaging configuration.

3.4 Removal and Sorting of Hazardous Waste Materials

.1 Continually monitor the remediation operation to identify potentially hazardous material.

.2 Immediately suspend the operation if suspected hazardous material or debris is identified and allow visual confirmation of the nature of the material or debris to be established.

.3 Store suspicious material in a secured area or secured containers, if the nature of the material or debris can not be confirmed. Advise Departmental Representative about the findings. Material needs to be seized until the nature of the material is confirmed by Departmental Representative. Testing for classification will be carried out and paid for by Departmental Representative.

.4 Remove hazardous waste materials from their place of origin, place in containers, and transport containers to the Temporary Storage Area.

.5 Remove hazardous liquid waste drums from their place of origin, place in containers, and transport containers to the Temporary Storage Area.

.6 Remove hazardous materials derived from demolition work from their place of origin in accordance with Section 02 41 16 - Structure Demolition place in containers and transport containers to the Temporary Storage Area.

.7 Remove and sort drums as described in this Section.

.8 Avoid releasing any hazardous materials into the environment during the handling of hazardous waste materials.

.9 Invoke the approved emergency response plan and take the appropriate action in the event of a spill or other emergency situation.

.10 Have available, a full range of cleanup and protective equipment (PPE) at the site of debris removal to contain and cleanup spills, and protect personnel as required. The cleanup is to include booms (sorbent and containment), sorbents for cleanup, over-packs for drums and contaminated soils, pumps, hand shovels, and picks.

Personnel protective equipment as per Section 01 35 32 Site Specific Health and Safety Plan is to include clothing protective suits respirators etc in accordance with NIOSH Guidelines and to comply with anticipated and potential emergency conditions.

.11 Site personnel in the vicinity of the debris removal operations or handling hazardous material are required to wear environmental protection equipment in accordance with NIOSH guidelines and the Site Specific Health and Safety Plan.

.12 Advise Departmental Representative of any stained soils encountered during debris removal operations. Excavate stained and contaminated soil areas, identified during debris removal operations, in accordance with the requirements of Section 02 55 13 - Contaminated Soil. Testing for classification will be carried out and paid for by Departmental Representative.

.13 Submit details of the containers for handling and disposal of hazardous waste materials to Departmental Representative for review prior to commencement of site remediation activities. Include all required approvals, as well as a description of the type and volume of containers.

3.5 Management of Leachable Lead Painted Materials

.1 Not Used

3.6 Drum Processing

.1 All drums known to contain liquids are to considered as hazardous and managed as previously described in this Section.

.2 All drums free of liquid will be consolidated and containerized for transfer to the Temporary Storage Area and for transport to the Contractor's Receiving Site.

.3 Inspection:

.1 All drums are to be inspected by Departmental Representative and Contractor. The purpose of the inspection is to identify those drums with and those without liquid contents as well as the process for opening, sampling, testing and handling of the drums. The inspection is to address the following items as a minimum:

.1 Symbols, words, or other marks on the drum that identify its contents, and/or that its contents are hazardous; e.g. radioactive, explosive, corrosive, toxic, flammable.

.2 Symbols, words, or other marks on the drum that indicate that it contains discarded laboratory chemicals, reagents, or other potentially dangerous

materials in small-volume containers.

.3 Signs of deterioration such as corrosion, rust, or leaks at seams, rims, and V grooves.

.4 Evidence of spills or other contamination on the top and sides of the drum.

.5 Signs that the drum is under pressure such as bulging and swelling.

.4 Test areas around drums that show evidence of holes, rust points, or openings using a Volatile Organic Compound (VOC) instrument prior to movement. If levels exceed 20 percent Lower Explosive Limit (LEL) as measured by the VOC, conduct all handling, storage, and transportation operations in accordance with the appropriate sections of the National Institute for Occupational Safety and Health (NIOSH) guidelines, National Fire Code of Canada, and the TDGA for flammable and combustible materials.

3.7 Inventory of Containers

.1 Provide a numbering system and maintain an inventory of all containers to be transported and disposed of off-site.

.2 Label all containers, using spray paint or other means, with the Container number and contents (e.g. Haz Soil, Haz Debris, etc.).

.3 Submit to Departmental Representative, a copy of the inventory of the contents of each container.

3.8 Packaging, Labelling and Inventory

.1 Provide a numbering system and maintain an inventory of all containers with Hazardous Waste Materials to be transported and disposed of off-site.

.2 Package and label each “hazardous material” in accordance with the “Class” and “Packaging Group” as per TDGA.

.3 Submit to Departmental Representative, a copy of the inventory of the contents of each container.

.4 Provide certificates to the Departmental Representative of the hazardous waste material disposal once the waste material has been received by the Contractor’s Receiving Site and prior to final payment.

END OF SECTION

PART 1 GENERAL

1.1 Supplemental Information

.1 This section covers the requirements for the construction of seals for the mine openings at the Outpost Island mine site. Presently there are two shafts, an ore raise and main raise that need proper closure to comply with Territorial regulatory requirements. A brief description of each mine opening is provided in below with more information in the Appendices.

.1 The Shaft No.1 is located beneath the existing waste rock and tailings stockpile. The actual dimensions are unknown and investigation work upon mobilization to site will be required to expose the collar of the shaft. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.2 The Shaft No. 2 is located at the west end of Outpost Island and is currently capped with a thin concrete cap that is deteriorating. The existing cap measures approximate 2 m by 2.7 m. The shaft has been backfilled with a mix of piping and other steel debris from the original works around this location. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions, which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.3 The Ore Raise is located midway between Shafts No 1 and No 2 and is currently capped with a concrete cap of indeterminate thickness. The cap measures 1.4 m by 1.3 m with the cap possibility supported by steel wire. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions, which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.4 The dimensions on the Main Raise located at the western limit of the waste rock and tailing stockpile on the eastern shore of North Bay are approximately 8 m long, 2 m wide and less than 5 m deep on average. The raise is filled with water and has been partially filled with waste rock and tailings as well as some mine waste from the 1994 remediation work completed at the site. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions, which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.5 The dimensions of the two exploration trenches located on the eastern portion of East Island are approximately 5 m long, 2 m wide and less than 2.5 m in height on average.

.2 This section covers the requirements for the construction of a seal for the adit opening at the Blanchet mine site. Presently there is only the one adit which needs proper closure to comply with Territorial regulatory requirements. A brief description of the adit opening is provided in below with more information in the Appendices.

.1 The adit is located within the escarpment above the mine area approximately 1.3 km east of the Beach Area as indicated. The adit is approximately 25 m in length, and the mine opening is approximately 1.2 to 1.5 m wide and 1.6 m high.

Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions. Remedial work will be based on the actual site conditions encountered.

.3 This section covers the requirements for the construction of seals for the mine openings at the Copper Pass mine site. Presently there are two main trenches that need proper closure to comply with Territorial regulatory requirements. Other exploration and minor trenches workings on site will not require additional closure work due to their limited accessibility and physical characteristics. A brief description of the two mine openings to be sealed is provided in below with more information in the Appendices.

.1 Trench No.1 is the more northerly of the two trenches at the Main Showing. The trench was excavated from solid bedrock and only a thin veneer of overburden exists around the trench which measures approximately 20 m long by 5 to 8 m wide. The depth of the trench has been estimated to be on the order of 10 m from the existing top of trench. The trench is presently partially filled with water that is impacted with metal concentrations above the applicable discharge standards. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.2 Trench No. 2 is the southerly of the two trenches at the Main Showing. The trench was excavated from solid bedrock with little to no overburden present. The trench measures approximately 50 m long and upto 7.5 m wide with a depth ranging from 12 to 15 m below the top of the trench. The trench is presently partially filled with water that is impacted with metal concentrations above the applicable discharge standards. Investigate this opening and upon inspection by a qualified person confirm the estimated dimensions, which are indicated on the Drawings, on the basis of the actual site conditions that will be encountered.

.4 This section covers the requirements for the construction of seals for the two mine shafts at the Wilson (Aurous) mine. Presently there are two capped shafts however they are to be upgraded to meet today's standards. The two shafts are approximately 2.5 m by 3 m. Investigate these openings and upon inspection by a qualified person, confirm the estimated dimensions.

.5 This section covers the requirements for the construction of a single mine seal for the mine shaft at the Waldron mine. Presently there is a single open shaft at the site however the dimensions of the shaft are not confirmed. The shaft is estimated to be approximately 2 m by 2.4 m. Investigate the opening and upon inspection by a qualified person, confirm the estimated dimensions.

.6 Retain the services of a Level 2 Mine Superintendent, as required under the NWT Mine Safety Act, during the Work related to the closure of the mine openings.

.7 For the purposes of this work a qualified person is a Professional Engineer licensed to practice in the Northwest Territories and has expertise in this field of work.

.8 The information presented regarding the mine opening and surface trenches is based upon site conditions as described herein.

.9 Photographs of known mine openings (for all sites) are included in Appendix B.

1.2 Environmental Protection

.1 Ensure Work is done in accordance with Section 01 35 43 - Environmental Protection, the Land Use Permit and all other applicable permits and licenses.

1.3 Work Description

.1 Construct the engineered cap for the indicated mine shaft or trench openings to the specifications outlined in this Section. Work includes, but is not limited to:

.1 Provision of all labour, equipment and materials required to complete the construction of the engineered cap including all necessary earthworks (including the relocated of low potential acid generating waste rock into the respective mine shafts), formwork, shoring and bracing required to complete the work and comply with applicable regulation.

.2 Restoration and grading of all areas affected by work as indicated.

.2 Place waste rock backfill for the indicated surface trenches to the specifications outlined in this Section and in Section 31 22 15 Grading. The Work is to include, but is not limited to:

.1 Transport and placement of waste rock backfill at the surface exploration trench as indicated.
.2 Restoration and grading of all areas affected by work as indicated.
.3 Compaction of waste rock is to conform to the specifications outlined in Section 31 22 15 – Grading.

1.4 References

.1 Canadian Standards Association (CSA)

.1 CSA A23.3-94 (R2000), Design of Concrete Structures
.2 CSA S269.1-1975 (R2003), Falsework for Construction Purposes
.3 CAN/CSA-S269.3-M92 (R2003), Concrete Formwork
.4 CAN/CSA-G3018-M92 (R2002). Billet-Steel Bars for Concrete Reinforcement
.5 CAN/CSA-A23.1-04, Concrete Materials and Methods of Concrete Construction
.6 CAN/CSA-A23.2-04, Methods of Test for Concrete
.7 CAN/CSA-A3000-03, Portland Cement

.2 Council of Forest Industries of British Columbia (COFI)

.3 Northwest Territories Mine Health & Safety Act

.4 American Concrete Institute (ACT)
.1 ACT 315R-04, Manual of Engineering and Placing Drawings for Reinforced Concrete Structure.

.5 American National Standards Institute/American Concrete Institute (ANSI/ACI)
.1 ANSI/ACI 315-99, Details and Detailing of Concrete Reinforcement

.6 American Society for Testing and Materials (ASTM)
.1 ASTM A 775/A 775M-04 A, Specification for Epoxy-Coated Reinforcing Steel Bars

.2 ASTM C309-03, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

.7 Canadian General Standards Board (CGSB)
.1 CAN/CGSB-l9.24-M90, Multicomponent, Chemical-Curing Sealing Compound

.8 Ontario Regulation 240/00, Amended to 0. Reg. 282/03
.1 Mine Development and Closure Under Part VII of the Act

1.5 Design Requirements

.1 Design, engineer, and construct: formwork and shoring and bracing formwork for the engineered cap over the mine shaft to conform to design and code requirements; resultant concrete to conform to required shape, line and dimensions, as indicated.

.2 The use of foam plugs to seal mine openings may be considered however can only be installed upon written direction by the Departmental Representative which is contingent upon the GNWT Mine's Inspector written approval of the engineered design.

1.6 Submittals

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
.1 Product Data: Provide data on joint devices, attachment accessories and admixtures.

1.7 Quality Control

.1 Unless otherwise specified, the Contractor will be responsible for Construction Quality Control (CQC). Contractor will engage and pay for the services of qualified third party, a Professional Engineer licensed to practice in the Northwest Territories, to perform CQC for monitoring and documenting the quality of the concrete formwork in accordance with the Specifications.

.2 The Departmental Representative will be responsible for Construction Quality Assurance (CQA). The Departmental Representative will be responsible for observing and documenting periodic verification, checking, or testing for confirming that the quality of the cast-in-place concrete is in accordance with the Specifications.

.3 Unless otherwise specified, complete CQC inspection, sampling, testing or any other action, as considered necessary to ensure that the Work has been completed in accordance with the Drawings and Specifications. Notwithstanding the results of the Contractor's CQC program, compliance of the Work with the Drawings and Specifications will be defined by the results of the Departmental Representative's Construction Quality Assurance (CQA) program.

.4 Any work that does not satisfy the requirements of the Drawings and Specifications, must be corrected in accordance with the requirements of the Specification or as directed by the Departmental Representative at the sole expense of the Contractor.

.5 Acquire cement and aggregate from same source for all work.

1.8 Delivery, Storage and Handling

1 Store materials off ground in ventilated and protected manner to prevent deterioration from moisture.

1.9 Measurement of Payment

.1 Include all direct costs for the following work items in the lump sum price for the closure of each mine opening at the Outpost Island mine site. Costs related to the proper closure of the Mine Openings (shafts, raises and trenches) on Outpost Island mine site will be included in Item 03 05 11-1 - Seal Outpost Island Mine Opening as indicated in the Basis of Pricing Schedule. This work will include, but is not limited to, the following:

.1 Inspections.
.2 Preparing surfaces.
.3 Provision of temporary safety fencing.
.4 All labour, equipment and materials required for the construction of engineered cap for the mine shafts.
.5 Relocation of low potential acid generating waste rock and other waste rock as required to facilitate the construction of the concrete caps and to backfill the Main Raise.
.6 Dewater raise prior to placement of backfill.
.7 The above work items will not be measured for payment.

.2 Include all direct costs for the backfilling of the adit opening at the Blanchet Mine Opening under the Item 03 05 11-2 – Blanchet Mine Backfill Adit Opening as indicated in the Basis of Pricing Schedule which will be measured for payment based on a lump sum price. This work will include but is not limited to the following:

.1 Inspections.
.2 Survey the adit prior to and post backfill work.
.3 Recovery of waste rock.
.4 Haulage, placement and compaction of waste rock.
.5 All labour, equipment and materials required for the backfill of the adit opening.

.3 The mine seals for Trenches #1 and #2 at the Copper Pass mine site are achieved by the work detailed under Section 31 22 15 - Grading and as such the costs for the construction of a mine seal at this mine site are not covered under this section of the specifications.

.4 Include all direct costs for the following work items in the lump sum price for the closure of each mine shaft at the Wilson and Waldron mine sites. Costs related to the proper closure of the Mine shafts at the Wilson and Waldron mine sites will be included in Item 03 05 11-3 - Wilson and Waldron Mine Shaft Caps as indicated in the Basis of Pricing Schedule. This work will include:

.1 Inspections.
.2 Preparing surfaces.
.3 Provision of temporary safety fencing.
.4 All labour, equipment and materials required for the construction of engineered cap for the mine shafts.
.5 Relocation of low potential acid generating waste rock and other waste rock, as required, to facilitate the construction of the concrete caps.
.6 Dewater the shafts as required to expose the work area.

.7 The above work items will not be measured for payment.

.5 Except as indicated above, work described in this Section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule. Indicate the cost of this Work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Seal Materials

.1 Formwork materials:
- .1 Form ties: use removable or snap-off metal ties, fixed or adjustable length, free of devices leaving holes larger than 25 mm diameter in concrete surface.
- .2 Form release agent: non-toxic, biodegradable, and low VOC.
- .3 Form stripping agent: colourless mineral oil, non-toxic, biodegradable, and low VOC, free of kerosene, with viscosity between 15 and 24 mm^2 /s (70 and 110s Saybolt Universal) at 40°C, flashpoint minimum 150°C, open cup.
- .4 Falsework materials: to CSA-S269.1.

.2 Concrete Reinforcement:
- .1 Substitute different size bars only if permitted in writing by the Departmental Representative.
- .2 Reinforcing steel: billet steel, grade 400, deformed bars to CAN/CSA-G30. 18, unless indicated otherwise.
- .3 Chairs, bolsters, bar supports, spacers: to CAN/CSA-A23.1.
- .4 Plain round bars: to CAN/CSA-G40.21.

.3 Cast-In-Place Concrete:
- .1 Portland cement: to CAN/CSA-A3000-A5, Type GU.
- .2 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .3 Other concrete materials: to CAN/CSA-A23 .1.

.4 Accessories:
- .1 Bonding Agent: Polymer resin emulsion and two-component modified epoxy resin.

2.2 Mixes

.1 Proportion concrete in accordance with CAN/CSA-A23.1.

.2 Minimum compressive strength at 30 MPa as indicated.

.3 Class of exposure: C-l to CAN/CSA-A23.1, Table 11.

.4 Nominal maximum size of coarse aggregate: to CAN/CSA-A23.1.

.5 Slump: to CAN/CSA-A23.1.

.6 Air content: concrete to contain purposely entrained air in accordance with CAN/CSAA23.1, Table 10.

.7 Admixtures: to CAN/CSA-A23.1.

2.3 Stainless Steel Pipe and Plate

.1 Stainless steel pipe and plate must be manufactured from ASTM-A240 annealed and pickled sheets and plates in accordance with ASTM A778 in type 304L stainless steel. Pipe must be 150 mm in diameter and manufactured to nominal pipe sizes as listed in ANSI B36.19. Plate dimensions are indicated.

PART 3 EXECUTION

3.1 Demolition of Mine Opening Facilities

.1 Demolish and remove debris (includes existing caps) from the area over the mine shafts, or within the any adit openings, in accordance with Sections 02 41 16 - Structure Demolition and 02 41 23 - Debris Removal and as indicated.

.2 Remove debris from the surface trenches in accordance with Section 02 41 23 - Debris Removal.

.3 Remove water from surface trenches in accordance with Section 02 55 13 - Contaminated Soil, Section 01 35 43 – Environmental Protection and Section 31 22 15 - Grading.

.4 Expose sound bedrock at each mine shaft or raise to allow for inspection by the Contractor's Engineer and the Departmental Representative

3.2 Examination

.1 Verify lines, levels and centers before proceeding with formwork. Confirm as indicated.

.2 Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.3 Erection of Formwork

.1 Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of CSA-A23.1.

.2 Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.

.3 Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Permit removal of remaining principal shores.

.4 Align joints and make watertight. Keep form joints to a minimum.

.5 Obtain approval before framing openings in structural members that are not indicated on Drawings.

.6 Provide fillet and chamfer strips on external corners of walls.

3.4 Application of Form Release Agent

.1 Apply form release agent on formwork in accordance with the Manufacturer's recommendations.

.2 Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.

3.5 Inserts, Embedded Parts and Openings

.1 Provide formed openings where required for items to be embedded in or passing through concrete work.

.2 Locate and set in place items that will be cast directly into concrete. Coordinate location equipment anchors with manufacturers.

.3 Install accessories in accordance with the manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

.4 Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection.

.5 Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

3.6 Form

.1 Forms are to remain in place for a minimum of seven (7) days and removed prior to the placement of backfill around and over the engineered cap.

3.7 Reinforcement Placement

.1 Place reinforcing steel as indicated on reviewed placing drawings and in accordance with CAN/CSA-A23.1.

.2 Use plain round bars as slip dowels in concrete. Paint portion of dowel intended to move within hardened concrete with one coat of asphalt paint. When paint is dry, apply a thick even film of mineral lubricating grease.

.3 Ensure cover to reinforcement is maintained during concrete pour.

3.8 Preparation

.1 Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

.2 In locations where new concrete is dowelled into existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

.3 Remove hardened concrete and foreign materials from the inner surfaces of conveying equipment.

.4 Complete formwork and dirt and water removed; position reinforcement and all embedded fixtures.

.5 Ensure that all work is ready to receive concrete.

3.9 Placing Concrete

1 Notify, the Departmental Representative a minimum of one (1) working day prior to commencement of operations.

.2 Use set retarding admixtures during hot weather only when approved by the Contractor's Engineer and reviewed with the Departmental Representative.

.3 Ensure that reinforcement, inserts, embedded parts, formed joint fillers, joint devices and other appurtenances are not disturbed during concrete placement and that cover requirements are attained.

.4 Thoroughly dampen soils at bottom of forms. Remove standing water in bottom of forms and below slab areas prior to placing concrete.

.5 All reinforcement must be continuous across joints of structural slabs. The surface of concrete at cold joints, if they occur, must be thoroughly cleaned and all laitance removed prior to placing adjoining concrete. Obtain bond by use of the specified bonding agent applied in accordance with manufacturer's instructions.

.6 Place concrete as per CSA A23.1.

.7 If slump is measured below the value specified, water may be added only if neither the maximum water/cement ratio nor the maximum slump is exceeded.

.8 No water is to be added to the mix following 45 minutes after initial batching.

3.10 Concrete Finishing

.1 Provide smooth formed concrete without secondary finishing.

3.11 Curing and Protection

.1 Cure and protect concrete in accordance with CAN/CSA-A23.1 and ASTM C309.
1 Do not use curing compounds where bond is required by subsequent topping or coating.

.2 Immediately after placement, protect concrete from premature drying, excessively hot temperatures, and mechanical damage.

.3 Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

3.12 Defective Concrete

.1 Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

.2 Repair or replace defective concrete as instructed by the Departmental Representative.

.3 Do not patch, fill, touch-up, repair, or replace exposed concrete except upon written direction of the Departmental Representative for each individual area.

3.13 Quality Control

.1 Quality control activities to be in accordance with Section 01 45 00 Quality Control.

.2 Concrete testing: to CAN/CSA-A23.2 by testing laboratory designated and paid for by Departmental Representative.

.3 Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.

.4 Submit proposed mix design to the Departmental Representative for review ten (10) working days prior to commencement of Work.

.5 The Departmental Representative may perform tests of cement and aggregates to ensure conformance with specified requirements.

3.14 Seal Adit Opening at Blanchet Mine Site

.1 Backfill adit opening, as indicated or as amended by Contractor upon review by their Engineer and the Departmental Representative, if a seal constructed of concrete, or foam plug, is not used to seal the adit opening.

.2 Grading and compaction of waste rock is to be done in accordance with the specifications outlined in Section 31 22 15 – Grading.

3.15 Backfill Main Raise at Outpost Island Mine Site

.1 Backfill as indicated or as amended by Contractor upon review by their Engineer and the Departmental Representative.

.2 Place broken concrete from former foundations as a cap over the backfilled raise as indicated.

3.16 Backfill Trenches at Copper Pass Mine Site

.1 Construct mine seals for Trenches #1 and #2 as indicated and as outlined in Section 31 22 15 – Grading.

3.17 Site Grading and Restoration

.1 Upon completion of work, remove debris and leave work sites clean to a condition satisfactory to the Departmental Representative.

.2 Do not begin grading of mine opening areas until approval to do so is given in writing by the Departmental Representative.

.3 Grade mine opening areas and restore all areas affected by work in accordance with Section 31 22 15 - Grading.

END OF SECTION

PART I GENERAL

1.1 Description

.1 This section specifies the requirements for the processing of aggregates to be incorporated into the work as granular fill.

.2 It is anticipated that there will be no requirements for crushing of granular materials to satisfy for gradation specifications. There may be requirements to select, blend, and/or screen granular materials to satisfy gradation specifications as indicated in this Section. Moisture conditioning of material from borrow sources may be required.

1.2 Source Approval

.1 Source of materials to be incorporated into work requires approval by Departmental Representative.

.2 Defined borrow areas and stockpiles are to be used. Approval to excavate borrow material from new areas will be granted be Departmental Representative based on areas that do not require new access roads, areas that have minimal ice-rich permafrost and areas located away from water bodies.

.3 Inform Departmental Representative of proposed source of aggregates and provide access for sampling and samples at least seven days prior to commencing production. Departmental Representative will conduct confirmatory testing of borrow material, if required, to determine if any contamination is present.

.4 If, in the opinion of Departmental Representative, materials from the proposed source do not meet, or cannot reasonably be processed to meet specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

.5 Should a change of material source be proposed during work, advise Departmental Representative one week in advance of proposed change to allow sampling and testing.

.6 Acceptance of a material at source does not preclude future rejection if it is subsequently found to lack uniformity, or if it fails to conform to requirements specified, or if its field performance is found to be unsatisfactory.

.7 Geotechnical information, including a borrow assessment and the results of laboratory analyses of soil samples obtained from the site, are in Appendix A. These reports will be provided as described in Section 01 11 00 - Summary of Work.

1.3 Production Sampling

.1 Aggregate will be subject to continual sampling by Departmental Representative during production either at the stockpile or at the place of work. The aggregate is to meet the required specifications regardless of the place of sampling.

.2 Provide Departmental Representative with ready access to source and processed material for purpose of sampling and testing.

.3 Samples are to be obtained according to industry acceptable practices.

1.4 Measurement of Payment

.1 Development of aggregate sources including stripping, processing, handling, stockpiling, replacement of organics, and any necessary restoration will be incidental to the work in this Section.

.2 Work under this Section will not be measured. Include all costs in Item BOPC-1, Balance of Project Costs in the Basis of Pricing Schedule. Indicate the cost of this work as a separate line item in the cost breakdown specified in Section 01 32 18 -Construction Progress Schedules - Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Materials

.1 Aggregate quality: sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material or other deleterious substances.

.2 Flat and elongated particles are those whose greatest dimension exceeds five times their least dimension.

3. Fine aggregates satisfying requirements of application section are to be one (1), or a blend of the following:

.1 Natural sand.
.2 Screened sand.

.4 Coarse aggregates satisfying requirements of applicable section are to be composed of naturally formed particles of stone.

.5 Coarse Granular Fill:

.1 Coarse Granular Fill is select material obtained from excavations or other sources approved by Departmental Representative, generally consisting of pit-run, screened stone or gravel in an unfrozen state and free from rocks larger than 300 mm, waste or other deleterious material.

.2 Coarse Granular Fill is used for construction of the cover on engineered cap as indicated.

.3 Gradation to be within the following limits when tested to ASTM C136 and ASTM C117, sieve sizes to CAN/CGSB-8.2:

Sieve Designation	% Pass by Weight
300	100
150	46 to 80
50	25 to 40
0.425	0
0.08	0

.6 Fine Granular Fill:

.1 Fine Granular Fill is a non-saline, well-graded sand with gravel and some fines

used for the construction of engineered cover

.2 Gradation to be within the following limits when tested to ASTM C136 and ASTM C117, sieve sizes to CAN/CGSB-8.2:

Sieve Designation	% Pass by Weight
50	100
12.5	55 to 95
5	45 to 90
2	35 to 80
0.425	25 to 70
0.08	15 to 40

.7 Materials classified as unsuitable will include:

.1 Non-uniform material of widely varying moisture density characteristics.
.2 Soils with moisture content exceeding optimum moisture by 5% or more.
.3 Soils containing organic material, snow, ice or other deleterious material.

PART 3 EXECUTION

3.1 Development of Aggregate Source

.1 Delineate with the Departmental Representative the limits of the borrow sources and have the topography surveyed by a licenced surveyor to confirm the site grades at the beginning of the aggregate recovery program.

.2 Remove any debris (known or unknown) from the area, as described in Section 02 41 23 – Debris Removals, prior to excavating borrow materials.

.3 Any significant deposits of organic material, as determined by Departmental Representative, are to be avoided and left undisturbed during development of an aggregate source.

.4 Strip and area ahead of excavating operation sufficient to prevent contamination of aggregate by deleteriously materials.

.5 Recover and stockpile organic material as encountered for future use as cover material on the borrow area upon completion of the aggregate recovery program.

.6 Implement erosion control measures as required to minimize impacts on the local environment and comply with the conditions outlined in Section 01 35 43 – Environmental Protection.

.7 When excavation is completed, dress sides of excavation to achieve gentle slopes, maximum of 5H:1V, which fit local topography, and provides swales or ditches as required to prevent surface standing water.

.8 Trim off and dress slopes of waste material piles and leave site in neat condition.

.9 Trim, backblade and restore burrow areas to a condition acceptable to Departmental Representative.

3.2 Processing

.1 Process aggregates uniformly using methods that prevent contamination, segregation and degradation.

.2 Blend aggregates if required to obtain gradation requirement specified. Use methods and equipment that are approved by the Departmental Representative.

.3 Blending to decrease percentage of flat and elongated particles is permitted.

.4 When operating in stratified deposits use excavation equipment and methods that will produce uniform, homogeneous aggregate.

.5 Moisture condition aggregate as required to achieve the specified density and/or degree of saturation.

.6 Dry aggregate as required to provide ease of handling during freezing temperatures or to place and compact according to this Specification.

3.3 Handling

.1 Handle and transport aggregates to avoid segregation, contamination and degradation.

3.4 Stockpiling

.1 If required, stockpile aggregates on site in locations indicated or designated by Departmental Representative. Stockpiles are to not be located on undisturbed tundra.

.2 Stockpiling sites are to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.

.3 Except where stockpiled on acceptably stabilized areas, provide compacted sand base not less than 300 mm in depth to prevent contamination of the aggregates, or stockpile aggregates on ground but do not incorporate bottom 300 mm of pile into work.

.4 Separate aggregate stockpiles of different types far enough apart to prevent intermixing.

.5 Reject intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative within 48 hours of rejection.

.6 Stockpile materials in uniform layers of one (1) metre maximum thickness.

.7 Complete each layer over the entire stockpile area before beginning next layer.

.8 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.

.9 Coning of piles or spilling materials over edges of pile will not be permitted.

.10 During snowy conditions, prevent ice and snow from becoming mixed into stockpile.

3.5 Stockpile Cleanup

.1 Leave stockpile site in a tide, well drained condition, free of standing surface water to

satisfaction of Departmental Representative.

.2 Leave any unused aggregates in neat compact stockpiles or as directed by Departmental Representative.

END OF SECTION

PART I GENERAL

1.1 Description

.1 This Section specifies requirements for:

.1 General site grading and maintenance of designated areas including Contractor's Camp Area and Temporary Staging Areas at the respective mine sites.
.2 The Upgrading and Maintenance of site access routes as the respective mine sites.
.3 Re-shaping and re-grading of tailings and waste rock stockpiles at the Outpost Island mine site as indicated.
.4 Re-shaping and re-grading of the Beach and Mine Areas of the Blanchet mine site as indicated.
.5 Re-shaping and re-grading of the Main Showing at the Copper Pass mine site as indicated.
.6 Restoration of worked areas, waste debris areas and depressions created by the removal of debris, contaminated soil and relocation of waste rock as indicated for the respective mine sites.
.7 Preservation of mature vegetation to extent possible and a robust vegetation screen between access view points and all disturbed areas.
.8 Placement of organic materials for vegetation and site restoration using industry best practices to the extent possible.

1.2 Definition

.1 Re-shaping: The leveling and grading of designated areas to blend in with the natural terrain and provide positive drainage. Reshaping does not require the supply and placement of additional materials but does entail spreading and compaction of the surplus materials.

.2 Re-grading: The leveling and grading of designated areas and which includes the supply and placement of additional fill to blend in with the natural terrain and provide positive drainage.

.3 Potentially Acid Generating Waste Rock (PAG): Waste rock identified as potentially acid generating.

.4 Waste Rock: The rock or mineral that must be removed from a mine to keep the mining scheme practical, but which has no economic value. Waste rock piles are located around the former mine operations area as indicated for the respective mine sites.

.5 Compaction: Given the nature of the borrow material available at the respective mine sites a performance based specification has been provided for the compaction of the fill used as part of the remediation program. The performance based specifications are as indicated.

.6 Borrow Material: Material obtained from approved areas and required for grading work.

.7 Specific classifications of granular materials are described in Section 31 05 17 – Aggregate Materials.

.8 Erosion and Sediment Control: The supply and placement of geosynthetic materials as outlined in the Erosion, Sediment and Drainage Control Plan to minimize the disturbance

of lake sediment and minimize the migration of fine grained soils by rainfall events during the prescribed earthworks.

.9 Organic Soils: Soils identified within the work areas that contain organic material which can be used to promote the growth of-vegetation within work areas in particular on top engineered covers and areas of re-grading or re-shaping. These materials, as encountered, are to be consolidated during the course of the work and made available for reuse upon completion of the general site re-grading and re-shaping.

1.3 Site Conditions

.1 Ensure that all work under this section meet the terms and references of applicable operations-use permits for the respective mine sites.

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

.3 Only operate equipment in work areas where materials are sufficiently dry to prevent excessive rutting.

.4 Areas to be graded are to be free from debris and excessive snow, ice or standing water.

.5 Existing access roads at the respective mine sites to be used during remediation activities may require repair and upgrading.

.6 All access roads and trails are to be decommissioned and restored upon completion of the remediation work.

1.4 Protection

.1 Protect known (as indicated) and unanticipated archaeological resources encountered during construction, suspend all activities in that area and notify Departmental Representative immediately.

.2 Protect and do not disturb spawning beds and breeding grounds during construction.

.3 Environmental protection measures are to be in accordance with the requirements specified in Section 01 35 43 - Environmental Protection. Follow the approved Erosion, Sediment and Drainage Control Plan submitted in accordance with Section 01 35 43 - Environmental Protection.

1.5 Samples

.1 Inform Departmental Representative of proposed source of fill materials and provide access for sampling. Give a minimum of three weeks (21 days) notice to allow for laboratory analysis of samples.

1.6 Measurement of Payment

.1 Site preparation and maintenance grading of the Contractor's camp, work areas and temporary staging areas for the respective mine sites will be paid as a lump sum under Items 31 22 15-1 to 31 22 15-3, Site Preparation and Grading (for each mine site) in the Basis of Payment Schedule. Diversion and draining to keep areas free of standing water comprises part of the site preparation and maintenance general grading work.

.2 Upgrading and maintenance of site routes to access work areas for the respective mine sites will be paid as a lump sum under Items 31 22 15-4 to 31 22 15-6, Upgrading and Maintenance of Site Access Routes (for each site) in the Basis of Payment Schedule. Existing site accesses are limited and historical routes between work areas are overgrown. Clearing and grubbing to facilitate work and improve sight lines comprise part of the upgrading and maintenance work.

.3 Re-shaping and re-grading of the existing tailings and waste rock piles at the Outpost mine site as indicated will be paid as a lump sum under Item 31 22 15-7, Re-shaping and Re-grading Tailings and Waste Rock Piles in the Basis of Payment Schedule. An estimated 1,000 m^3 of tailings and waste rock are to be relocated from the existing toe of the tailings and waste rock stockpile and beach area of North Bay and buried within the existing stockpile.

.1 The screening of existing waste rock to produce approximately 60 m^3 of coarse aggregate (50 to 150 mm in size) to be placed behind the concrete barrier and up the face of the reworked tailings and waste rock stockpile as erosion protection.

.2 Supply and Place a silt curtain at the North Bay opening to Great Slave Lake as per conditions outlined in Section 01 35 43 – Environmental Protection.

.4 General grading work for the site restoration of waste debris areas and depressions created by the removal of debris, contaminated soil and relocation of waste rock for the Outpost Island mine site will be paid as a lump sum under Item 31 22 15-8, Site Restoration for Outpost Island. For bidding purposes the volume of material to be relocated and worked as part of this work item will be less than 300 m^3.

.5 Re-shaping and re-grading of the existing metal impacted soils and waste rock piles at the Blanchet mine site as indicated will be paid as a lump sum under Item 31 22 15-9, Re-shaping and Re-grading Metal Impacted Soil and Waste Rock Piles at Blanchet Mine in the Basis of Payment Schedule. An estimated 2,000 m^3 of impacted soil and waste rock are to be relocated from the existing mine area and consolidated on site with an engineered cap to be constructed as indicated.

.1 Costs associated with the supply and placement of geotextile and geomembrane materials are incidental to this work.
.2 Costs associated with the supply and placement of borrow material are incidental to this work.

.6 Re-shaping and re-grading of the Beach Area at the Blanchet mine site as indicated where metal impacted soils exist will be paid as a lump sum under Item 31 22 15-10, Re-shaping and Re-grading Metal Impacted Soils at the Blanchet Mine in the Basis of Payment Schedule. An estimated 500 m^3 of metal impacted soil are to be relocated from to the mine site for disposal beneath the engineered cover as indicated.

.7 General grading work for the site restoration of waste debris areas and depressions created by the removal of debris, contaminated soil and relocation of waste rock for the Blanchet mine site will be paid as a lump sum under Item 31 22 15-11, Site Restoration for Blanchet. For bidding purposes the volume of material to be relocated and worked as part of this work item will be less than 200 m^3.

.8 Re-shaping and re-grading of the existing ore, ore-stained (metal impacted) soils and waste rock at the Copper Pass mine site as indicated will be paid as a lump sum under

Item 31 22 15-12, Recover, Place and Cap Ore and Ore Stained Soils and Waste Rock into Trenches #1 and #2 at Copper Pass mine, in the Basis of Payment Schedule. An estimated 9,500 m^3 of impacted soil and waste rock are to be relocated from the existing Main and West Showing mine areas and consolidated on site within the two large mine trenches (Trench #1 and #2) cap to be completed as indicated.

.1 Costs associated with the supply and placement of geotextile and geomembrane materials are incidental to this work.
.2 Costs associated with the supply and placement of borrow material are incidental to this work.

.9 General grading work for the site restoration of waste debris areas and depressions created by the removal of debris, contaminated soil and relocation of waste rock for the Copper Pass mine site, including both the Main Showing and Camp Areas, will be paid as a lump sum under Item 31 22 15-13, Site Restoration for Copper Pass mine. For bidding purposes the volume of material to be relocated and worked as part of this work item will be less than 200 m^3.

.1 Minor site restoration at the West Showing where ore concentrate is to be removed as part of the remediation program is considered incidental to this work item.

.10 The lump sum prices for the work is to include all ownership, operating and supervisory costs including costs for the equipment operator, fuel, lubricants, labour, and parts necessary to maintain the equipment.

.11 Clearing and grubbing of the overland trails and site access roads for the respective mine sites, as required, would be paid for under Section 01 53 00, Mobilization and Demobilization.

.12 The following work items will be incidental to the work described in this Section, and will not be measured separately:

.1 Water for moisture conditioning, compaction and dust control.
.2 All construction surveying, including layout of facilities, slope staking, and supply and installation of witness grade stakes to monitor the depth of waste rock placement.
.3 Surveying and calculation of granular material quantities for progress payment purposes.
.4 Management of water in excavations or mine trenches.
.5 Consolidation of vegetation and organic soils within work areas for placement on areas of the site subject to re-grading and re-shaping.

.13 No measurement for payment will be made for:

.1 Rejected material.
.2 Surplus material.
.3 Excavation, stripping and replacement of organic material beyond specified limits.
.4 Placement of granular waste rock beyond the limits and depths specified.

.14 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 the cost of this work as a separate line item in the cost breakdown specified in Section 01 32

18- Construction Progress Schedules — Bar (GANTT) Chart.

PART 2 PRODUCTS

2.1 Materials

.1 Waste rock used for backfill requires the approval of Departmental Representative.

.2 Borrow material used for backfill requires the approval of Departmental Representative.

PART 3 EXECUTION

Unless otherwise noted the clauses and articles outlined below apply to **all mine sites** included in the GSL Remediation program.

3.1 General site grading and maintenance

.1 Grade and maintain camp and temporary staging areas as required to facility camp setup, work areas and temporary staging areas.

.2 Maintain natural drainage patterns and keep areas free of standing water.

3.2 Upgrading and maintenance of access routes

.1 Upgrade and maintain access routes to facilitate work and improve sight lines to work areas.

.2 Ensure drainage of access routes and adjacent lands to provide surface drainage. Where necessary, cut swales to channel surface drainage in such a manner as to minimize surface erosion.

3.3 Work near water bodies

.1 Erosion and Sediment Control measures, as outlined in Section 01 35 43 - Environmental Protection, are to be implemented as required to ensure that sediment or erosion produces do not enter the adjacent water bodies.

3.4 Re-shaping and Re-grading of Tailings and Waste Rock Stockpiles at Outpost Island Mine

.1 Grade or excavate the upper portion of stockpile to form a depression large enough to contain the above water level tailings located along the beach and causeway area of North Bay.

.1 Sidecast for future use any organic soil encountered within the work area.

.2 Recover, transport, tip, grade and compact the above water tailings into the depression.

.1 Place tailings in loose lifts not to exceed 300 mm.
.2 Compact tailings by making six passes per lift using a small dozer (10,000 kg).
.3 Grade the tailings at the end of each work day to promote drainage.

.3 Excavate tailings and waste rock along the eastern and southeastern limits of the existing

stockpile to a 3 horizontal (H) to 1 vertical (V) slope starting 3 m back from the high water mark along the east shore of North Bay as indicated.

.1 High water mark will be confirmed with the Departmental Representative.

.2 Place at the toe of the embankment all available oversize waste rock and supplement with broken, clean concrete from building foundations as available.

.4 Place, grade and compact the tailings and waste rock excavated from the re-shaped stockpile slope.

.1 Place tailings and waste rock in loose lifts not to exceed 300 mm.
.2 Compact tailings by making six passes per lift using a small dozer (10,000 kg).
.3 Grade tailings and waste rock to blend in with the natural terrain and provide positive drainage off the stockpile area.

.5 Prepare coarse aggregate by screen waste rock from the stockpile.

.6 Recover and place a 300 mm thick layer of coarse aggregate up the tailings/waste rock slope as indicated.

.7 As available, place organic soils on the re-graded stockpile using industry best practices so as to promote the growth of vegetation within the work area.

3.5 Re-shaping and Re-grading of Metal Impacted Soils at Beach and Camp Area of Blanchet Mine

.1 Excavate, load, haul and tip metal impacted soil from the beach and camp area as indicated.

.1 Limits of work are to be confirmed by the Departmental Representative.
.2 Metal Impacted Soil is to be hauled to, tipped and mixed with the waste rock and other metal impacted soils at the mine area.
.3 Work is not to be undertaken until all ore concentrate that been consolidated and stored for off-site disposal as confirmed by the Departmental Representative.

.2 Backfill and grade the excavated areas using site derived soils.

.1 Recover backfill material from area immediately adjacent the work area.
.2 Place site derived soils in loose lifts not to exceed 300 mm.
.3 Compact the soil by making six passes per lift using a small dozer (10,000 kg).
.4 Grade the area to promote drainage.

3.6 Remediation of Metal Impacted Soil and Waste Rock at Mine Area of the Blanchet Mine

.1 Prior to reworking the waste rock and metal impacted soils complete the remediation of the PHC impacts at the mine area. The Departmental Representative will confirm when the PHC remediation works are complete.

.2 Recover metal impacted soils and relocate to the designated area as indicated.

.1 Place impacted soils in loose lifts not to exceed 300 mm.
.2 Compact soils by making six passes per lift using a small dozer (10,000 kg).
.3 Grade the soil at the end of each work day to promote drainage.

.3 Recover waste rock and relocate to the designated area as indicated.

.1 Place impacted soils in loose lifts not to exceed 300 mm.
.2 Compact soils by making six passes per lift using a small dozer (10,000 kg).
.3 Grade the soil at the end of each work day to promote drainage.

.4 Construct the geo-composite engineered cap as indicated.

3.7 Re-shaping and Re-grading at Camp Area of Copper Pass Mine

.1 Backfill and re-grade PHC, PAH and metals remediation work area upon confirmation by the Departmental Representative.

.2 No imported aggregate is to be used to complete this work. Minimal borrow material is available to complete this work.

.3 Recover backfill from areas adjacent the work face.

.1 Place backfill in loose lifts not to exceed 300 mm.
.2 Compact soils by making six passes per lift using small compacting equipment.
.3 Grade backfill to promote positive drainage.

3.8 Remediation of Metal Impacted Soils, Ore Concentrate and Waste Rock at Main Showing

.1 Remove standing water from Trenches #1 & #2.

.1 Manage standing water to comply with the disposal standards as outlined in Section 01 35 15 - Special Project Procedures for Contaminated Sites.
.2 Water can only be discharged upon the written approval of the Departmental Representative.

.2 Backfill Trenches #1 & #2 with metal impacted soils from the areas indicated and reviewed with the Departmental Representative.

.1 Place backfill in loose lifts not to exceed 300 mm.
.2 Compact soils by making six passes per lift using small compacting equipment.
.3 Grade backfill to promote positive drainage.

.3 Place ore concentrate over top metal impacted soils, as indicated, in Trenches #1 & #2.

.4 Place waste rock over top ore concentrate in Trenches #1 & #2 as indicated.

.1 Place waste rock in loose lifts not to exceed 500 mm.
.2 Compact waste rock by making six passes per lift using small compacting equipment.
.3 Grade backfill to promote positive drainage.

.5 Construct the geo-composite engineered cap as indicated.

.6 As available, place organic soils on the re-graded stockpile using industry best practices so as to promote the growth of vegetation within the work area.

3.9 Remediation of Ore Concentrate at West Showing

.1 Recover and containerize for transport localized pockets of ore concentrate.

.2 Relocate the ore concentrate and associated impacted soils to the Main Showing for disposal in Trench #1 or Trench #2.

.3 Minor re-grading of the excavations using site derived soil required to remove physical trip hazard.

3.10 Site restoration of worked areas

.1 Re-shape and re-grade work areas and depressions created by the removal of debris, contaminated soil and relocation of waste rock.

.2 Ensure drainage of restored areas to maintain natural drainage patterns and keep areas free of standing water.

3.11 Temporary Storage Area

.1 Develop a Temporary Storage Area for the storage of containerized hazardous waste materials and contaminated soil.

.2 Prepare the Temporary Storage Area to comply with the following:

.1 Provide easy access to the off-site transport equipment. For the purposes of this contract a 30 m by 30 m area is to be assumed.
.2 Allow the equipment and packaging containers to be level and distribute the weight of the containers evenly to the supporting surface.
.3 The area is to be free of standing water.
.4 Surface water run-on to the area must be minimized. The area must not be subject to flooding, excessive snow drifting, and/or seasonal saturation.
.5 Sufficiently compact the area so as to prevent the containers from settling into the soil. Supply, place and compact additional waste rock as required.
.6 Locate at least 30 m from any body of water.
.7 In an area routinely accessed or essential to Contractor's workforce or site personnel.
.8 More than 30 metres away from flammable materials.
.9 Set timbers or another form of base to ensure that containers used to package non-hazardous and hazardous materials going off-site do not freeze to the ground prior to demobilization from site.

.3 Within the Temporary Storage Areas, segregate the various types of containerized materials as described in Section 02 61 33 - Hazardous Waste Material.

.4 Provide signage for Temporary Storage Area in accordance with Section 02 61 33 - Hazardous Waste Material.

.5 Erect a barricade to demarcate the limits of the Temporary Storage Area.

3.12 Maintenance

.1 Maintain finished surfaces in a condition in accordance with this Section until

demobilization.

3.13 Site Surveys

.1 All work areas, including borrow areas, are to be surveyed prior to the commencement of work with a hardcopy and electronic copy of the survey provided to the Departmental Representative.

.2 All work areas, including borrow areas, are to surveyed upon completion of the remediation work with a hardcopy and electronic copy of the survey provided to the Departmental Representative.

.3 The electronic survey files are to be provided in a CADD 2012 compatible format.

.4 Temporary bench marks are to be established and maintained for the duration of the project.

3.14 Testing

.1 Testing of materials and compaction testing will be carried out and paid for by Department Representative.

.2 Frequency of testing will be determined by Department Representative.

3.15 Finishing and Tolerances

.1 All areas to be covered with granular material are to be uniform without projections or depressions exceeding 100 mm in three (3) metres.

.2 Granular fill surfaces to be within 100 mm of design elevations but not uniformly high or low.

.3 Finished surface are to be graded to promote positive drainage and minimize standing water.

END OF SECTION

PART 1 GENERAL

1.1 Description

.1 This section specifies the requirements for the supply and installation of non-woven geotextiles for the engineered cover to be installed at the Blanchet Mine site and the Copper Pass Mine site.

1.2 Manufacturer's Certification and Warranty

.1 Provide to Departmental Representative, prior to shipment of the material to site, a copy of the Mill Run QA/QC data showing that the material to be shipped to the site has test values for each property specified in 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.

PART 2 PRODUCTS

2.1 Materials

.1 Non-Woven Geotextile: The geotextile is to be a non-woven fabric consisting only of continuous chain polymeric filaments or yarns of polyester, formed into a stable network by needle punching. The fabric is to be inert to commonly encountered chemicals, hydrocarbons, mildew and rot resistant, resistant to ultraviolet light exposure, insect and rodent resistant, and conform to the properties listed below. The minimum average roll value (weakest principal direction) for strength properties of any individual roll tested from the manufacturing lot or lots of a particular shipment is to be in excess of the minimum average roll value, weakest principal direction, stipulated below.

.1 Thickness – Typical (ASTM D5199)	4.0 mm
.2 Grab Tensile Strength (ASTM D4632):	1650 N.
.3 Elongation at Failure (ASTM D4632):	50 %.
.4 Tear Strength (ASTM D4533):	600 N.
.5 Apparent Opening Size (ASTM D4751)	150 microns
.6 Puncture (ASTM D4833):	1000 N.
.7 Weight – Typical (ASTM D5261):	500 g/m^2

2.2 Shipping, Handling and Storage

.1 Provide the 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 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 are to be subjected to strict quality assurance monitoring as detailed herein. The installed systems are to conform to the Drawings and Specifications, except as otherwise authorized in writing by Departmental Representative.

3.2 Underlying Surface Preparation

.1 Ensure that the surface underlying the geotextile is graded smooth and is free from angular rocks, debris and protrusions. Remove all particles greater than 25 mm in diameter at the Blanchet Mine site and 100 mm at the Copper Pass Mine site.

3.3 Deployment

.1 Do not begin installation of geotextile until the base has been approved by Departmental Representative.

.2 Deploy the geotextile by unrolling onto the prepared surface in orientation, manner and locations indicated.

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

.4 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile, perpendicular to the slope direction.

.5 Overlap adjacent geotextile panels in accordance with manufacturer's recommendations.

.6 Employ sufficient temporary anchorage to hold geotextile in place during backfilling.

.7 Protect installed geotextile material from displacement and damage until, during and after placement of additional material layers.

.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 and backfill the geotextile as shown. Temporary anchorage can be provided by sandbags. 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 Scope

.1 This section covers the supply, installation and quality assurance of a High Density Polyethylene (HDPE) geosynthetic liner to be used in the construction of the engineered cap for the consolidation and containment of the impacted soil and waste rock area at the Mine Area of the Blanchet Mine.

.2 This section covers the supply, installation and quality assurance of a High Density Polyethylene (HDPE) geosynthetic liner to be used in the construction of the engineered cap for the consolidation and containment of the impacted soil and waste rock area at the Main Showing at the Copper Pass Mine.

1.2 Submittals

The following items are to be submitted prior to liner installation:

.1 Certification by the manufacturer that all resin used in the manufacture of the geomembrane for this project meets the specifications.

.2 Copy of quality control certificates for all geomembrane rolls to be used on this project.

.3 Proposed installation panel layout identifying seams and details. The working drawings will be in the form of an overlay to the construction drawings and will indicate roll number, sizes, and positioning of rolls.

.4 Resume of the qualifications of the Installation Supervisor and Master Seamer to be assigned to the proposed project.

.5 Warranty: A written Warranty will be obtained from the Manufacturer (for material) and the Installation Contractor (for workmanship). These documents will warrant both the quality of the material for a minimum of 5 years and workmanship for a minimum of 1 year.

PART 2 PRODUCTS

2.1 HDPE Geomembrane

.1 The geomembrane will be high-density polyethylene (HDPE) with a nominal gauge of 60 mil. Textured surface sheets will be used for horizontal surfaces and on side slopes. The geomembrane will be manufactured of new, first quality resin and will be compounded and manufactured specifically for the intended purpose. Carbon black will be added to the resin if the resin is not compounded for ultraviolet resistance. The Manufacturer will acquire enough resin of the same quality to produce the required amount of geomembrane to ensure uniform composition.

.2 The surface of the geomembrane will not have striations, pinholes or bubbles and will be free of holes, blisters, undispersed raw materials or any contamination by foreign matter; except that if, in the opinion of the Inspector, the blemish will not adversely affect properties and use of the geomembrane, Departmental Representative may accept the geomembrane after sufficient laboratory test data are provided to support such acceptance and provided that all such testing is done at the expense of Contractor.

.3 The geomembrane will be supplied in rolls. Labels on each roll will identify the thickness of the material, the length and width of the roll, batch and roll numbers and name of manufacturer.

.4 Raw Materials

.1 Resin

.1 All resins for use in geomembrane must pass a candidate preapproval process before being eligible for use. Each batch of resin will be sampled with the following testing performed and compared to the manufacturer's specifications:

a) Density: ASTM D1505

b) Melt Index: ASTM D1238

.2 Additives

.1 All additives and concentrates must pass a candidate preapproval process. All additives are to be statistically sampled with the following testing performed and compared to the manufacturer's specifications:

a) Carbon Black Content: ASTM D1603

b) Dispersion: ASTM D3015

.5 Finished Product On-Line During Production

.1 A minimum of one person from the manufacturer’s Quality Department independent of the Production Department will be present for inspection of every roll.

.2 A full width sample will be cut from the end of each roll and thicknesses will be checked across the entire sample.

.3 Appearance

.1 Constant monitoring of:

a) Sheet surface appearance

b) Knife-cut edge

c) Folds, holes, creases, abrasions or other damage

.4 Roll Identification

.1 The Quality Control Inspector will control all paper work including roll tags. Four tags per roll will be used.

a) On the roll sleeve

b) Inside the core

c) On the production roll sample

d) On the roll surface

.5 Out-of-Spec Material

.1 Any roll not meeting the specification for any of the above inspections will be placed on hold for further evaluation.

.6 Finished Product Laboratory Testing During Production

.1 The manufacturer's laboratory will take samples every 4,000 square metres of produced material, as well as any other samples needed to perform the following testing.

.2 Each sample will meet the following specifications:

.1 Thickness: ASTM D5711 - minimum 60 mil

.2 Tensile Properties: ASTM D638 Type IV

.1 Stress at Yield- 20 kN/m

.2 Stress at Break- 15 kN/m

.3 Elongation at Yield- 10%

.4 Elongation at Break- 100%

.3 Tear Resistance: ASTM D1004, Die C minimum 185 N/mm thickness

.4 Puncture Resistance: ASTM D4833-minimum 375 N

.5 Pigment Content: ASTM D1603-minimum 2%

.6 Dimensional Stability: ASTM D1204, 100°C, 1 hr.-maximum ±2% change

.7 Density: ASTM 1505-minimum 0.90 g/cm3

.8 Notched Constant Load ESCR: ASTM D5397-minimum 200 hours

.3 All results will be logged into the batch file. Any testing that yields out-of spec results will be brought to the immediate attention of the Quality Control Manager. All material produced after the last sample meeting all specifications will be retrieved and placed on hold for further evaluation.

2.2 Protective Layers

.1 Site derived soil as identified by the Departmental Representative will be used for the protection of the geomembrane.

.2 Geotextile used for protection of the geomembrane will be as per Section 31 32 21 – Geotextiles.

PART 3 EXECUTION

3.1 General

.1 The Installation (Sub)contractor will be the Manufacturer or a Manufacturer approved Contractor trained and licensed to install the Manufacturer's geomembrane. Installation will be performed under the constant direction of a single field Installation Supervisor supplied by the Installation (Sub)contractor who will remain on site and be in charge throughout the liner installation for liner activities by the installer. This Installation Supervisor will have installed or supervised the installation and seaming of a minimum of 100,000 square metres of HDPE geomembrane.

.2 Actual seaming will be performed under the direction of a Master Seamer who has seamed a minimum of 100,000 square metres of geomembrane, using the same type of seaming apparatus specified in Section 3.5.3. The Master Seamer, who may also be the Installation Supervisor, will be present whenever seaming is performed.

3.2 On-Site Storage

.1 The geomembrane will be stored so as to be protected from puncture, dirt, grease, mud, mechanical abrasions, excessive heat or other damage.

.2 The geomembrane will be handled with equipment which does not contact the geomembrane itself or with clean fabric.

.3 The rolls will be stored on a prepared surface (not wooden pallets) and should not be stacked more than two rolls high.

3.3 Earthwork

.1 The subgrade for the engineered cover at the Blanchet Mine will be prepared by grading the work area to remove any coarse aggregate (> 25 mm) from the surface and a fine aggregate layer a minimum of 300 mm thick will be placed over top the impacted soils and waste rock. A geotextile will be placed over the subgrade prior to the liner installation (see 31 32 21 – Geotextiles).

.2 The subgrade for the engineered covers at the two main trenches at the Copper Pass Mine will be prepared by grading the work areas to remove any aggregate greater than 100 mm in size from the surface and a geotextile will be placed over the subgrade prior to the liner installation (see 31 32 21 – Geotextiles).

.3 In conjunction with the Departmental Representative, on a daily basis, inspect the subgrade preparation and inspect the adequacy of the subgrade for purposes of the warranty. Removed and replaced with properly compacted fill weak or compressible areas which cannot be satisfactorily. All surfaces to be lined will be smooth, free of all foreign and organic material, sharp objects, or debris of any kind. These surfaces will provide a firm, unyielding foundation with no sharp changes or abrupt breaks in grade. Standing water or excessive moisture will not be allowed.

.4 The Installer, on a daily basis, will inspect and certify that the surface on which the geomembrane will be installed is acceptable. After the supporting soil surface has been accepted, it will be the Installer's responsibility to indicate to the Departmental Representative any change to its condition due to natural causes or occurrences that may require repair work. Proceeding with the installation of the liner will be deemed to be acceptance of the subgrade and soil surface for purposes of the warranty.

3.4 Method of Placement

.1 Responsibilities of Contractor:

.1 No equipment or tools will damage the geomembrane by handling, trafficking or other means.

.2 No personnel working on the geomembrane will wear damaging shoes or engage in other activities that could damage the geomembrane.

.3 The method used to unroll the panels will not cause scratches or crimps in the geomembrane and will not damage the supporting soil or underlying geotextile.

.4 The method used to place the panels will minimize wrinkles (especially differential wrinkles between adjacent panels). Locations of any wrinkles will be identified on Contractor's and Inspector's drawings. All defects will be marked and documented for repairs. The total number of defects will not exceed ten per 500 m^2. If greater than 10 defects the panel will be rejected.

Defects are defined as any abnormalities that affect the physical properties of the geomembrane material.

.5 Adequate loading (e.g. sandbags or similar items that will not damage the geomembrane) will be placed to prevent uplift by wind (in case of high winds, continuous loading is recommended along edges of panels to minimize risk of wind flow under the panels).

.6 Direct contact with the geomembrane will be minimized, i.e. the geomembrane in traffic areas will be protected by geotextiles, extra geomembrane or other suitable materials.

.2 Material Deployment

.1 Deployment must incorporate an allowance for thermal contraction according to the following equation:

Allowance = @ *(T-T1)*D

Where:

@ = coefficient of liner thermal expansion (cm/cm deg. C)
T = temperature at which allowance is measured deg. C
T1 = lowest temperature to be experienced by membrane deg. C
D = distance between fixed points

.2 For exposed membrane the allowance will be approximately 1 m per 100 m. The allowance will be uniformly distributed throughout the lining between the two fixed points.

.3 The geomembrane will be deployed completely down the side of the anchor trench ensuring that there are no sharp projections along the edge of the trench.

.4 When side slope material is deployed from welding on horizontal surfaces, care must be taken when it is moved to the side slope that the underside is not excessively scratched or gouged and that loose flaps adjacent to seams are not penetrated by dirt, sand or gravel.

.3 Weather Conditions

.1 Geomembrane deployment will proceed between ambient temperatures of 0 degrees C to 40 degrees C. Placement can proceed below 0 degrees only after it has been verified by the Installer and the Inspector that the material can be seamed according to the specification. Geomembrane seaming will not be done during any precipitation, in the presence of excessive moisture (e.g. fog, rain, dew) or in the presence of excessive winds as determined by the Installation Supervisor.

.4 Factory Seam Quality Verifications

.1 The Installer will be required to test up to as much as 20% of factory fusion welds (non-destructive air pressure test and/or vacuum test) in the field to verify factory test results. Additional testing at the Installer's expense will be required if failed tests are obtained in the field.

3.5 Field Seaming

.1 General

.1 Seams will be oriented parallel to the line of maximum slope, i.e. oriented down, not across the slope. In corners and odd-shaped geometric locations, the number of field seams will be minimized and located outside the corners if possible. Certain conditions may require the seams to be oriented across the slope.

.2 No base T-seam will be closer than 2 metres from the toe of the slope. Seams will be aligned with the least possible number of wrinkles and fishmouths. If a fishmouth or wrinkle is found, it will be relieved and reseamed.

.2 Seam Overlap

.1 Panels of geomembrane will have a finished overlap of a minimum of 150 mm for hot shoe fusion welding and 75 mm for extrusion welding, but in any event sufficient overlap will be provided to allow peel tests to be performed on the seam.

.2 The procedure used to temporarily bond adjacent panels together will not damage the geomembrane; in particular, the temperature of hot air at the nozzle of any spot welding apparatus will be controlled such that the geomembrane is not damaged.

.3 Seaming Equipment and Accessories
Approved equipment for field seaming are fusion welders and hand held extrusion welders.

.1 Fusion welder, 110 volt, CSA approved.

.2 Extrusion welder, 220 volt, CSA approved.

.3 High-speed, 10,000 rpm, 114 mm side grinders with 60-grit discs.

.4 6.5 kW generator, or other, to produce single-phase power with 110/220 volt outputs.

.5 Power cord #10 CSA approved electrical cord with CSA approved twist type plugs and connections.

.6 Seam vacuum tester for non-destructive seam and patch testing.

.7 Field tensiometer, capable of performing seam and peel adhesion tests for quantitative testing on site.

.4 Test Seams

.1 Field test seams will be conducted on the geomembrane liner to verify that seaming conditions are satisfactory. Test seams will be conducted at the beginning of each seaming period, if welding has ceased for a period of 2 hours or more, or after dramatic change in weather conditions, for each seaming apparatus used that day.

.2 All test seams will be made at a location selected by the Inspector in the area of the seaming and in contact with the subgrade. The test seam samples will be 2 metres long for fusion welding and 1 metres long for extrusion welding with the seam centred lengthwise. Specimens 25 mm wide will be cut from each opposite end of the test seam by the Inspector. The Inspector will use a tensiometer to test these specimens for shear and peel. If a test seam fails to meet field seam specifications, the seaming apparatus and/or seam will not be accepted and will not be used for seaming until the deficiencies are corrected and two consecutive successful full test seams are achieved. A seam pass is achieved when the seam exhibits the following properties:

a) Shear Strength - ASTM D3083 - sheet fails before weld and necking occurs - >90% of yield strength (as modified in App. A of NSF 54*) Film tear bond**.

b) Peel Strength - ASTM D413 - less than 25% weld separation and necking occurs - > 70% of yield strength (as modified in App. A of NSF 54*) Film tear bond**.

* National Sanitation Foundation, Standard 54; "Flexible Membrane Liners"

** Film Tear Bond (FTB) is defined as failure of one of the sheets by tearing, instead of separating from the other sheet at the weld interface area (sheet fails before weld).

.3 Welding rods or beads used for extrusion welding will be HDPE and the physical properties will be the same as those of the resin used in the manufacture of the HDPE geomembrane. When seaming is performed using welding rod, only solid core rod free of voids will be used.

3.6 <u>Non-Destructive Seam Testing</u>

.1 The Installer will non-destructively test all field seams over the full length. All test equipment will be furnished by the Installer. The following tests will be performed:

a) Vacuum Box Testing

b) Air Pressure Testing (For Double Fusion Seam Only)

3.7 Destructive Seam Testing

.1 The Installer will provide the Inspector with destructive test samples as specified in the table in Section 3.8.5 – Quality Control Testing. Departmental Representative will approve the test location. The Installer will not be informed in advance of the sample location. If, during the project, samples are consistently good then the samples can be decreased to an amount agreeable to the Installer and the Inspector.

3.8 Extrusion Welds

.1 Extrusion welds will not be used for production welding. The use will be limited to: patches; butt seam "T" intersections; wedge welding flaws or leaks; sheet damage; penetration boots; welds to polyethylene pipes, structures or cast-in-concrete inserts; splash pads, rub sheets or capstrips.

.2 Edge of seam will be tack welded with a hot air gun prior to grinding and extrusion welding.

.3 The joining surfaces will be ground to remove oxidized surface material, and preheated by a hot air gun. When joining two flat polyethylene sheets, a minimum 75 mm overlap is required; bevel the edge of the top sheet with a grinder in the area under the extrusion only.

. 4 The extrusion weld bead will be a minimum of 30 mm wide.

.5 Quality Control Testing for the HDPE liner will be undertaken as follows:

Test	**ASTM Test Methods**	**Minimums**
Inspection for uniformity, damage, imperfections, holes, cracks, thin spots or foreign material	Observation	continuous during manufacture
Chemical Resistance: resistance to chemical waste mixtures resistance to pure chemical reagents	9090 (US EPA) D543	manufacturer certificate
Thickness	D5994	manufacturer certificate
Density	D792	manufacturer certificate
Tensile Properties tensile strength at yield tensile strength at break elongation at yield elongation at break	D638 Type IV	manufacturer certificate
Tear Resistance	D1004	manufacturer certificate
Low Temperature Impact	D746	manufacturer certificate
Dimensional Stability	D1204	manufacturer certificate
Notched Constant Load ESCR	D5397	manufacturer certificate
Puncture Resistance	FTMS 101 Method 2065	manufacturer certificate
Carbon Black Percent	D1603	manufacturer certificate
Carbon Black Dispersion	D3015	manufacturer certificate
Material sampling during construction for future testing and analysis		one sample for each geomembrane lot number –

Test	**ASTM Test Methods**	**Minimums**
		stored in room temperature in a light-free environment
Uniformity, Damage, Imperfections	visual inspections	all sheets or panels prior to installation and documentation of repairs
Tears, Punctures, folding, blisters	visual inspections	all sheets or panels prior to installation and documentation or repairs
Test	ASTM Test Methods	Minimums
Test Seams	visual observations and inspections (see Section 3.5.4)	at start of work by each seaming crew; after every 4 hours of seaming; with every change in seaming equipment; and with significant changes in sheet temperature
Non-Destructive testing of field seams	visual observations of tests (see Section 3.6)	all field seams record test location, date, time, test results and documentation of repairs and re-testing
Inspection of patching and overlay seams that cannot be non-destructive tested	visual observations of seam quality	all patches and overlays record inspection and document repairs
Destructive testing of field seams		
Bonded Seam Strength	D4437 NSF 54	sampling at fixed increments of not more than 150 m
Peel Adhesion	D4437 NSF 54	random locations with equivalent number of samples to a 150 m fixed increment

.6 Before commencing extrusion welding, a qualification test weld will be be produced for each day's production. Vice-grip peel, tensiometer peel and tensiometer tensile tests will be performed with the same acceptance criteria as wedge welding.

.7 Extrusion Production Testing will utilize visual testing, "Pik" test and vacuum box soap test.

3.9 Defects And Repairs

.1 All seams and non-seam areas of the geomembrane will be inspected by the Inspector for defects, holes, blisters, undispersed raw materials and any sign of contamination by foreign matter. Because light reflected by the geomembrane helps to detect defects, the surface of the geomembrane will be clean at the time of inspection. The geomembrane surface will be brushed, blown or washed by the Installer if the amount of dust or mud inhibits inspection. The Inspector will decide if cleaning of the geomembrane is needed to facilitate inspection. This inspection should be done immediately after placement of the liner panel.

.2 Each suspect location in seam and non-seam areas will be non-destructively tested as appropriate in the presence of the Inspector. Each location that fails the non-destructive testing will be marked by the Inspector and repaired accordingly.

.3 Repair Procedures

.1 The following procedures will be followed in completion of geomembrane repairs:

a) Defective seams will be restarted/reseamed as described in these specifications.

b) Small holes will be repaired by extrusion cap welding. If the hole is larger than 6 mm, it will be patched.

c) Tears will be repaired by patching. Where the tear is on a slope or an area of stress and has a sharp end it must be rounded prior to patching.

d) Blisters, large holes, undispersed raw materials, and contamination by foreign matter will be repaired by patches.

e) Surfaces of HDPE which are to be patched will be abraded and cleaned no more than 15 minutes prior to the repair. No more than 10% of the thickness will be removed.

.2 Patches will be round or oval in shape, made of the same geomembrane, and extend a minimum of 150 mm beyond the edge of the defects. All patches will be of the same compound and thickness as the geomembrane specified. All patches will have their top edge bevelled with an angle grinder prior to placement on the geomembrane. Patches will be applied using approved methods only.

.4 Restart/Reseaming Procedures

.1 The extrusion welding process will restart by grinding the existing seam and rewelding a new seam. Welding will commence where the grinding started and must overlap the previous seam by at least 50 mm. Reseaming over an existing seam without regrinding will not be permitted.

.5 Verification of Repairs

.1 Each repair will be non-destructively tested, except when the Inspector pass the non-destructive test will be taken as an indication of an adequate repair. Failed tests indicate that the repair will be repeated and retested until passing test results are achieved.

.6 Recording of Results

.1 Daily documentation of all non-destructive and destructive testing will be provided to the Inspector by the Installer. This documentation will identify all seams that initially failed the test and include evidence that these seams were repaired and successively retested.

3.10 Liner Cover Fill Installation

.1 Prior to the placement of fill cover over the geomembrane place a layer of geotextile (see 31 32 21 – Geotextile) to protect the geomembrane.

.2 Equipment used to spread the site derived fill must not exceed a mass more than 8,500 kg or produce a ground pressure greater than 30 KPa, with a minimum thickness of 150

mm of fill below the tracks. The equipment will not push a pile such that the wheels or tracks spin. No sharp turns will be allowed. Larger equipment may be used at the discretion of Departmental Representative and a minimum of 500 mm of sand has been placed in the areas of additional load. Any damage to the geosynthetic liner or geotextiles by equipment will be repaired at Contractor's expense.

.3 No wheeled vehicles allowed over the Geomembrane without approval of Departmental Representative. Any damage to the geosynthetic liner or geotextiles by equipment will be repaired at Contractor's expense.

.4 The material will be placed to lines and grades as shown on the construction drawings, within ±50 mm in the vertical direction and ±100 mm in the horizontal direction.

.5 Recover and place, as available without damaging the surround vegetation, organic soils overtop the final engineered cover using industry best management practices to facilitate the growth of new vegetation.

END OF SECTION

APPENDIX A

SUMMARY OF ENVIRONMENTAL IMPACTS

APPENDIX A.1

SUMMARY OF ENVIRONMENTAL IMPACTS

OUTPOST ISLAND MINE

Appendix A.1

Overview of Environmental Site Assessment Results – Outpost Island Mine

Introduction

Information on environmental conditions and historic activities at the former Outpost Island Mine has been obtained through a number of environmental site assessment (ESA) and risk assessments including:

- *Enhanced Phase I Environmental Site Assessment for the Abandoned Outpost Island Mine Greats Slave Lake, Northwest Territories.* Columbia Environmental Consulting Ltd, 2006.
- *Phase II Environmental Site Assessment Outpost Island Mine (Philmore Mine) – SM 204/238 Northwest Territories.* EBA Engineering Consultants Limited, 2009.
- *Phase III Environmental Site Assessment of Outpost Island Mine – SM 467 Northwest Territories.* Franz Environmental Incorporated and EcoMetrix Incorporated (Franz/EcoMetrix), 2010.
- *Phase IIIa Environmental Site Assessment of Outpost Island Mine, Northwest Territories.* SENES Consultants Limited and Franz Environmental Incorporated (SENES/Franz), 2011.
- *Final Report - Human Health and Ecological Risk Assessment for Outpost Island Mine Site, Northwest Territories – 2013 Update.* SENES Consultants Limited (SENES), 2013.
- *Site Specific Target Levels, Great Slave Lake Mines.* SENES Consultants Limited (SENES) 2013.

The Phase IIIa ESA (SENES/FRANZ 2011) represents the most recent and comprehensive evaluation of the site with the data collected compared to the applicable CCME criteria. For select parameters that are known to be elevated, risk based standards were derived and are presented in the Site Specific Target Levels (SSTL) document. For this reason the characterization of environmental conditions as described by both SENES and FRANZ in these two reports formed the basis of the decision-making outlined in the Remedial Action Plan (RAP) and remedial specifications. The following sections provide an overview of the findings reached by SENES and FRANZ in these two reports however, where appropriate, information from previous environmental site assessments is also presented.

Chemical data obtained during the various site investigations has been compared to the SSTL, or CCME criteria where no SSTL exists, for each environmental media. These numerical limits have been used to determine if impacts have occurred at the site. Only

impacts and hazards relevant to the current remedial work have been included in this summary.

Areas of Environmental Concern

The Outpost Island Mine site is divided into eight Areas of Environmental Concern (AEC) relevant to the remediation work. AEC 1 to AEC 7 are located on Outpost Island while AEC 9 is located on East Island. AEC 8 is identified as Great Slave Lake however no remedial work is to be undertaken in the lake. The various impacts, hazards and debris across the islands are summarized in Tables A.1.1 and A.1.2. An overview of the islands is presented graphically in Figure A.1.1, while the exact locations of the AECs and detailed information for each area provided in Figures A.1.2 and A.1.3, which includes historical test pit and sampling locations. Photographs of the various areas are provided in Appendix C.1.

Table A.1.1 Summary of Areas of Environmental Concern for Outpost Island Mine

Area	Issue	Identified Contaminant or Hazard	Volume of Impacted Media (m^3)
Site Wide See breakdown in Table A.1.2	Metal Debris	Physical hazard – debris	See Table A.1.2
	Concrete Piers and Foundations	Physical hazard – debris	See Table A.1.2
	Wood Debris	Physical hazard – debris	See Table A.1.2
	Former Dock Area	Physical hazard – debris	See Table A.1.2
AEC 1 Northeast Portion of Outpost Island	PHC and Metals Contaminated Soil	PHC and metals contamination	20
AEC 2 Tailings Pile (Outpost Island)	Waste Rock and Tailings Pile	Waste rock, acid rock drainage and metal impacts	9000
	Tailings (Lower deposit)	Metal impacts	340
	Small bottle of oil based liquid	Potentially hazardous	<2L
	Shaft #1	Physical Hazard	N/A
	Main Raise	Physical Hazard	N/A
AEC 3 Northeast Portion of Outpost Island (South of AEC 1 and 2)	PHC Stained Rock	PHC and metals contamination	<1
	PHC Contaminated Soil	PHC contamination near unknown building	<1
	Metal impact soils at battery dump	Metal impact	0.5
	Broken Batteries	Decaying Batteries (Lead)	0.2
AEC 5 Ore Pass Raise Area (Outpost Island)	Ore Raise	Physical Hazard	N/A
AEC 7 Waste Rock Pile and Shaft #2 (Outpost Island)	Shaft #2	Physical Hazard	N/A
AEC 9 East Island	Metal impact soils at battery dump	Metal impact	0.5
	Broken Batteries	Decaying Batteries (Lead)	0.2
	Trenches	Physical Hazard	N/A

Table A.1.2 Summary of Non-Hazardous Waste Debris

AEC	Site Feature	Item	Volume (m^3)			
			Wood[1]	Metal[2]	Concrete	Total
1	Water tower base	Eight concrete blocks (0.78 m x 0.78 m x various heights)	---	---	3	3
	Total					**3**
2	Mill Area – First equipment block	Concrete base (7 m x 1.7 m x 2.8 m) Metal from the mill equipment (6.2 m x 2.4 m x 1.4 m) occupies approximately 50% of the calculated volume	---	10	33	43
	Mill Area – Second equipment block	Concrete base (2.4 m x 1.9 m x 2.7 m) Metal from the mill equipment (2.4 m x 1.9 m x 1.3 m) occupies approximately 20% of the calculated volume	---	1	12	13
	Mill Area – Third equipment block	Concrete base (5.4 m x 1.0 m x 2.8 m) Metal from the mill equipment (5.4 m x 2.2 m x 2.8 m) occupies approximately 30% of the calculated volume	---	10	15	25
	Mill Area – Fourth equipment block	Concrete base (2.9 m x 0.9 m x 1.8 m) Metal from the mill equipment (2.9 m x 1.0 m x 1.8 m) occupies approximately 80% of the calculated volume	---	4	5	9
	Concrete blocks	Two concrete blocks (0.3 m x 0.3 m x 0.8 m and 0.7 m x 0.7 m x 0.5 m)	---	---	0.3	0.3
	Assay Laboratory	Concrete foundation pad (3.6 m x 4.8 m x 0.1 m)	---	---	1.7	1.7
	Unknown Building	Concrete foundation pad (4.6 m x 4.0 m x 0.1 m)	---	---	1.9	1.9
						93.9
3	Boilers	Metal from two boilers (2.9 m x 1.0 m x 2.6 m) on a brick base (2.9 m x 1.0 m x 0.25 m)	---	7.5	0.8	8.3
	Scrap Wood	Scrap wood surrounding the boiler	1	---	---	1
	Metal	1 – metal canister	---	0.1	---	0.1
	Total					**9.4**
4	Cookhouse	Concrete foundation pad (5.6 m x 8.9 m x 0.1 m)	---	---	5	5
	Metal debris	Metal debris, including tin cans and pieces of scrap-metal.	---	2	---	2
	Total					**7**
6	Metal debris	Tin can dump	---	0.5	---	0.5
	Total					**2**

Table A.1.2 Summary of Non-Hazardous Waste Debris (Continued)

AEC	Site Feature	Item	Volume (m^3)			
			Wood[1]	**Metal[2]**	**Concrete**	**Total**
7	Scrap Wood	Scrap wood and lumber	---	5[4]	---	5
	Metal debris	Metal pipe	---	0.1	---	0.1
	Total					**5.1**
9	Metal debris	Can dump	---	0.5	---	0.5
	Outhouse, shed, and former building	Wood from outhouse, shed and former unknown building	10[3]	---	---	10
	Total					**10.5**
Grand Total			**1[3]**	**40.7[5]**	**77.7**	**120[3] m^3**

1. Assumes all wood volume is burnable
2. Non-crushed volume; crushed volume = 28.5 m^3 based on a crush reduction of 30%
3. Volume of buildings not included in non-hazardous waste totals as it would be burned on site
4. This total includes 25 m^3 of mill equipment; total metal volume without the mill equipment is 16 m^3.
5. This volume represents the volume of scrap metal in the existing mine shaft which may need to be removed to facilitate the capping of the mine opening.

Soil Impacts and Distributions

Tailings

AEC 2 Tailings Pile (Outpost Island)

The tailings identified in AEC 2 are divided between the lower deposit (below the waste rock) and the submerged tailings (in the North Bay). Both tailings deposits are to be consolidated higher on the island and stabilized using waste rock. The total volume of tailings in AEC 2 is 340 m^3 in the lower deposit and an estimated 1840 m^3 submerged in the bay. The locations of the tailings areas are presented in Figure A.1.2. For the purposes of this remediation program only the lower tailings deposit is to be relocated to the existing waste rock and tailings stockpile. The submerged tailings are not to be disturbed.

Waste Rock

AEC 2 Tailings Pile (Outpost Island)

The waste rock identified in AEC 2 is mixed with tailings and requires consolidation and will be used to stabilize consolidated tailings materials. The volume of waste rock in AEC 2 is 9000 m^3. The location of the waste rock is presented in Figure A.1.2.

AEC 7 Waste Rock Pile and Shaft #2

Due to the lack of available borrow on the islands the waste rock in AEC 7 is to be used as fill material for the backfilling of mine openings and stabilization of tailings materials. The volume of waste rock in AEC 7 is 300 m^3. The location of the waste rock is presented in Figure A.1.2.

AEC 9 East Island

Due to the lack of available borrow on the islands the waste rock in AEC 9 is to be used as fill material for the backfilling of trenches located at the east end of the island. The volume of waste rock in AEC 9 is 100 m^3. The location of the waste rock is presented in Figure A.1.3.

Metal impacted soils

Site soils with elevated metals concentrations due to mineralization or influence of the tailings/waste rock are not being disposed of off site and consequently are excluded from this section.

AEC 1 Northeast Portion of Outpost Island

Metals impacts were found to coincide with PHC impacts down gradient of the former fuel area in AEC 1 (see Figure A.1.2). The estimated volume of metals and PHC impacted soil is 20 m^3.

AEC 3 Northeast Portion of Outpost Island (South of AEC 1 and 2)

Metals impacts were found to coincide with PHC in the stained rock in AEC3 (see Figure A.1.2). The estimated volume of metals and PHC impacted rock is <1 m^3. Additionally the soil underlying the broken batteries in AEC 3 is metal impacted. The estimated volume of metals impacted soil at the battery dump is 0.5 m^3.

AEC 9 East Island

The soil underlying the broken batteries and assay lab in AEC 9 is metal impacted (see Figure A.1.3). The estimated volume of metals impacted soil at the battery dump is 0.5 m^3.

Petroleum Hydrocarbon (PHC) impacted soils

For ease of reference the locations of PHC exceedances in soil samples are presented in Figure A.1.2.

AEC 1 Northeast Portion of Outpost Island

PHC impacts were found to coincide with metals impacts down gradient of the former fuel area in AEC 1 (see Figure A.1.2). The estimated volume of metals and PHC impacted soil is 20 m^3.

AEC 3 Northeast Portion of Outpost Island (South of AEC 1 and 2)

Metals impacts were found to coincide with PHC in the stained rock in AEC3 (see Figure A.1.2). The estimated volume of metals and PHC impacted rock is <1 m^3. Additionally PHC contaminated soil was identified near the unknown building in AEC 3. The estimated volume of PHC impacted soil near the unknown building is <1m^3.

Hazardous Materials

AEC 2 Tailings Pile (Outpost Island)

A small bottle (<2L) of an unidentified oil based liquid was found in AEC2 (see Figure A.1.2). The bottle is conservatively assumed to contain hazardous material and will be disposed of as such.

AEC 3 Northeast Portion of Outpost Island (South of AEC 1 and 2)

Broken batteries were found in AEC 3 (see Figure A.1.2). The estimated volume of the batteries is 0.2 m^3.

AEC 9 East Island

Broken batteries were found in AEC 9 (see Figure A.1.3). The estimated volume of the batteries is 0.2 m^3.

Debris

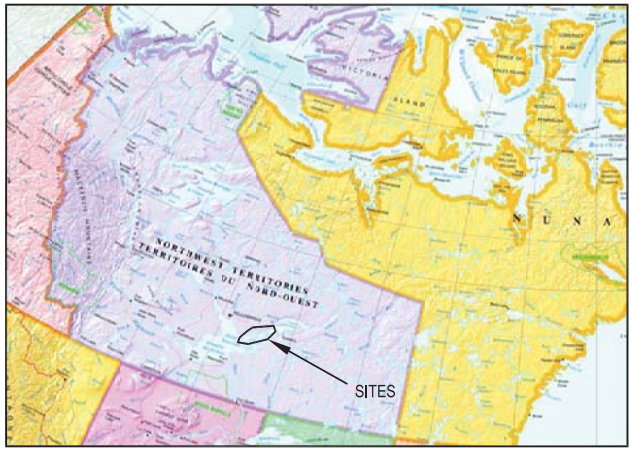
Debris and other non-hazardous refuse as identified on the two islands are detailed in Table A.1.2. The totals, excluding the buildings to be burned on site, are 1 m^3 of wood, 41 m^3 of non-crushed metal and 78 m^3 of concrete.

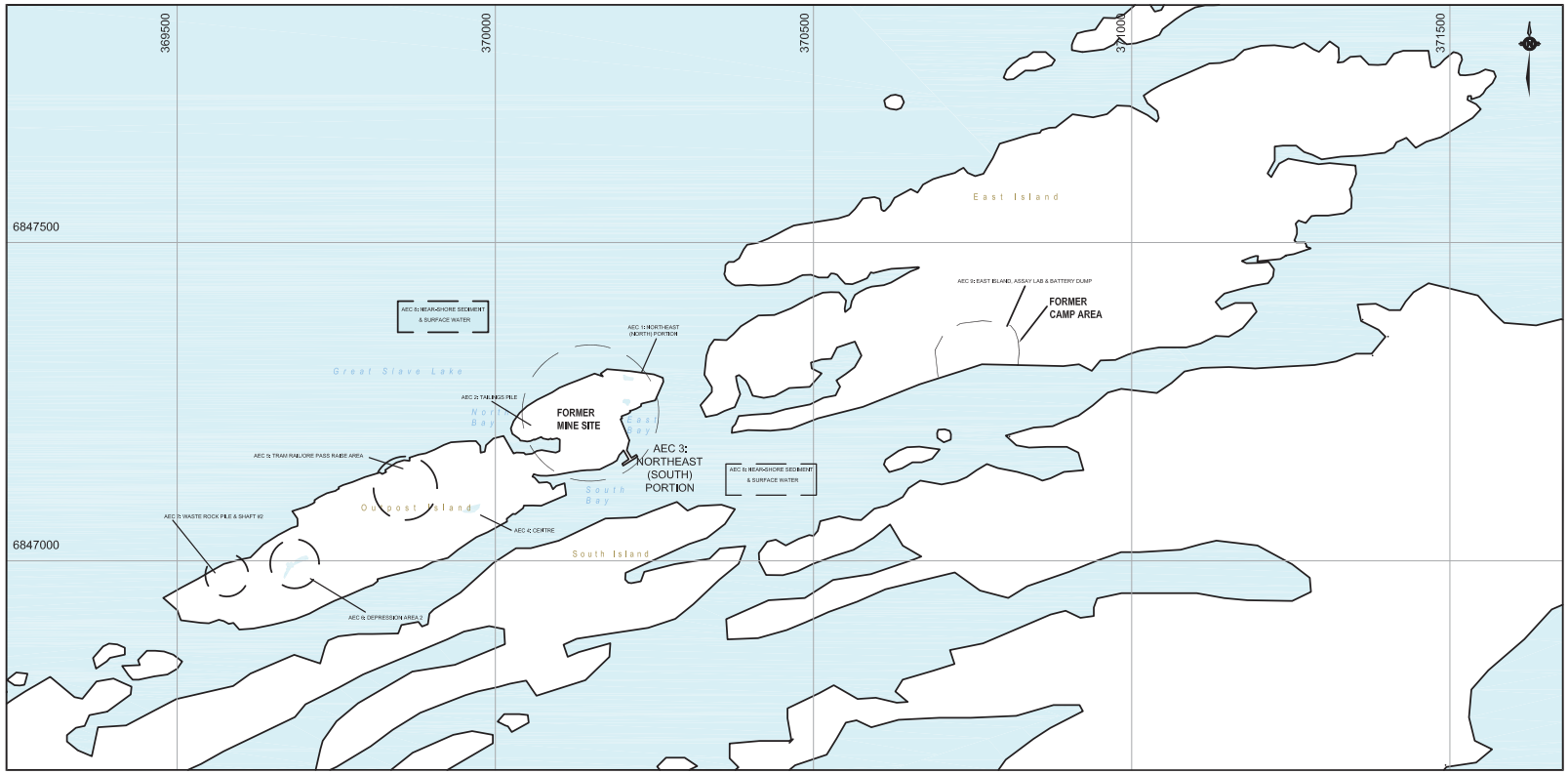
The RAP states that the concrete from slabs could be used as fill material where necessary (i.e., backfilling mine openings) rather than being disposed of off site and that the mill equipment on site is to remain. The mill equipment accounts for 25 m^3 of metal, leaving only 16 m^3 of metal and 1 m^3 of wood in need of disposal as non-hazardous materials. Locations of the existing concrete foundations are presented in Figure A.1.2.

Mine Openings

Two mine shafts and two raises are present on Outpost Island. Shaft #1 and the Main Raise are both located in AEC 2 while the Ore Raise is in AEC 5 and Shaft # 2 is in AEC 7 (see Figure A.1.2).

Two exploration trenches of concern are present at the east end of East Island as shown on Figure A.1.3.





LEGEND:

FOR INFORMATION PURPOSES ONLY

NOTES:

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:
1.

0 200 400 metres
SCALE 1:7500

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
OUTPOST ISLAND MINE SITE

SITE LOCATION PLAN

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:7500	Drawing No: A.1.1

Mar 26, 2014 – 6:07pm – USER pflemming
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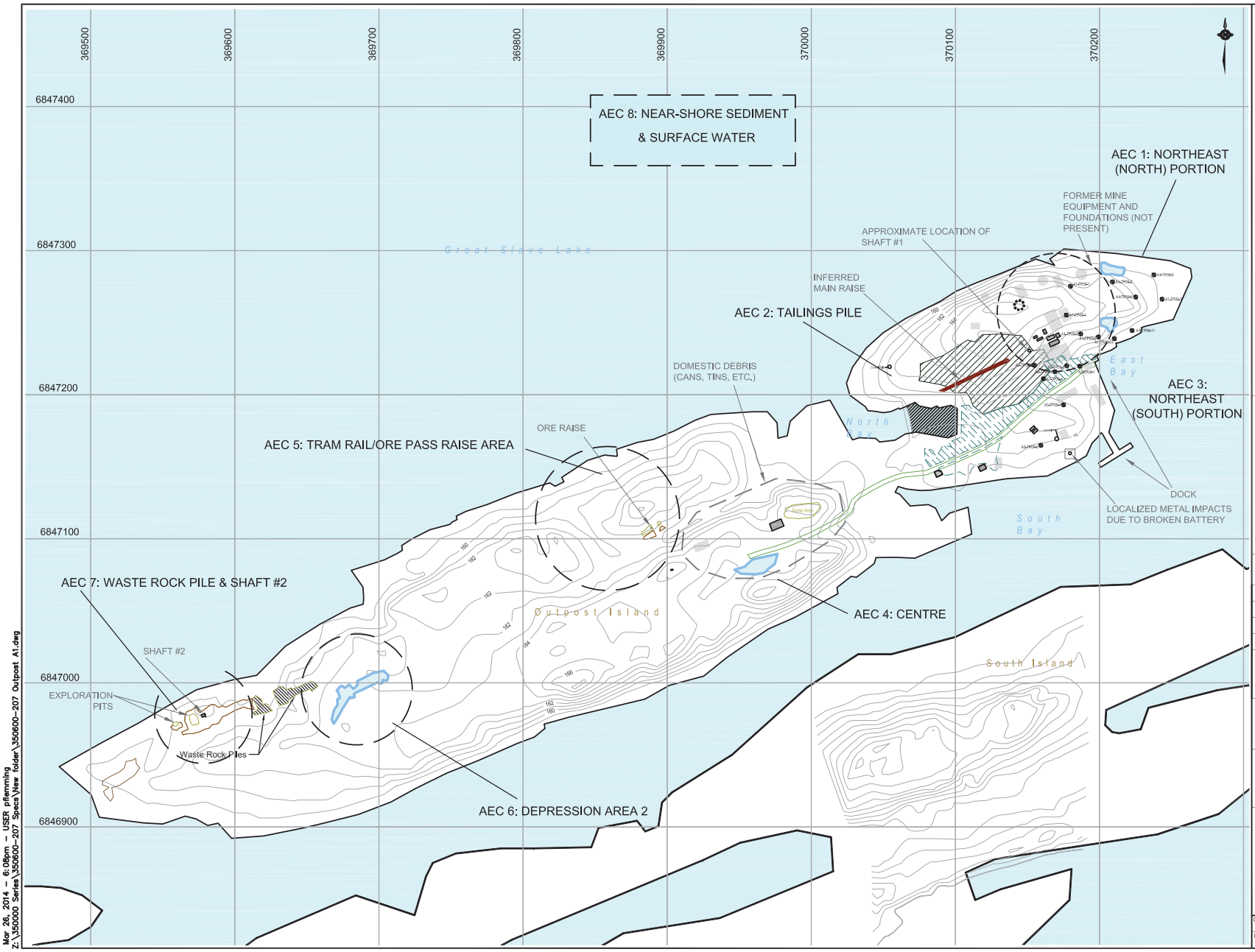

LEGEND:

- WASTE ROCK
- WASTE ROCK/ TAILINGS
- TAILINGS
- EXISTING CONCRETE FOUNDATIONS
- PONDED WATER
- SUBMERGED TAILINGS (NOT TO BE RELOCATED)
- LOCATIONS OF LOCALIZED PHC EXCEEDANCES
- EXISTING FOUNDATIONS
- HISTORICAL FOUNDATIONS

FOR INFORMATION PURPOSES ONLY

NOTES:

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1.

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
OUTPOST ISLAND MINE SITE

EXISTING FEATURE PLAN
(Outpost Island)

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:2500	Drawing No: A.1.2

Mar 26, 2014 – 6:08pm – USER pflemming
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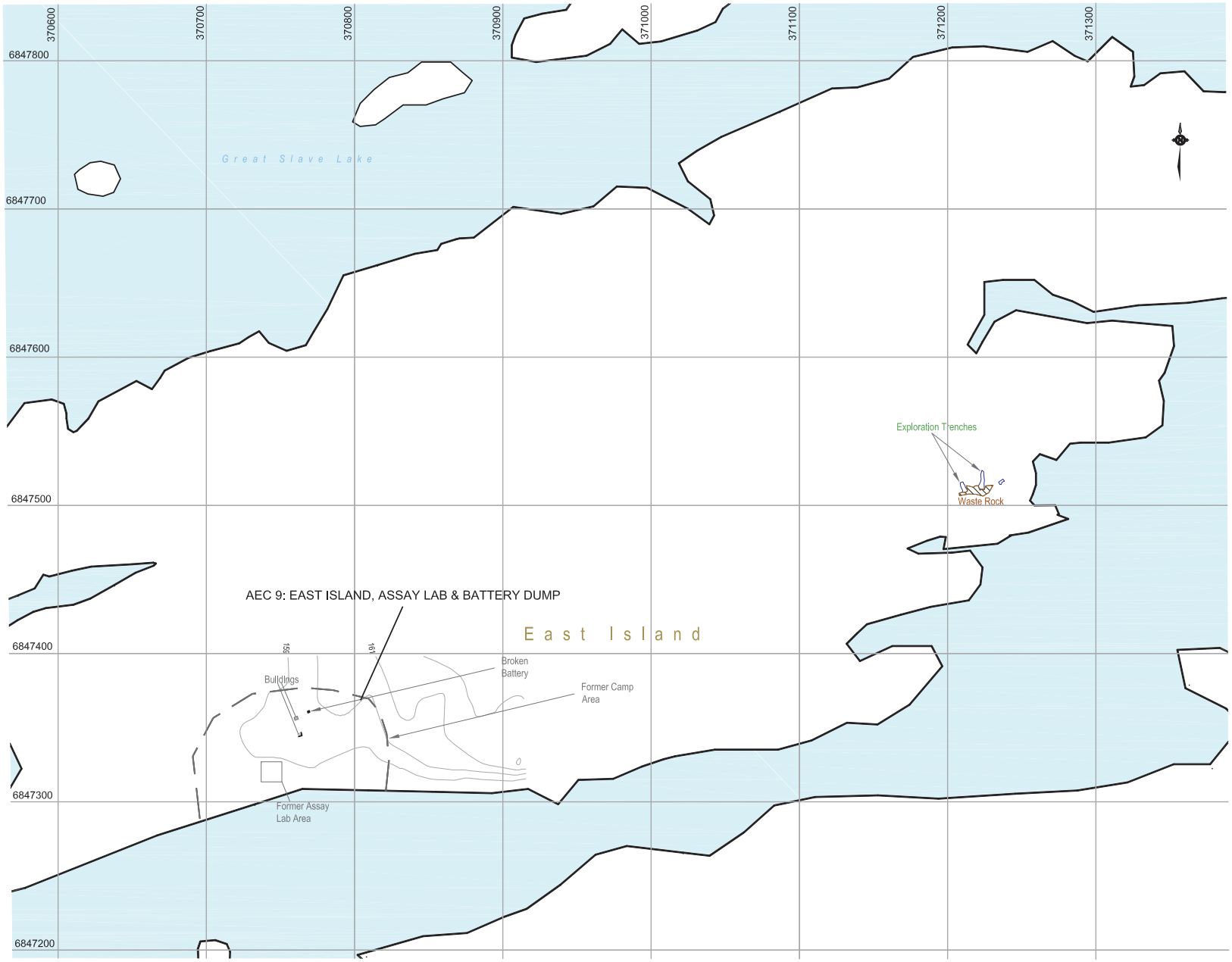

LEGEND:

WASTE ROCK

EXISTING FOUNDATIONS

FOR INFORMATION PURPOSES ONLY

NOTES:

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1.

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
OUTPOST ISLAND MINE SITE

EXISTING FEATURE PLAN
(East Island)

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:2500	Drawing No: A.1.3

Mar 26, 2014 – 6:09pm – USER pflemming
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APPENDIX A.2

SUMMARY OF ENVIRONMENTAL IMPACTS

BLANCHET ISLAND MINE

Appendix A.2

Overview of Environmental Site Assessment Results – Blanchet Island Mine

Introduction

Information on environmental conditions and historic activities at the former Blanchet Island Mine has been obtained through a number of environmental site assessment (ESA) and risk assessments including:

- *Phase II Environmental Site Assessment (ESA) of the Blanchet Island Mine Site, Great Slave Lake, NWT (SM463), Project No. 0301.* Columbia Environmental Consulting Ltd, 2009.

- *Enhanced Phase III Environmental Site Blanchet Island Mine Site, Great Slave Lake, Northwest Territories.* Columbia Environmental Consulting Ltd./Franz Environmental Inc. (Columbia/Franz), 2010.

- *Phase IIIa Environmental Site Assessment of Blanchet Island Mine* – SENES Consultants (SENES) and Franz Environmental (FRANZ), 2011.

- *Human Health and Ecological Risk Assessment for Blanchet Island Mine Site, Northwest Territories.* SENES Consultants (SENES), 2011.

- *Site Specific Target Levels, Great Slave Lake Mines.* SENES Consultants Limited (SENES) 2013.

The Phase IIIa ESA conducted by SENES and FRANZ in the Summer of 2010 (reported January 2011) represents the most recent and comprehensive evaluation of the site with the data collected compared to the applicable CCME criteria. For select parameters that are known to be elevated, risk based standards were derived and are presented in the Site Specific Target Levels (SSTL) document. For this reason the characterization of environmental conditions described by SENES and FRANZ formed the basis of the decision making for the Remedial Action Plan (RAP). The following sections therefore provide an overview of the findings reached by SENES and FRANZ in their Phase IIIa ESA report however, where appropriate, information from previous environmental site assessments is also present.

Chemical data obtained during the various site investigations has been compared to the SSTL for each environmental media. These numerical limits have been used to determine if impacts have occurred at the site. Only impacts and hazards relevant to the current remedial work have been included in this summary.

Areas of Environmental Concern

During the Phase IIIa ESA the Blanchet Island Mine site was divided into three areas of environmental concern (AEC). The different areas are as follows:

- AEC 1: Beach Area
- AEC 2: Camp Area
- AEC 3: Mine Area

The Contaminants of Concern (CoC), physical hazards and volumes of ore concentrate, waste rock and impacted soils identified during the course of the Phase IIIa ESA for each AEC are summarized in Table A.2.1. The location of each AECs is presented graphically in Figure A.2.1 while detailed information for each AEC is provided in Figures A.2.2 and A.2.3, which include historical test pit and sampling locations. Photographs of the various areas are provided in Appendix C.2.

Table A.2.1 Summary of Areas of Environmental Concern for Blanchet Island Mine

Area	Issue	Identified Contaminant or Hazard	Volume of Impacted Media (m^3)
AEC 1 Beach Area	Ore concentrate	Metal impacts	5
	Soil	Metals in soil	500
	Drums	Metal debris	2
AEC 2 Camp Area	Ore concentrate	Metal impact	< 1
	Debris Dump	Non-Hazardous waste	63.9
AEC 3 Mine Area	PHC staining	Petroleum Hydrocarbons in soils	50
	Ore concentrate	Metal impacts	3
	Soil	Metals in soil	1000
	Debris and drums	Non-Hazardous waste	23.3
	Adit	Physical Hazard	N/A
	Waste Rock	Waste Rock	1,000

Soil Impacts and Distributions

Waste Rock

AEC 1 Beach Area

No waste rock was identified within the Beach Area.

AEC 2 Camp Area

No waste rock was identified within the Camp Area.

AEC 3 Mine Area

A large amount of waste rock is located down the slope from the mine adit (see Figure A.2.3). The total estimated volume of waste rock is 1000 m^3.

Ore Concentrate

AEC 1 Beach Area

At present there are 20 drums filled with ore concentrate (4 m^3) containerized in drum overpacks in the Beach Area. An additional 1 m^3 of ore concentrate from the Beach Area remains to be consolidated and containerized for off site disposal. The locations of both the ore concentrate to be consolidated and the existing drums are presented graphically on Figure A.2.2.

AEC 2 Camp Area

A small volume of spilt ore concentrate was located within the Camp Area (see Figure A.2.2). The estimated volume of ore concentrate to be consolidated for off site disposal is <1 m^3 in the Camp Area.

AEC 3 Mine Area

Several discrete spills of ore concentrate are present at the base of the slope below the mine adit. The total estimated volume of ore concentrate to be consolidated for off site disposal is 3 m^3 in the Mine Area.

Additionally, a thin veneer of ore was observed to have spilled from the adit opening midway down the waste rock slope of the Mine Area however separation of the spilt ore from the waste rock is considered impractical on the slope. As such ore concentrate on the slope is not considered for off-site disposal however this material is to be consolidated within the waste rock and interned beneath the engineered cover located within this AEC.

The locations of both the ore concentrate to be consolidated and the ore concentrate to be placed under the engineered cap are presented in Figure A.2.3.

Metal impacted soils

AEC 1 Beach Area

Soil stained white with spilled ore is present in discrete locations within the Beach Area (see Figure A.2.2). The estimated volume of soils stained with ore concentrate from the Beach Area to be transported and placed under the engineered cap in the Mine area is approximately 500 m^3.

AEC 2 Camp Area

Metals concerns in the Camp Area are addressed in the Ore Concentrate Section. No metals impacted soils are present in the Camp Area.

AEC 3 Mine Area

Soil stained white with spilled ore is located in discrete locations within the Mine Area (see Figure A.2.3). The estimated volume of stained soil to be consolidated and placed under the engineered cap from the Mine Area is 1000 m^3.

Petroleum Hydrocarbon (PHC) impacted soils

AEC 1 Beach Area

No PHC impacts were identified within the Beach Area.

AEC 2 Camp Area

No PHC impacts were identified within the Camp Area.

AEC 3 Mine Area

One location within the Mine area was identified as having PHC impacts (see Figure A.2.3). The estimated volume of soil impacted by petroleum hydrocarbons in the Mine Area is 50 m^3.

Debris

AEC 1 Beach Area

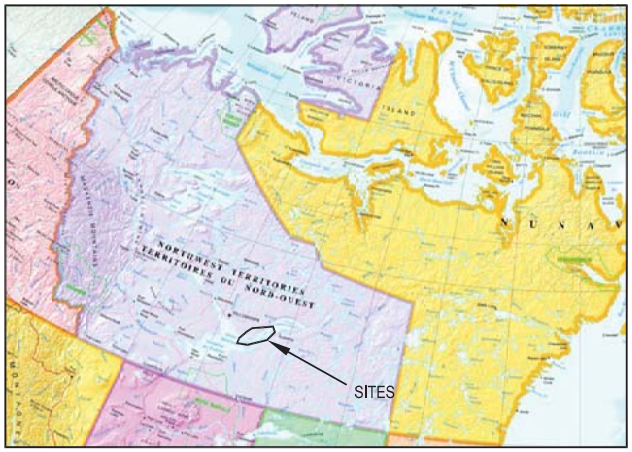
Three drum caches were identified in AEC 1 (see Figure A.2.2). The estimated volume of metal debris from the empty drums is 2 m^3 (crushed volume).

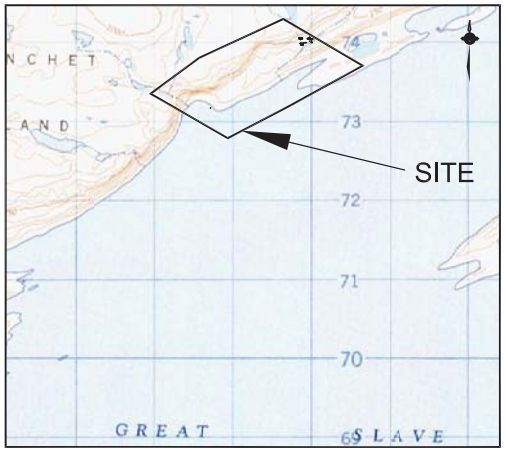
AEC 2 Camp Area

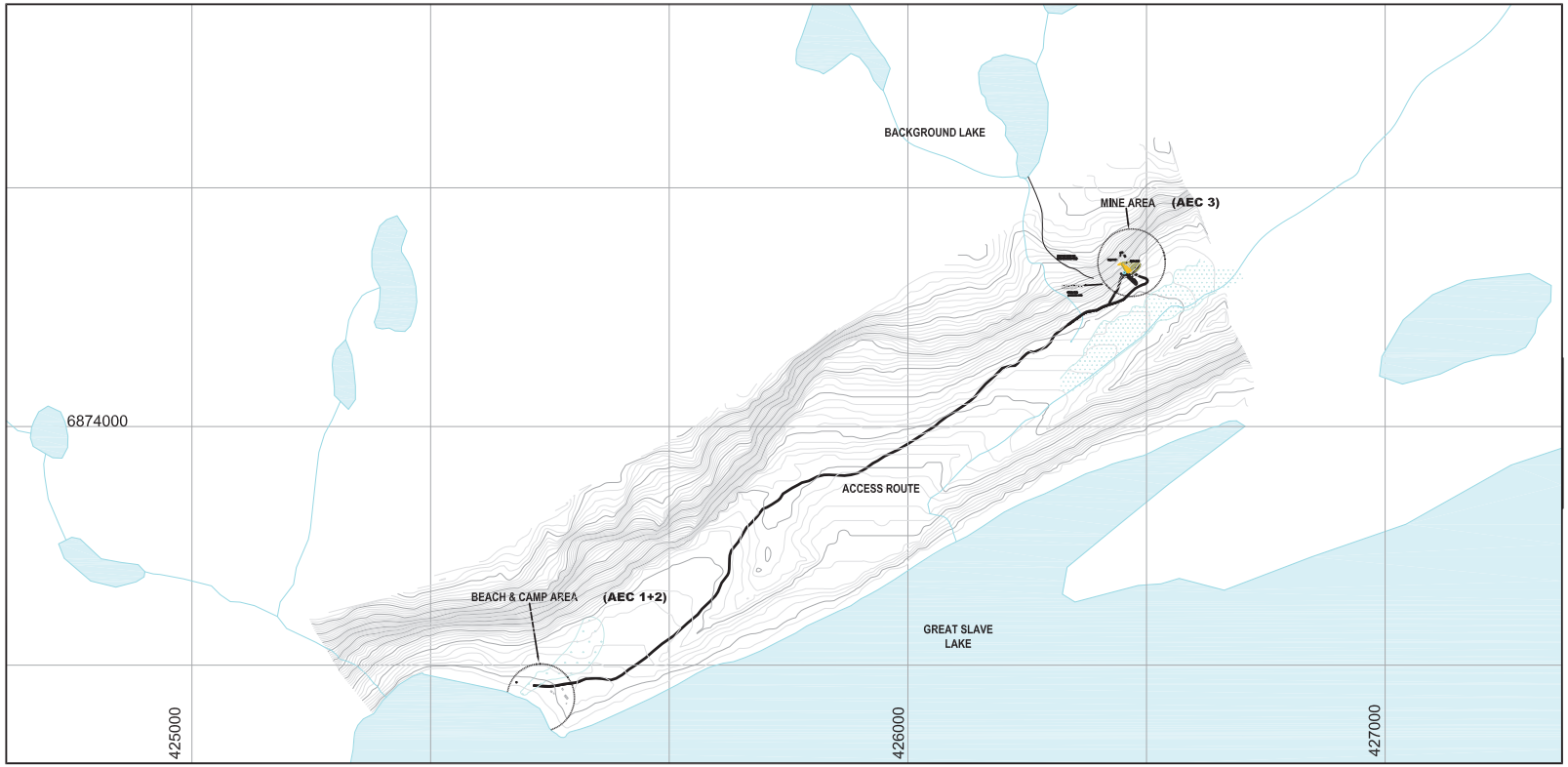
Debris, including drums, building materials, tin cans and miscellaneous domestic waste are present in AEC 2 (see Figure A.2.2). The estimated volume of debris requiring off-site disposal from this AEC is 64 m^3.

AEC 3 Mine Area

Debris, including drums, remnant mining equipment, tin cans, ore bags and steel rails are present in AEC 3 (see Figure A.2.3). The estimated volume of debris requiring off-site disposal from this AEC is 24 m^3.







LEGEND:

Wetland

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 10

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 85/01

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

0 200 400 metres

SCALE 1:10,000

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
BLANCHET ISLAND MINE SITE

SITE LOCATION PLAN

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:10000	Drawing No: A.2.1

Mar 26, 2014 – 5:34pm – USER pflemming
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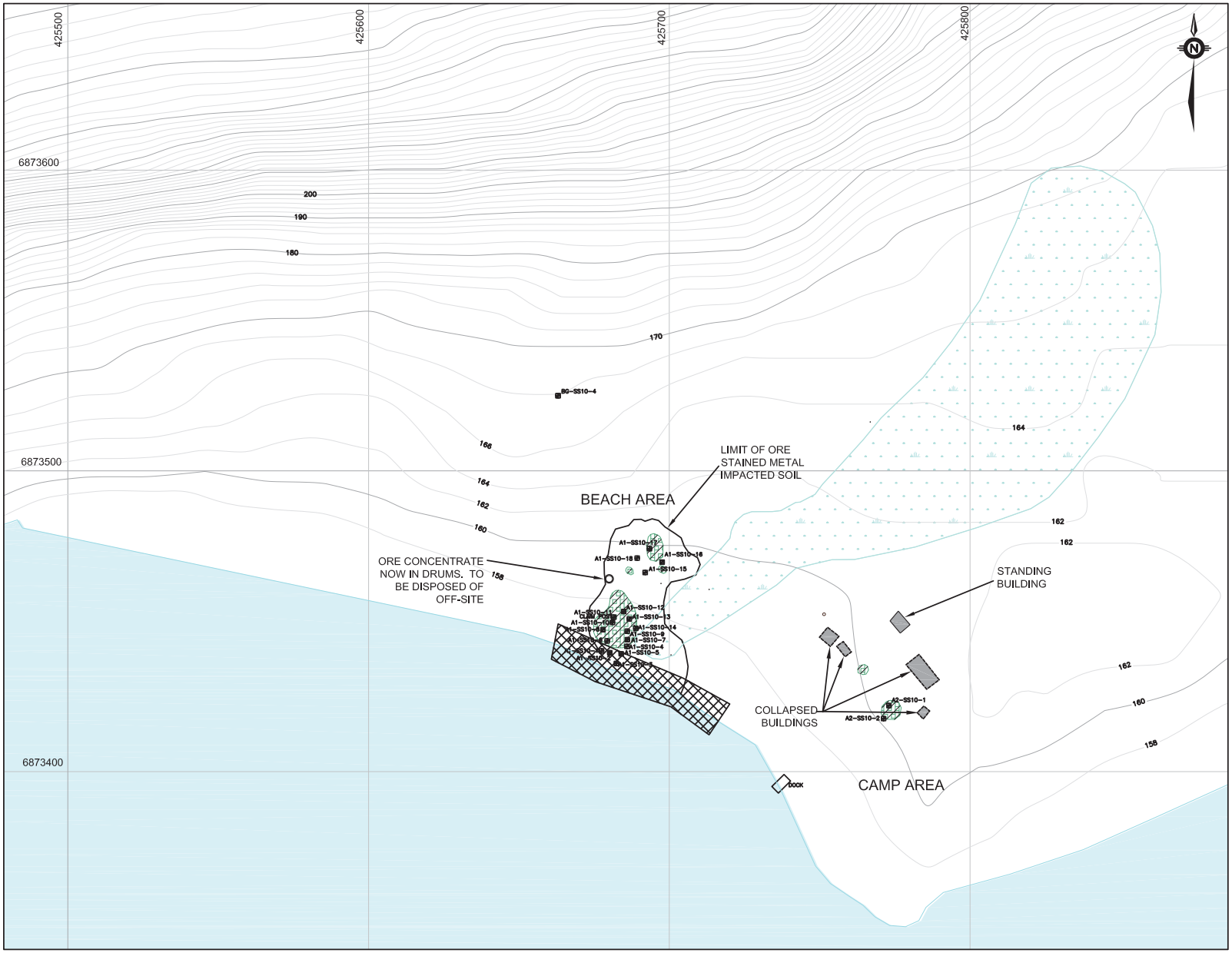

LEGEND:

- WETLAND
- 150 CONTOUR LINES IN METRES (In Metres)
- RESTRICTED ACCESS AREA. NO BARGE UNLOADING ALLOWED
- AREAS OF ORE CONCENTRATE TO BE CONSOLIDATED AND REMOVED
- STRUCTURES
- DRUMS
- SOIL SAMPLE SENES 2011

A1-SS10-14

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 10

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 85/01

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

0 20 40 metres

SCALE 1:1250

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
BLANCHET ISLAND MINE SITE

EXISTING FEATURE PLAN
(BEACH AND CAMP AREA)

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:1250	Drawing No: A.2.2

Mar 26, 2014 - 5:35pm - USER pflemming
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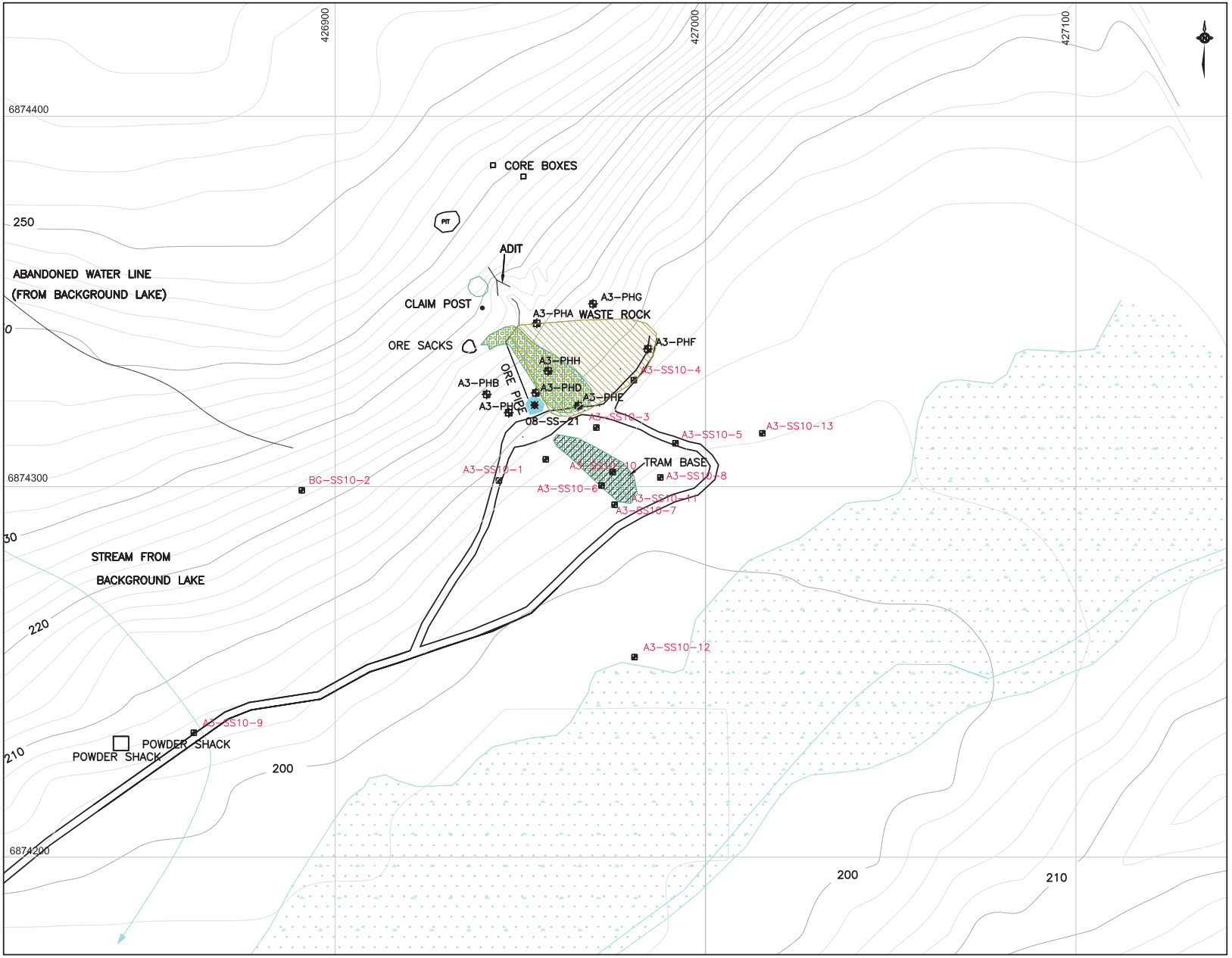

LEGEND:

- WETLAND
- 180 — CONTOUR LINES IN METRES (In Metres)
- WASTE ROCK
- AREAS OF MINOR ORE CONCENTRATE STAINS TO BE CONSOLIDATED AND REMOVED
- AREAS OF MINOR ORE CONCENTRATE STAINS TO BE PLACED UNDER ENGINEERED CAP
- AREA OF PHC CONTAMINATION
- A3-SS10-6 — SOIL SAMPLE SENES 2011
- 08-SS-21 — SOIL SAMPLE COLOMBIA 2008
- A3-PHB — WASTE ROCK SAMPLE SENES 2011

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 10

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 85/01

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

0 50 100 metres

SCALE 1:2500

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
BLANCHET ISLAND MINE SITE

EXISTING FEATURE PLAN
(MINE AREA)

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: 1:2500	Drawing No: A.2.3

Mar 26, 2014 – 5:36pm – USER pflemming
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APPENDIX A.3

SUMMARY OF ENVIRONMENTAL IMPACTS

COPPER PASS MINE

Appendix A.3

Overview of Environmental Site Assessment Results – Copper Pass Mine

Introduction

Information on environmental conditions and historic activities at the former Copper Pass Mine has been obtained through a number of environmental site assessment (ESA) and risk assessments including:

- *Phase 1 Environmental Site Assessment Copper Pass Mine Akaitcho Territory, Northwest Territories, Canada.* EBA Engineering Consultants Ltd, 2010.

- *Phase II Environmental Site Assessment of Copper Pass Mine.* SENES Consultants Limited and Franz Environmental Incorporated (SENES/Franz) 2011.

- *Human Health and Ecological Risk Assessment for Copper Pass Mine Site, Akaitcho Territory, Northwest Territories.* Preliminary Quantitative Risk Assessment (PQRA). SENES Consultants Limited (SENES) 2010.

- *Human Health and Ecological Risk Assessment for Copper Pass Mine Site, Akaitcho Territory, Northwest Territories.* Detailed Quantitative Risk Assessment (DQRA). SENES Consultants Limited (SENES) 2012.

- *Phase III Environmental Site Assessment of the Copper Pass Mine*. SENES Consultants Limited (SENES) 2013.

- *Site Specific Target Levels, Great Slave Lake Mines.* SENES Consultants Limited (SENES) 2013.

The Phase III ESA conducted by SENES in 2013 represents the most recent and comprehensive evaluation of the site with the data collected compared to the applicable CCME criteria. For select parameters that are known to be elevated, risk based standards were derived and are presented in the Site Specific Target Levels (SSTL) document. For this reason the characterization of environmental conditions by SENES and the SSTL document formed the basis of the decision making for the Remedial Action Plan (RAP). The following sections therefore provide an overview of the findings reached by SENES in the Phase III ESA report however, where appropriate, information from previous environmental site assessments is also present.

Chemical data obtained during the various site investigations has been compared to the SSTL for each environmental media. These numerical limits have been used to determine if impacts have occurred at the site. Only impacts and hazards relevant to the current remedial work have been included in this summary.

Areas of Environmental Concern

During the Phase III ESA the Copper Pass Mine site was divided into five areas of environmental concern (AEC). On the basis of the risk assessment work only four of the AECs were identified as requiring remedial works. The four identified AECs are as follows:

- AEC 1: Camp Area
- AEC 2: Main Showing
- AEC 3: West Showing
- AEC 5: Upland Pond Showing

The Contaminants of Concern (CoC), physical hazards and volumes of ore, waste rock, and PHC and metal impacts in the overburden as identified during the course the Phase II and III ESAs for each AEC are summarized in Table A.3.1. An overview of the AECs is presented graphically in Figure A.3.1 while detailed information for each AEC is provided in Figures A.3.2 and A.3.3, which include historical test pit and sampling locations. Photographs of the various areas are provided in Appendix C.3.

Table A.3.1 Summary of Areas of Environmental Concern for Copper Pass Mine

Area	Issue	Identified Contaminant or Hazard	Volume of Impacted Media (m^3)
AEC 1 Camp Area	Soil	Hydrocarbon Impacts (PHC and PAH)	71
		Metal Impacts	<2
	Waste Debris	Physical Hazard/Aesthetic Concern	<1
	Burn Pit Waste	PAHs/Metals in Soil	<1
	Structures	Physical Hazard	<13 (unburnt wood and metal) <3 wood burnt
	Unopened drums with product	Free product (Diesel, fuel oil and gasoline)	7 drums with a total of 1,435 L
	Drums with dirty fuel/water mixtures	Mixture of diesel, oil and water.	12 drums with a total of 1,635 L
AEC 2 Main Showing	Soil	PHC Impacts	<0.1
		Metal Impacts	Undefined (>5000)
	Waste Rock and Ore	Metal Impacts	4550
	Waste Debris	Physical Hazard/Aesthetic Concern	<1 (unburnt wood and metal) <1 wood burnt
	Drums	Physical Hazard/Aesthetic Concern	2 drums (empty)
	Trenches #1 and #2	Physical Hazard	~7000
	Blasting Caps	Hazardous materials	5 blasting caps
AEC 3 West Showing	Soil	Metal Impacts	No remediation
	Drums	Physical Hazard/Aesthetic Concern	2 drums (empty)
	Waste Rock	Metal Impacts	No remediation
AEC 5 Upland Pond Showing	Soil	PHC Impacts	<1
		Metal Impacts	No remediation
	Waste Rock	Metal Impacts	No remediation
	Waste Debris	Physical Hazard/Aesthetic Concern	<1
	Drums	Physical Hazard/Aesthetic Concern	6 drums (empty)

Soil Impacts and Distributions

Ore

Small discrete pockets of weathered ore (less than 0.25L in size) were found in AEC 3 however due to accessibility concerns the remediation of these pockets were deemed impractical however opportunistic remediation of these locations will be reviewed by the Departmental Representative with the remediation contractor when on site. No ore was identified at the Camp Area or Upland Pond Showing AECs.

AEC 2 Main Showing

Stockpiled ore was identified in AEC 2 adjacent the trenches (see Figure A.3.3). The approximate volume of ore in AEC 2 is 120 m^3.

Waste Rock

Waste rock found outside AEC 2 was deemed impractical to remediate due accessibility and relatively small volumes, for this reason only AEC 2 is discussed herein.

AEC 2 Main Showing

Waste rock was identified in AEC 2 both covering the ore near Trench #1 and graded to create roadways and lay down areas near Trench #2 (see Figure A.3.3). The approximate volume of waste rock in AEC 2 is 4430 m^3.

Metal impacted soils

Metal impacted soil found outside AEC 2 was deemed to be a function of the mineralized formation in the area of the mine showings. At the camp location the metal impacts are co-mingled with PHC impacts and as such are not discussed separately.

AEC 2 Main Showing

Metal impacted soils were identified across AEC 2 (see Figure A.3.3). For the purpose of remediation only the un-vegetated areas are being consolidated into trenches and only to the capacity of the trenches (after the ore and waste rock and leaving space for the cap). The approximate volume of metal impacted soil in AEC 2 is over 5000 m^3 however, from a practical standpoint, the remedial limitation is expected to be the volume of the trenches.

Petroleum Hydrocarbon (PHC) impacted soils

AEC 1 Camp Area

Petroleum Hydrocarbon impacted soils were identified in five discrete locations within the Camp Area (see Figure A.3.2). For the purpose of remediation the PAH impacted soils in the burn pits are treated in the same way as PHC impacted soils. The total estimated volume of these soils within AEC 1 is 71 m^3.

AEC 2 Main Showing

Stained soil in a bedrock depression was identified in AEC 2 (see Figure A.3.3). The estimated volume of PHC impacted soil in AEC 2 is <0.1 m^3.

AEC 5 Upland Pond Showing

Stained soil in a bedrock depression was identified in AEC 5 (see Figure A.3.3). The estimated volume of PHC impacted soil in AEC 5 is <1 m^3.

Debris

Small amounts of debris were found across AEC 1, 2, 3 and 5 (see Figures A.3.2 and A.3.3). The nature and locations of the debris are summarized in Table A.3.2

Table A.3.2 Non Hazardous Debris Volumes

AEC	Site Feature	Item	Volume (m^3)			
			Wood	Metal[1]	Concrete	Total
1	Debris	Miscellaneous waste debris.	<1	<1	<1	<1
	Camp Structures	Plywood and stud framed structures.	10	2	<1	12
	Total					12
2	Minor Drill Waste	Minor Timber crib and scrap metal associated with drilling work.	<1	<1	---	<1
	Drums	2 Empty Drums.	---	<0.5	---	<0.5
	Total					<1.5
3	Drums	2 Empty Drums.	---	<0.5	---	<0.5
	Total					<0.5
5	Scrap Wood and Piping	Scrap plywood and water line piping.	---	<1	<1	<1
	Drums	5 large and one small empty drums.	---	<1	---	<1
	Total					<1
Grand Total			**<11**	**<3**	**<1**	**<15**

1. Crushed volume is presented for metal debris.

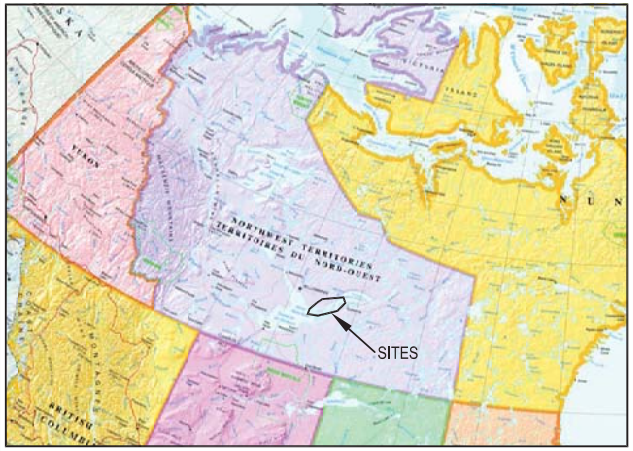
Hazardous Materials

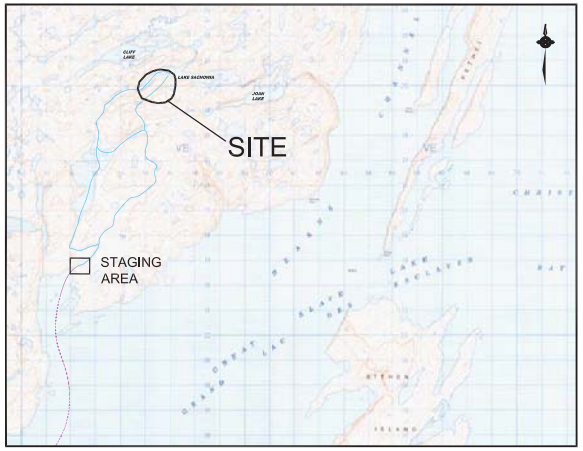
AEC 1 Camp Area

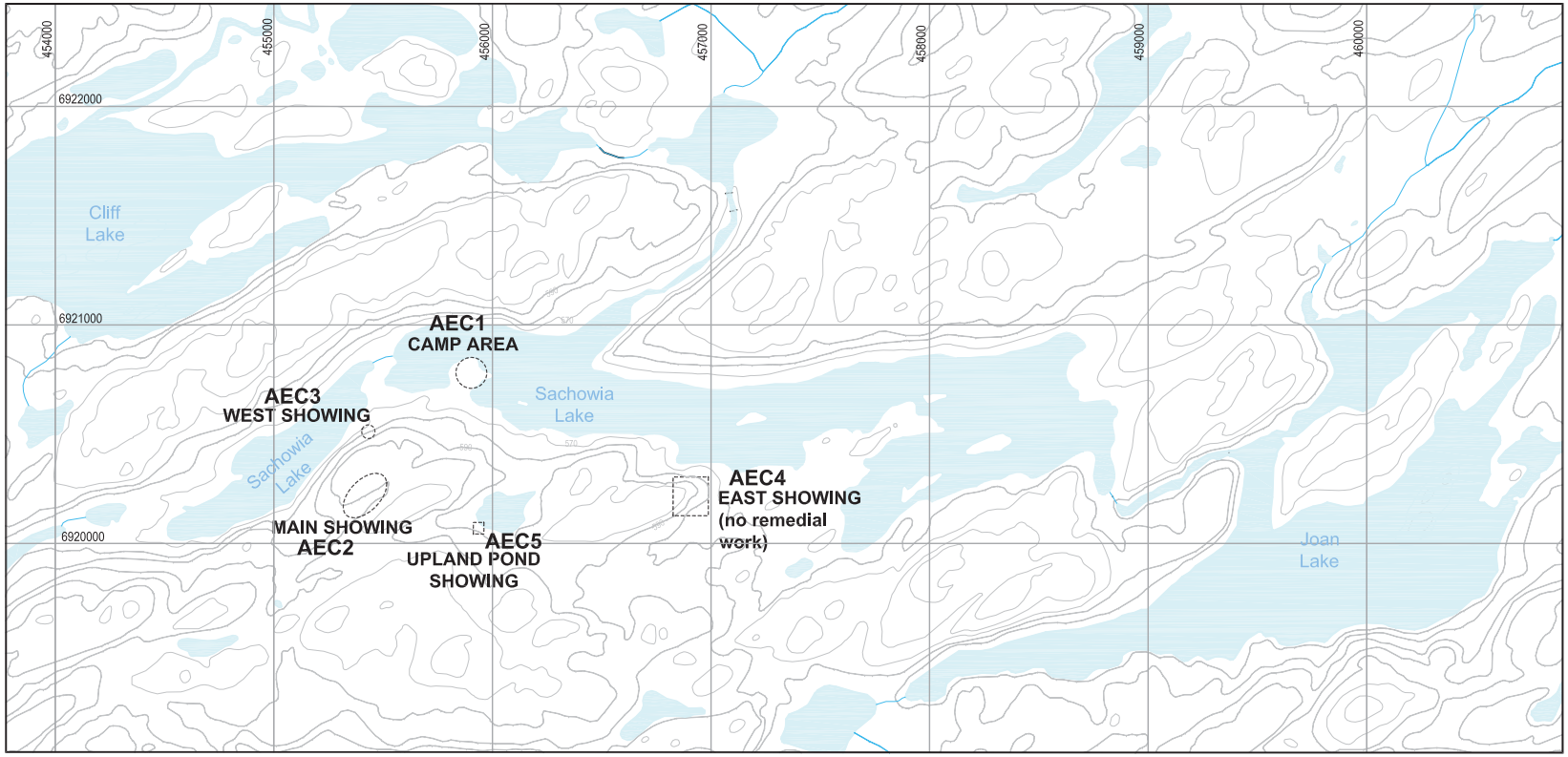
Two forms of hazardous material were identified in AEC 1 (see Figure A.3.2). Seven relatively new unopened drums containing clean fuel are present in one of the camp tents (3 are heating oil, 3 diesel and 1 gasoline). The total estimated volume of these drums is 1,435 L. Twelve older drums contain dirty fuel and water mixtures with an estimated total volume of 1,635 L.

AEC 2 Main Showing

Five blasting caps were identified in the lay down area below Trench # 2 in AEC 2 (see Figure A.3.3).







LEGEND:

BARGE ROUTE

WINTER ROAD

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 12

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 75/L/5

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

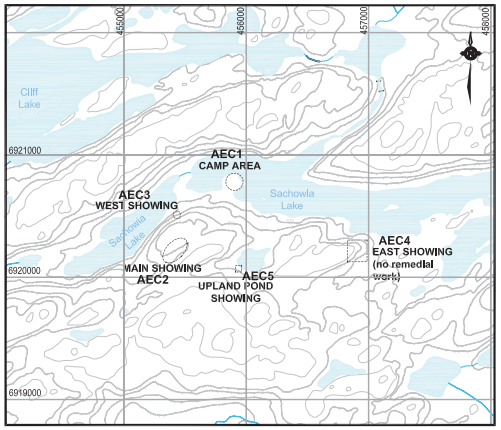
SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
COPPER PASS MINE SITE

SITE LOCATION PLAN

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: AS SHOWN	Drawing No: A.3.1

Mar 26, 2014 – 5:20pm – USER pflemming
Z:\350000 Series\350600-207 Space\FOR DAMIEN\350600-205 Copper Pass A3.dwg



KEY PLAN
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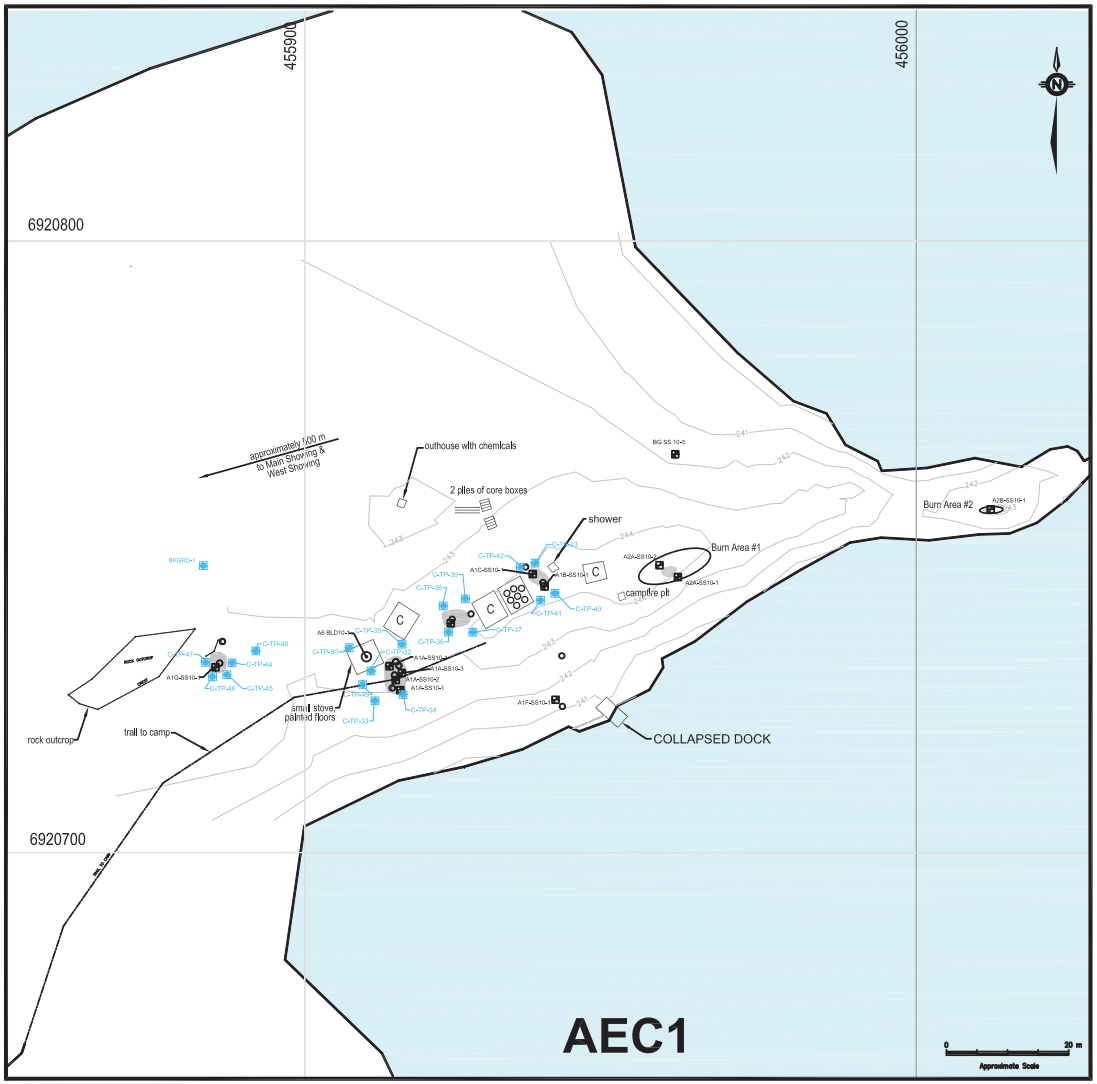


CAMP AREA
Scale 1:800

LEGEND:

- WETLAND
- TALUS
- WASTE ROCK
- C — COLLAPSED BUILDINGS
- DRUMS
- TENT FRAME
- C-TP-42 — SOIL SAMPLE SENES 2012
- A1C-SS10-1 — SOIL SAMPLE SENES 2010
- AREA OF PHC CONTAMINATION

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 12

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 75/L/5

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

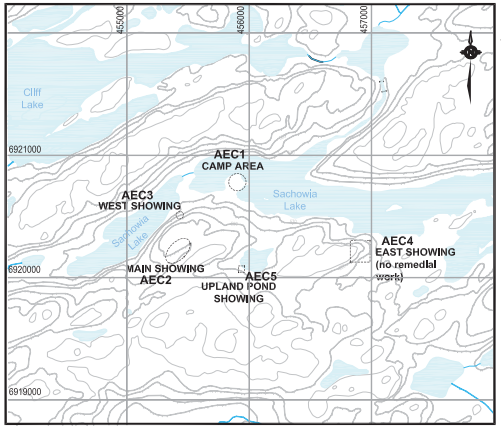
SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
COPPER PASS MINE SITE

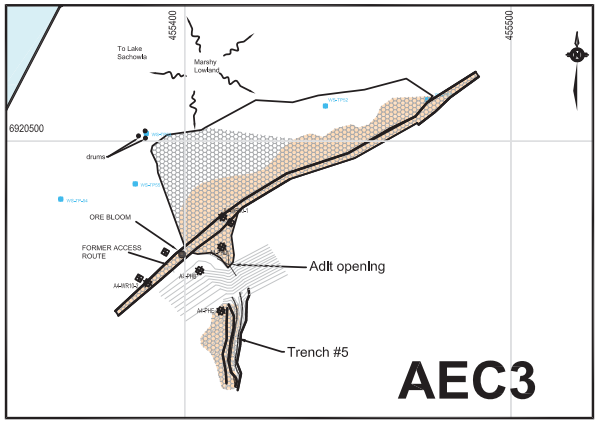
EXISTING FEATURE PLAN

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: AS SHOWN	Drawing No: A.3.2

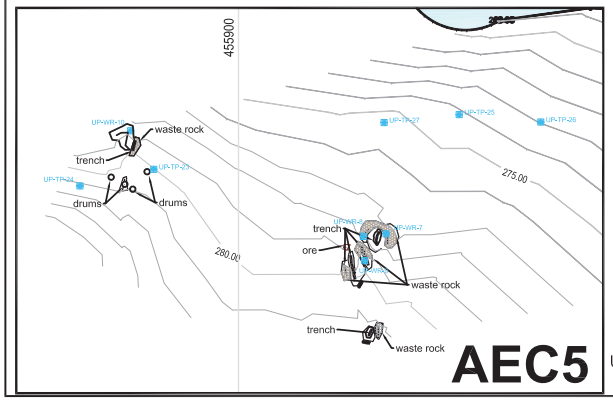
Mar 26, 2014 – 5:28pm – USER pflemming
Z:\350000 Series\350600-207 Space\FOR DAMIEN\350600-205 Copper Pass A3.dwg



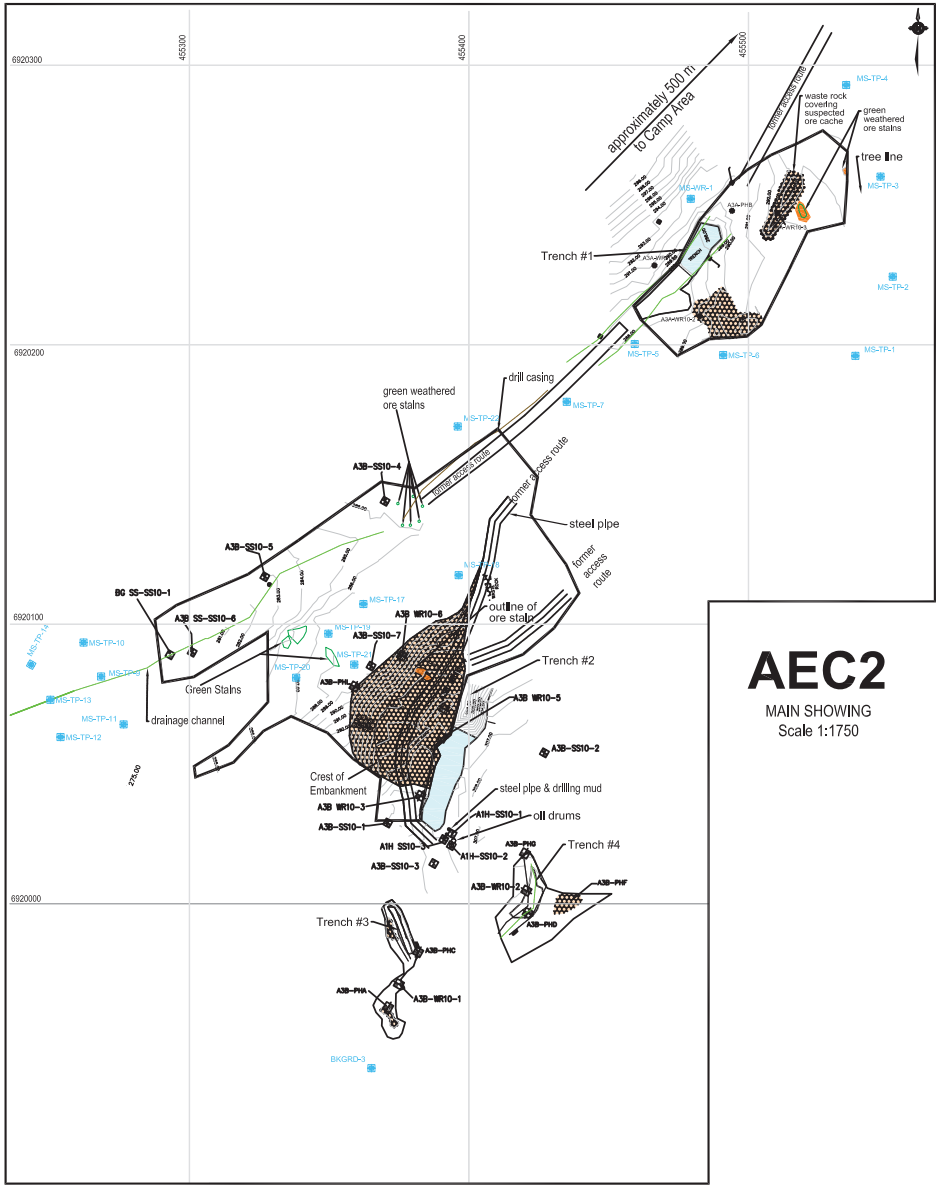
KEY PLAN
Scale 1:40,000



WEST SHOWING
Scale 1:1250



UPLAND POND SHOWING
Scale 1:1000



MAIN SHOWING
Scale 1:1750

LEGEND:

- WETLAND
- TALUS
- WASTE ROCK
- COLLAPSED BUILDINGS
- DRUMS
- TENT FRAME
- C-TP-42 SOIL SAMPLE SENES 2012
- A1C-SS10-1 SOIL SAMPLE SENES 2010

FOR INFORMATION PURPOSES ONLY

NOTES:

All elevations in metres (m)
Coordinates displayed as UTM Zone 12

Sources:
1. JLC Geomatique, 2009 - 2m Topographic Survey
2. Sub-Artic Surveys - 09-064-FE-01 & 09-064-FE-02
3. NTS 1:50,000 Mapsheet 75/L/5

REVISIONS:

No.	Date:	By:	Revisions

REFERENCE:

1. Columbia Environmental Project No. 09-0338, Phase III ESA October 30, 2009
2. SENES/FRANZ Project No 350047-201, Phase IIIA ESA, March 2011

SENES Consultants
AN ARCADIS COMPANY

GREAT SLAVE LAKE MINE SITES
REMEDIATION PROJECT
COPPER PASS MINE SITE

EXISTING FEATURE PLAN

Drawn By: J.S.	Approved By: C.G.	Project No: 350600-207
Date: FEBRUARY 2014	Scale: AS SHOWN	Drawing No: A.3.3

Mar 26, 2014 – 5:29pm – USER pflemming
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APPENDIX B

MINE OPENINGS

APPENDIX B.1

MINE OPENINGS

OUTPOST ISLAND MINE

Appendix B.1

Mine Openings – Outpost Island Mine

The following document is a shaft inspection report at the Outpost Island Mine site performed by SRK under contract to DCS in October 2010.

SRK Consulting
Engineers and Scientists

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October 18, 2010

SENES Ref: 350047-201
SRK Project: 1CS019.015

SENES Consultants Limited
121 Granton Drive, Unit 12
Richmond Hill, ON L4B 3N4

Attention: Charles Gravelle, P.Eng.

Dear Charles:

Re: Outpost Island Site - Shaft Inspection Report

1. Introduction

SRK was contracted by DCS to undertake a site inspection of the mine openings to surface at the Outpost Island mine and to make recommendations for remediation. This report is a record of observations, interpretations and suggested closure methods for the openings. The site inspection was made on July 4, 2010 accompanied by DCS and other personnel conducting land and water studies.

There are no as built survey drawings available for the surface or underground mine workings, however the report Outpost Island, Producer (Remediated) by Ryan Silke (2009) provides historical and anecdotal information. Other information and reports about the mine are available through the NWT Geoscience Office and the Prince of Wales Northern Heritage Centre, however they do not have any additional information relating to mine workings or openings to surface.

A plaque at the mine site says that the site was restored by the Arctic Environmental Strategy in 1994. The concrete shaft cap at No.2 Shaft has several people's names and "Métis Nation '94" written into the concrete indicating that the Métis were involved with this remedial work. A report of the work could not be located.

2. Site Description

Historical mining operations at the Hidden Lake mine are depicted in Figure 3 of Silke's report which has sketches of the surface layout and a longitudinal view of the workings at two shafts. The figure has been duplicated in this report for reference. Mine openings to surface are best seen in the longitudinal view. The longitudinal indicates that there are two shafts, No.1 and No.2, and two raises associated with the

underground mine workings at No.1 Shaft, the Orepass Raise and an unnamed raise just left of the shaft. There is also the possibility of a third raise to the right of No.1 Shaft in the No.2 Ore Shoot if the internal raise shown actually extends from 150' Sublevel to surface.

3. Observations

For the purposes of this report the openings have been named from left to right in Figure 1 as:

- No.2 Shaft
- Orepass Raise
- Open Cut (not shown in Fig.1)
- Main Raise
- No.1 Shaft
- Stope Raise

The six areas were inspected to determine general conditions, bedrock conditions and options for closure.

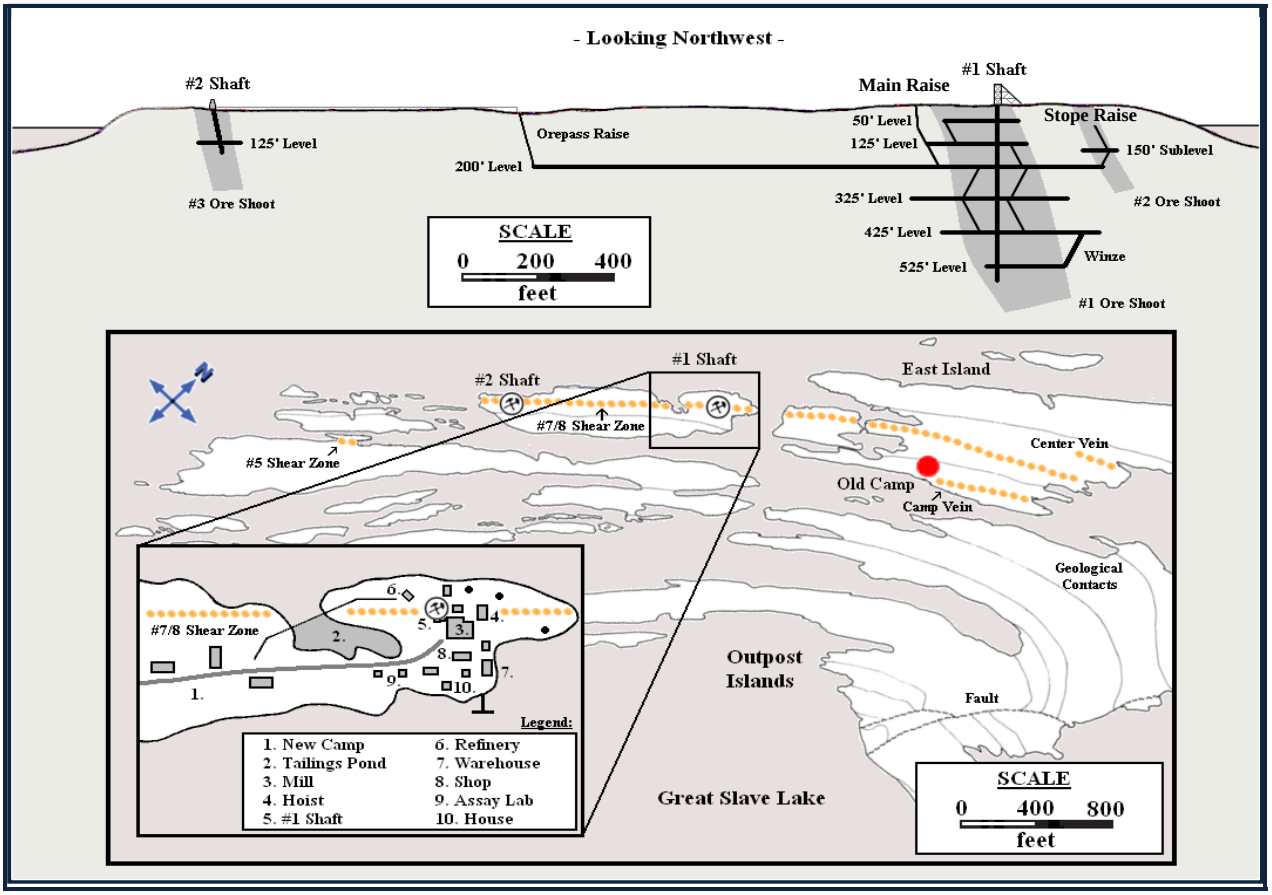


Figure 1. Outpost Islands Plan, Mine Site Layout and Underground Workings (Silke 2009).

2.1 No.2 Shaft

A concrete slab was installed over No.2 Shaft in 1994. Rockfill at one corner of the slab appears to have subsided into the shaft creating an opening large enough for people to enter (Fig.2). There was a pipe on surface that went into the shaft and additional shaft furnishings could be seen inside the shaft. Visual inspection deep inside the shaft was not made due to lack of sufficient light.

Reports and Figure 2 indicate that No.2 Shaft is steeply inclined and that the No.2 Shaft mine workings are not connected to the No.1 Shaft workings. Material hoisted from the No.2 Shaft was reported to be transported via aerial tramline to the Orepass Raise.

The existing 2.0 m x 2.7 m concrete slab is insufficient as a shaft cap due to substandard construction and deterioration (inset photo in Fig.2). Closure of No.2 Shaft would be by installation of a standard concrete shaft cap. Preparation would require removing the existing cap and removing the rockfill around the shaft to expose the bedrock so placement of the new cap could be planned. The rockfill could be placed inside the shaft. Backfilling the shaft may not be an option for two reasons. There may not be enough rockfill locally available. Assuming the shaft is 1.8 m x 2.5 m and 42 m (125 ft) deep, approximately 185 CM (300 yd^3) of fill would be required. Inspection of the shaft would indicate how much fill would be required. Regardless, backfilling is not a desirable option for closure. Complete filling of the shaft may not be possible with pipes and unknown obstructions in the shaft which could result in settlement of the fill.

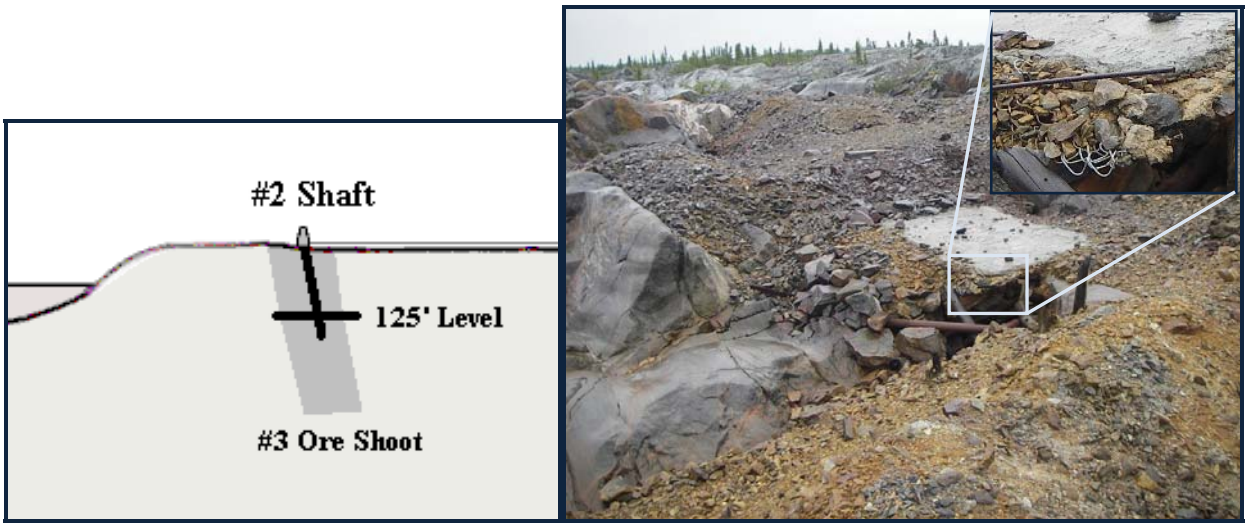


Figure 2. No.2 Shaft Longitudinal View (left); concrete slab over shaft (right).

The concrete cover at No.2 Shaft has deteriorated to the extent that access into the shaft is possible. As well, the concrete cover is deficient in construction compared with current best practice for concrete shaft caps. The thickness and steel reinforcing are not acceptable and there is no pinning to bedrock as required by regulation. The ground conditions at the No.2 Shaft are competent enough for installation of a concrete cap. The decision whether to install an above ground cap or interior cap would be made after the bedrock topography has been exposed to see which would be more practical to construct.

2.2 Orepass Raise

The Orepass Raise was located in the ore vein at surface and had a concrete cap (Fig.3). The cap measured 1.4 m along the strike of the vein and 1.3 m wide. It would be possible to test the concrete and determine the thickness and reinforcement of the cap to determine whether it conforms to standard design. However, if the quality is similar to the concrete slab at No.2 Shaft, a new cap would be needed.

Installing a new cap over top of the existing cap would be a relatively easy construction job once the equipment and materials were brought to the site. Like the No.2 Shaft area, there is no road access. This

work could be coordinated with the cap installation at No.2 Shaft. The rock around the Orepass Raise is sufficiently competent to support a standard concrete raise cap.

As an aside, remnant nails and spalled rock surfaces were noticed at intervals along the alignment between No.2 Shaft and the Orepass Raise where possible tramline supports were located and had burned down. Fire would have caused the spalling.

Figure 3. Section through Orepass Raise (left); photo of concrete cap (right).

2.3 Open Cut

The Open Cut is close to vthe No.1 Shaft area and was located in an ore vein. It had competent rock walls and appeared to have had rock fill placed in it. There is a square notch on the high wall which was likely used to secure a squared timber as a support structure for an unknown purpose (Fig.4). The end toward the No.1 Shaft was obscured by rockfill, which was spread over the whole mill and shaft area (Fig.5). The question needs to be asked about whether the cut was completely rockfilled during the 1994 remediation work and has since subsided. If this were the case, then it is conceivable that stoping in the No.1 Ore Shoot extended into the Open Cut.

The depth to water in the cut was approximately 3 m below the top of the lower wall. The maximum depth of water was 2 m. The cut diminishes in size as it extends toward Great Slave Lake. Below the rockfill, the true depth of the Open Cut is unknown. As mentioned above, the cut could be the breakthrough at surface of a mining excavation in the No.1 Ore Shoot, or it could simply be a deep trench.

The Open Cut had pipes terminating at the rockfill slope where there appeared to be the entrance to a tunnel. The rock bolts in the close-up photograph in Figure 5 suggest there was a service tunnel, or travelway of sorts, heading in the direction of the shaft. A tunnel near surface is common means of having a protected, accessible conduit for pipelines and electrical power cables.

For closure, the Open Cut should be rockfilled and fenced off in case the fill subsides. The fence could be installed at a conservatively far distance from the cut if the bedrock topography beside the cut were not determined. Alternatively, the bedrock perimeter of the cut could be exposed in order to determine the appropriate setback for the fence. A minimum guideline for location of the fence would be a slope of 3:1 back from a relatively flat bedrock surface at the edge of the Open Cut plus an additional 2 m. Since the extent and condition of the tunnel is not known, and whether the tunnel could collapse, the fencing should be extended to the No.1 Shaft area.

Figure 4. Looking into the Open Cut from the rockfilled end.

Figure 5. Detail of the rockfilled end of the Open Cut could be evidence of a service tunnel.

2.4 Main Raise

The Main Raise was not visible in the Open Cut and there was no evidence of a raise in or near the Open Cut between the location of the photographs in Figures 4 and 5 and the water where the cut ended at the lake. The Main Raise could be at or near the rockfilled end of the Open Cut or anywhere in the bottom of the cut. The pipes seen at one end of the cut could have been service lines connected to the Main Raise.

Investigation of the Main Raise to determine location, conditions and possible direct closure method would require access to the Open Cut and the apparent tunnel, which would be costly and impractical. Fencing would be an appropriate closure method and would be installed in conjunction with fencing recommended for the Open Cut and No.1 Shaft.

2.5 No.1 Shaft

No.1 Shaft was not visible and its precise location was unknown. The placement of rockfill over the entire mill, shaft and Main Raise area has obscured building foundations which may have been used to determine its location.

The shaft hoist was on its foundation and would have been facing directly towards the shaft. Walking back and forth along this alignment did not provide any clues to the location of the shaft (Fig.6).

A general idea of the shaft location would be possible from historical photos, using the hoistroom and hoist ropes as references. The photo on the right hand side of Figure 8 shows the hoist ropes sloping back from the top of the headframe toward the hoist. This is an indication of the distance from the hoist to the shaft. None of the photos had a perspective, or point of view, where the location of the shaft could be accurately inferred. The location of No.1 Shaft can only be roughly estimated from the photographs.

A group of pipes was noticed under the trees in front of the hoist. Two exploratory holes were dug by hand a few metres past the trees and toward the Open Cut. The pipes were found buried about 0.3 m deep under a wooden cover thought to be the top of a pipe box. The pipes may have extended to No.1 Shaft and further to the Open Cut and Main Raise.

In the absence of further information it is recommended to extend the fencing from the Open Cut area to take in the possible location of No.1 Shaft. The same guideline for locating the fence as described for the Open Cut should be used for the shaft with a conservative offset beyond the possible shaft location toward the hoist for contingency.

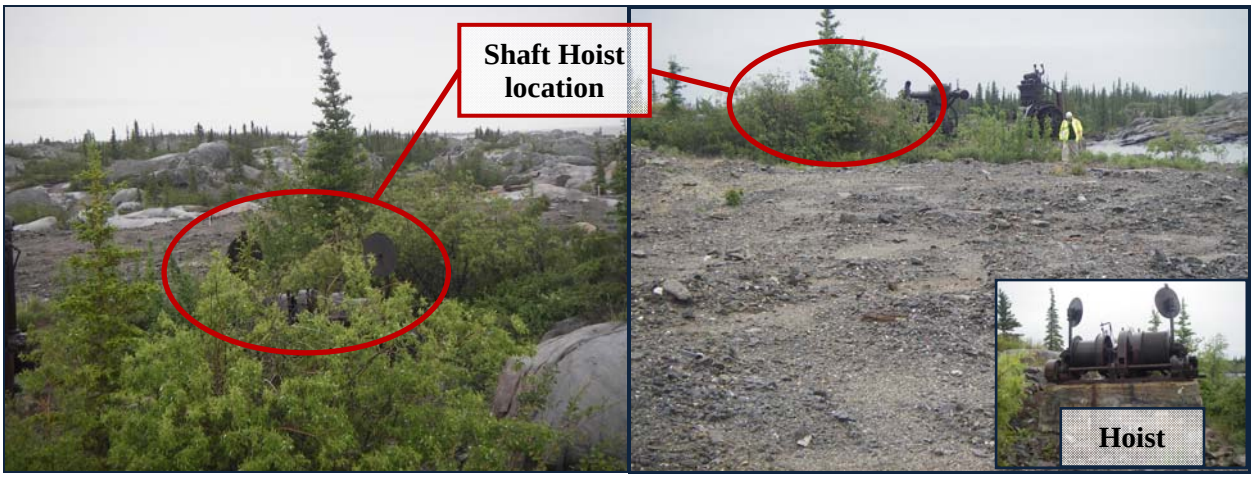


Figure 6. Looking over the hoist toward the Open Cut (left); looking back toward the hoist (right); note tall tree in both photos for reference.

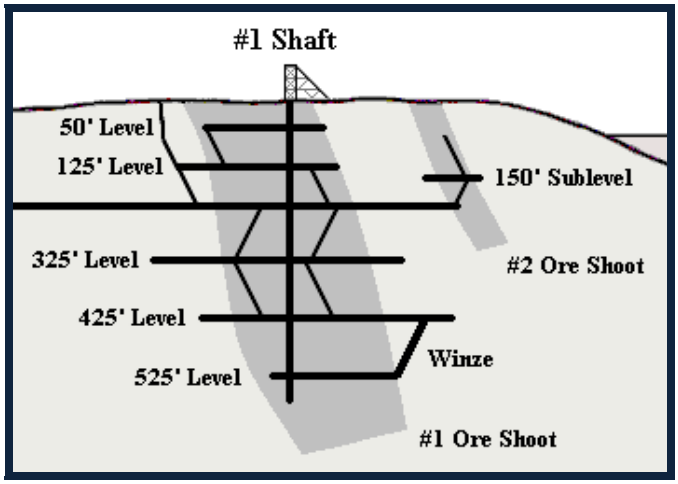


Figure 7. No.1 Shaft Longitudinal Section Looking Northeast (Silke)

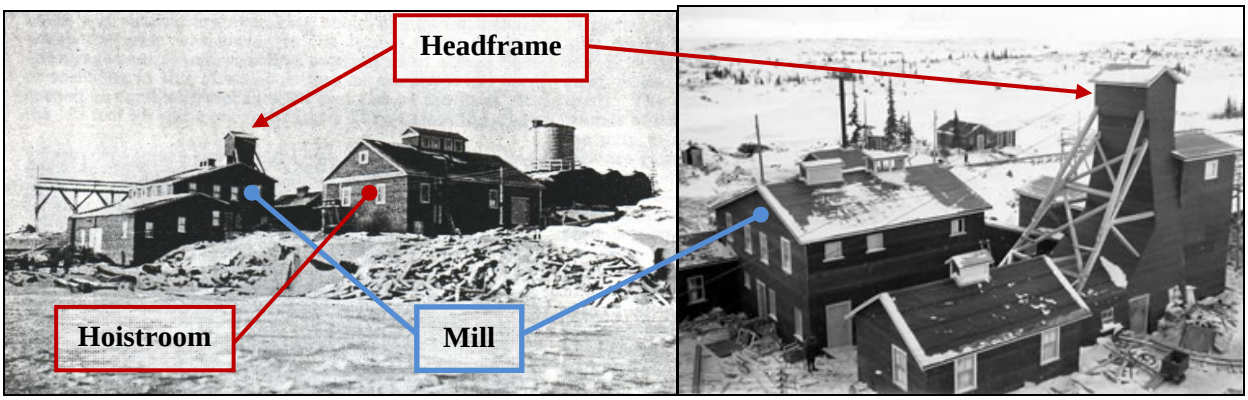


Figure 8. Photographs of historical buildings in No.1 Shaft area.

2.6 Stope Raise

The Stope Raise above the 150' Sublevel shown on the right side of Figure 7 may have extended to surface. There is evidence of a possible raise in the ore vein in the area of the No.2 Ore Shoot. The vein had been trenched on surface to different depths. In the area of a possible extension of the Stope Raise to surface, there were two small pits in the floor of the trench, one deeper than the other. The shallower pit had a solid rock bottom visible through rockfill while the other was rockfilled and the bottom not seen (Fig.9).

Figure 9. Possible surface breakthrough location of the Stope Raise.

The deeper pit may be the top of the Stope Raise. It had remnant nails around the opening which were evidence of a wooden structure, as with the tramline support structures between No.2 Shaft and the Orepass Raise. The piece of ladder rail at one side of the pit may or may not be evidence of a manway ladder in the raise.

To determine whether or not the pit is actually the top of the Stope Raise, enough rockfill will need to be removed from to determine whether it extends to depth or is truly only a pit in the trench floor with a solid bottom.

The water would need to be removed so the rock chunks can be taken out by hand. Precautions for working around an open hole will need to be taken. If a raise is found, a standard concrete raise cap would be the appropriate closure option. As with other locations, there is no question about the competency of the ground to support the cap.

4. Recommendations

The closure methods are not straightforward as location of some openings was unknown. The recommended action going forward for each location is in Table 1. At all locations where a concrete cap would be installed, the rock conditions were characterized by competent rock with some schist showing in the ore vein. Care would need to be taken to avoid the schistose zones when drilling for the pins.

Prefabricated components may not be practical as shaft and raise caps due to the weight to transport to the site. As well, the areas where they would be used would need a concrete base constructed. Once set up for placing concrete, it may be easier to continue on with the concrete batching to construct the entire structure.

Table 1. Recommended Actions

Location	Closure Method	Comments
No.2 Shaft	Replace the existing concrete slab with a standard concrete cap.	Preparation work would be required to assess whether an above ground cap or interior cap would be more practical to install.
Orepass Raise	Install a replacement cap over top of the existing cap.	Coordinate the installation with No.2 Shaft cap.
Open Cut / Main Raise / No.1 Shaft	Fill the Open Cut with local rockfill and install a perimeter fence around the cut and possible shaft location.	Due to the unknowns - location of the Main Raise, depth of Open Cut and location of No.1 Shaft - the fence should enclose the entire area.
Stope Raise	None if the pit has a solid bottom, otherwise install a concrete cap.	Investigate the deeper pit in the exploration trench to determine whether or not it has a solid bottom.

5. Conclusion

Closure options for the mine openings to surface at the Outpost Island mine were not always obvious or straightforward. Only two of the possible six openings had sufficient information on which to base a normal closure recommendation. They were the No.2 Shaft and the Orepass Raise. The existing concrete structures at both locations were inadequate and standard concrete caps are to be installed.

The three openings in the No.1 Shaft area were grouped together under one closure scheme. The Open Cut is to be backfilled and a fence installed to encompass the Main Raise, Open Cut and No.1 Shaft.

It was uncertain whether a pit in the floor of an exploration was the top of the Stope Raise. At this location, a recommendation was made to excavate enough rock from the pit to determine whether it is a raise or a pit so that a decision could be made about whether a concrete cap were needed.

The assessment is thought to be realistic and reasonable for the conditions and purpose at the site. The closure methods recommended will require detailed engineering for construction. As a follow-up to construction, inspecting the completed work on a regular basis is recommended.

Yours truly,

SRK Consulting (Canada) Inc.

Daniel Hewitt, P.Eng.
Pincipal Consultant

APPENDIX B.2

MINE OPENINGS

BLANCHET ISLAND MINE

Appendix B.2

Mine Openings – Blanchet Island Mine

The Blanchet Island Mine site comprises one mine opening, an adit, located near the top of the escarpment approximately 1.5 kilometers east of the Beach Area. This is the only mine opening in the area. There is a small depression immediately east of the adit opening, however, it does not appear to have been mined.

Due to concerns with the stability of the wood frame structure at the entrance of the adit and the condition of the headwall over the adit, field staff did not access the mine opening. The adit was inspected from the sides of the opening where a slot was cut into the escarpment along the mineralized vein.

The orientation of the adit is roughly north-south, with dimensions at the entrance of approximately 1.4 m wide by 1.6 m in height. The length of the entrance to the adit is approximately 7 m from the front face of the escarpment. Beyond the opening the adit appears to be larger but this was not confirmed (due to health and safety concerns).

In general, the bedrock along the headwall of the adit appears to be in stable condition. The sidewalls in the vicinity of the entrance show some evidence of frost action and cracking due to blasting. However, the bedrock appears to be stable with some minor scaling required to remove loose rock.

Access to the adit is difficult as there is no direct access route up the escarpment to the mine opening. Due to the restricted access to the mine opening and its location on the escarpment, the adit is considered to be a minor physical hazard. Notwithstanding the restricted access to the mine opening, there is no formal seal on the mine opening and the current condition of the adit does not meet the GNWT standards for a mine closure.

Photographs of the adit are provided below.

Photo 1: Aerial view of mine opening.

Photo 2: Mine opening as seen from top of slope.

Photo 3: Rock face above mine opening.

Photo 4: View at entrance of cut into mine opening.

Photo 5: View into mine opening.

APPENDIX B.3

MINE OPENINGS

COPPER PASS MINE

Appendix B.3

Mine Openings – Copper Pass Mine

There are two types of trenches on site; 1) the main mine trenches (Trenches #1 and #2); and 2) the smaller exploration trenches (Trenches #3 and #4 at the Main Showing, #5 at the West Showing and #6 at the East Showing as well as exploration trenches/pits at the Upland Pond Showing). Only the main mine trenches are subject to remediation.

The two main trenches are large (over 5,000 m^3 in combined volume), and partially filled with water. Trench #1 measures approximately 20 m long, 8 m wide and up to 10 m deep, while Trench #2 measures approximately 50 m long, 7.5 m wide and between 9 and 15 m deep. The exposed side cuts within the trenches are relatively sound save for areas were heavily oxidized rock has weathered and weakened. On the basis of the information collected during the Phase III ESA, the depth of water in Trench #1 was on the order of 8 m while in Trench #2 it was approximately 6 m at its deepest point.

Photographs of the trenches in the Main Showing are provided below.

Photo 1: Aerial view of the Main Showing with Trenches #1 (middle) and #2 (top right).

Photo 2: Trench 1 at Main Showing looking South (2010).

Photo 3: Trench 1 at Main Showing, looking west (2010).

Photo 4: Trench 1 at Main Showing, looking South (2012).

Photo 5: Trench 2 at Main Showing, looking South (2012).

Photo 6: Trench 2 at Main Showing, wider view, looking South (2010).

Photo 7: Trench 2 at Main Showing, from top of wall, looking North (2012).

APPENDIX C

SITE PHOTOGRAPHS

APPENDIX C.1

SITE PHOTOGRAPHS

OUTPOST ISLAND MINE

PHOTOGRAPHIC RECORD

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 1

Date: 7/5/2010

Direction Photo taken:
west

Description:
East end of the West Island of the Outpost Island. The main mine workings were on this part of the island. Near ground is where the mill and #1 shaft/main raise were located. Dock is evident and waste rock/tailings stockpile are toward the center of the photo.

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 2

Date: 7/5/2010

Direction Photo taken:
north

Description:
East end of the West Island were tailings and waste rock were deposited adjacent former mine workings

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 3		
Date: 7/4/2010		
Direction Photo taken: Overtop		
Description: West end of the West Island overtop the #2 shaft. The shaft is located immediately adjacent the waste rock pit located on the center-right side of the photo.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 4		
Date: 7/4/2010		
Direction Photo taken: southwest		
Description: East Island with exploration trenches on the interior portion of island and the eastern limit. The trenches are identified by their orange like colour on the lower half of the photo.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 5		
Date: 7/4/2010		
Direction Photo taken: west		
Description: Exploration trenches at the eastern limit of East Island. Trenches align with mine workings on West Island.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 6		
Date: 7/5/2010		
Direction Photo taken: northeast		
Description: South Island near where background sampling locations were collected. West Island and East Island are located at the top left hand corner of photo.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 7		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: Photo from the plane, background sampling locations from around islands located southeast of Outpost Island.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 8		
Date: 7/6/2010		
Direction Photo taken: west		
Description: Location of Aquatic Background Station BG-1 (from boat). Shore is the east side of the eastern islands further south east from Outpost Island.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 9		
Date: 7/5/2010		
Direction Photo taken: south		
Description: Remnant mill equipment at the mine site.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 10		
Date: 7/5/2010		
Direction Photo taken: southwest		
Description: Remnant Mill Equipment at mine site.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 11		
Date: 7/4/2010		
Direction Photo taken: northeast		
Description: Remnant Mill Equipment. Former fuel storage area located at the right hand side of photo.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 12		
Date: 7/4/2010		
Direction Photo taken: south to southwest		
Description: Former wharfage on West Island. Minimal cribbing remains except at the portion of the dock that extends into South Bay which is entirely of crib construction.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 13

Date: 7/4/2010

Direction Photo taken:
north

Description:
Dock area looking back towards the former mill area. Waste rock is located in the near ground and to the left side of the photo where there the bedrock outcrop becomes buried in tailings and waste rock.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 14

Date: 7/5/2010

Direction Photo taken:
due west

Description:
Small patch of tar on bedrock along the north shore at the northeast corner of the West Island.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 15

Date: 7/4/2010

Direction Photo taken:
north

Description:
Broken battery parts at the eastern limit of the West Island.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 16

Date: 7/5/2010

Direction Photo taken:
west towards former mill area

Description:
Exploration pits located due east of the Mill area along mineralized vein. Historical records suggest that a raise may have been located in the area. No raise was found.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 17

Date: 7/5/2010

Direction Photo taken:
south to southeast

Description:
North Bay immediately west of the tailings and waste rock stockpile and near the access road to the western part of the West Island. Timber is wind-blown drift wood. Tailings are evident in the near ground.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 18

Date: 7/5/2010

Direction Photo taken:
south to south east from west side of North Bay

Description:
North Bay in the near ground and South Bay in the far ground. Waste rock and tailings stockpile evident on the center left side of photo and access road evident mid-line of the photo.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 19

Date: 7/5/2010

Direction Photo taken:
north from access road to Shaft #2

Description:
Waste rock and tailings stockpile with main raise feature located mid-line left side of photo.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 20

Date: 7/4/2010

Direction Photo taken:
west

Description:
Tailings and waste rock north west corner of the stockpile near the Main Raise. The waste rock and tailings in this area is a relatively shallow cover (< 1 to 2 m) over the bedrock.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 21		
Date: 7/6/2010		
Direction Photo taken: northeast		
Description: Waste rock and tailings stockpile from the west inside of North Bay. Access road is in the near ground. The main raise is located at the left center part of the photo. Mill equipment is in the background to the right side of the photo.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 22		
Date: 7/4/2010		
Direction Photo taken: east at Main Raise		
Description: Waste rock stockpile with main raise located on the left side of photo.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 23

Date: 7/4/2010

Direction Photo taken:
northwest

Description: Top of the waste rock stockpile in close proximity to the #1 shaft location and approximately 30 m east of the main raise.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 24

Date: 7/4/2010

Direction Photo taken:
east at #1 Shaft area

Description:
Top of waste rock stockpile with the #1 shaft located near the interface between the waste rock and vegetation close to the former mill equipment. South Bay in the background.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 25		
Date: 7/4/2010		
Direction Photo taken: east		
Description: Main Raise – exposed bedrock on the north face, bedrock on the south and west face with some waste rock evident and the east face is filled in with waste rock however there is evidence of timber shoring near the water line suggesting a drift was mined out towards the #1 shaft located approximately 30 m east.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 26		
Date: 7/4/2010		
Direction Photo taken: east at Main Raise		
Description: Garbage present within the waste rock and tailings used to bury the main raise. Water in the trench is approximately 1.8 m deep and the timber shoring is evident at the water line.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 27

Date: 7/4/2010

Direction Photo taken:
southeast

Description:
Former Assay Building. Tailings over bedrock in near ground with waste rock used for leveling of the concrete slab used for the assay building.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 28

Date: 7/4/2010

Direction Photo taken:
northeast

Description:
Former manager's cabin location where there is evidence of vegetation kill on the south side of access road. Also evident is the access road from the cookhouse to the main mine site.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 29		
Date: 7/5/2010		
Direction Photo taken: east		
Description: Access road made primarily of waste rock with kill zone adjacent the road. Tailings and dock area in the background.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 30		
Date: 7/4/2010		
Direction Photo taken: west		
Description: Down gradient of Manager's Cabin where run off from a kill area adjacent the access road enters South Bay. Note the steel drum at bedrock face on left hand side of photo.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 31		
Date: 7/6/2010		
Direction Photo taken: north to northeast		
Description: View from former cook house areas looking back towards North Bay.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 32		
Date: 7/6/2010		
Direction Photo taken: north		
Description: Ore raise is located in center of photo with blast rock sloping to marshy area. Blast trench also located east (to the right) of the ore raise.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 33		
Date: 7/4/2010		
Direction Photo taken: east		
Description: Inspector standing on ore raise cap. Water on cap is due to rain.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 34		
Date: 7/6/2010		
Direction Photo taken: west		
Description: Typical residual where wood cribs were located. The cribs supported an overhead conveyance system between the #2 shaft and the ore raise. Minor scape metal brackets and nails were evident.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 35		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: Bedrock with waste rock stockpiled on north side (right side) of bedrock feature.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 36		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: Waste rock at the #2 Shaft. Inspector standing at the #2 Shaft.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 37

Date: 7/4/2010

Direction Photo taken:
due east

Description:
The #2 shaft located at the east end of the West Island. Photo taken from within waste rock excavation due west of the shaft.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 38

Date: 7/4/2010

Direction Photo taken:
southeast

Description:
Large void in the shaft seal. The northwest corner of the concrete cap is unsupported. The cap does not meet today's mine closure requirements.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 39		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: Shallow excavations in the bedrock immediately west of the #2 Shaft.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 40		
Date: 7/5/2010		
Direction Photo taken: north		
Description: Approach to Exploration Trenches at the southeast corner of East Island. Trenches are located in the center and left side of photo.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 41		
Date: 7/5/2010		
Direction Photo taken: due north		
Description: One of the trenches at the east end of East Island. No waste rock backfill however the walls are relatively stable.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 42		
Date: 7/5/2010		
Direction Photo taken: east to southeast		
Description: Exploration trenches at the south east corner of East Island. Some of the trenches are partially backfilled with waste rock.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 43		
Date: 7/5/2010		
Direction Photo taken: due west		
Description: Partially backfilled exploration trench at southeast corner of East Island.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 44		
Date: 7/5/2010		
Direction Photo taken: west		
Description: Exploration trench located in interior of East Island along mineralized vein. Trench is typical with waste rock located immediately adjacent the trench.		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 45

Date: 7/6/2010

Direction Photo taken:
south

Description:
Typical exploration trench located in the interior of East Island. See air photo for location.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 46

Date: 7/6/2010

Direction Photo taken:
east

Description:
Typical small scale exploration trenches located near former camp. Trenches are small typically less than 500 mm deep and located within 50 m of the former camp.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 47

Date: 7/6/2010

Direction Photo taken:
north to northwest

Description:
Outhouse structure located in area of former camp.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201

Photo No. 48

Date: 7/6/2010

Direction Photo taken:
south

Description:
Former camp area as viewed from the area of the outhouse.

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 49		
Date: 7/6/2010		
Direction Photo taken: north		
Description: Wood debris including a boat located at the west end of East Island		

Client: PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 50		
Date: 7/5/2010		
Direction Photo taken: north to northeast		
Description: Shoreline of East Island in area of former camp.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 51		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: Location of Aquatic Station 1 (in North Bay, downgradient of APEC 2 – Tailings Pile on the west island.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 52		
Date: 7/4/2010		
Direction Photo taken: east		
Description: APEC 2 – Tailings Pile on the west island, northeast of Aquatic Station 1, in North Bay.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 53		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: At location of Aquatic Station 4 (hip-waders) in South Bay. Vegetation growing in tailings.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 54		
Date: 7/4/2010		
Direction Photo taken: northwest		
Description: At location of Aquatic Station 5 (from boat) in South Bay. Mouth of bay (back left).		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 55		
Date: 7/5/2010		
Direction Photo taken: northwest		
Description: At location of Aquatic Station 10 (from boat) in East Bay.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 56		
Date: 7/5/2010		
Direction Photo taken: northwest		
Description: Sediment sample A8-SD10-10 in East Bay. Black tarry substance with sheen on surface.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 57		
Date: 7/5/2010		
Direction Photo taken: northwest		
Description: At location of Aquatic Station 12 (from boat) in East Bay.		

PWGSC/ INAC-CARD	OUTPOST ISLAND MINE	Project No. 350047-201
Photo No. 58 a, b, c, d	 a  b	
Date: 7/6/2010		
Direction Photo taken: n/a		
Description: Various vegetation and wildlife at Outpost.	 c  d	

APPENDIX C.2

SITE PHOTOGRAPHS

BLANCHET ISLAND MINE

FRANZ ENVIRONMENTAL INC.
CONSULTING • ENGINEERING • TECHNOLOGIES

AERIAL PHOTOGRAPHIC LOG

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 1	
Date 07/07/2010	
Direction N	
Description Beach and ridge near Camp	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 2	
Date 07/07/2009	
Direction S	
Description Beach and Camp Areas	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 3	
Date 07/07/2010	
Direction NW	
Description Overview of Adit and ridge	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 4	
Date 07/07/2009	
Direction N	
Description Adit and ridge at mine site	

FRANZ ENVIRONMENTAL INC.
CONSULTING • ENGINEERING • TECHNOLOGIES

AERIAL PHOTOGRAPHIC LOG

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 1	
Date 10/07/2010	
Direction NE	
Description Ore concentrate at Beach as viewed from Great Slave Lake (GSL)	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 2	
Date 10/07/2009	
Direction NE	
Description Shoreline at Beach and dock	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 3	
Date 10/07/2010	
Direction N	
Description View of Adit from GSL	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 4	
Date 10/07/2009	
Direction N	
Description Borrow beach and ore concentrate	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 5	
Date 07/07/2010	
Direction E	
Description Ridge at Adit looking eastward	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 6	
Date 07/07/2009	
Direction SW	
Description Ridge at Adit looking westward	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 7	
Date 07/07/2010	
Direction S	
Description Close up of adit from above	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 8	
Date 07/07/2009	
Direction E	
Description East wall of Adit	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 9	
Date 07/07/2010	
Direction N	
Description Adit from front face	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 10	
Date 07/07/2009	
Direction N	
Description Track from Adit with concentrate at top of pipe at mine site	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 11	
Date 07/07/2010	
Direction E	
Description Pipe and waste rock with concentrate	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 12	
Date 07/07/2009	
Direction N	
Description Adit and ridge at mine site (APEC 3)	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 13	
Date 07/07/2010	
Direction W	
Description Trailhead at mine site	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 14	
Date 07/07/2009	
Direction E	
Description Explosives shed near trailhead at mine site	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 15	
Date 07/07/2010	
Direction N	
Description Ore concentrate at Beach Area	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 16	
Date 07/07/2009	
Direction W	
Description Ore concentrate north part of beach APEC 1	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 17	
Date 07/07/2010	
Direction NW	
Description Ore concentrate at Beach south side APEC 1	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 18	
Date 07/07/2009	
Direction NE	
Description Close-up of ore concentrate at Beach APEC 1	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 19	
Date 10/07/2010	
Direction SE	
Description Ore concentrate at Camp Site APEC 2	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 20	
Date 07/07/2009	
Direction S	
Description East side of APEC 3 at mine site	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 21	
Date 07/07/2010	
Direction SW	
Description Access route to adit – west side of APEC 3	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 22	
Date 07/07/2009	
Direction N	
Description Ore concentrate and pipe at mine site (APEC3)	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 23	
Date 10/07/2010	
Direction NE	
Description Borrow at Beach	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 24	
Date 07/07/2009	
Direction Overview	
Description Close up of borrow at the beach	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 25	
Date 08/07/2010	
Direction SE	
Description Borrow at Beach looking south along shoreline	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 26	
Date 10/07/2009	
Direction N	
Description Borrow in from beach area north of Camp	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 27	
Date 07/07/2010	
Direction N	
Description Borrow at beach looking northward	

Phase IIIa ESA at Blanchet Island Mine Site, NT	350047-201
Photo ID 28	
Date 07/07/2009	
Direction NE	
Description Close up of beach borrow in from beach shoreline	

APPENDIX C.3

SITE PHOTOGRAPHS

COPPER PASS MINE

AERIAL PHOTOGRAPHIC RECORD

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 1

Date: 7/13/2010

Direction Photo taken: Northwest

Description:
Camp Area. Isthmus with Copper Pass Mine and temporary tent structures.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 2

Date: 7/14/2010

Direction Photo taken: Southeast

Description:
Main Showing, Trench 2 (APEC 3b) in background and Trench 5 in the foreground (APEC 4)

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 3

Date: 7/14/2010

Direction Photo taken:
East

Description:
West Showing, with Trench 5 (APEC 4), waste rock slope and start of adit.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 4

Date: 7/14/2010

Direction Photo taken:
North

Description:
Main Showing (APEC 3a and 3b) Trench 1 is water filled in the background and Trenches 2 to 4 are in the nearground.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 5

Date: 7/14/2010

Direction Photo taken: Northeast

Description:
Main Showing (APEC 3a) Trench 1.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

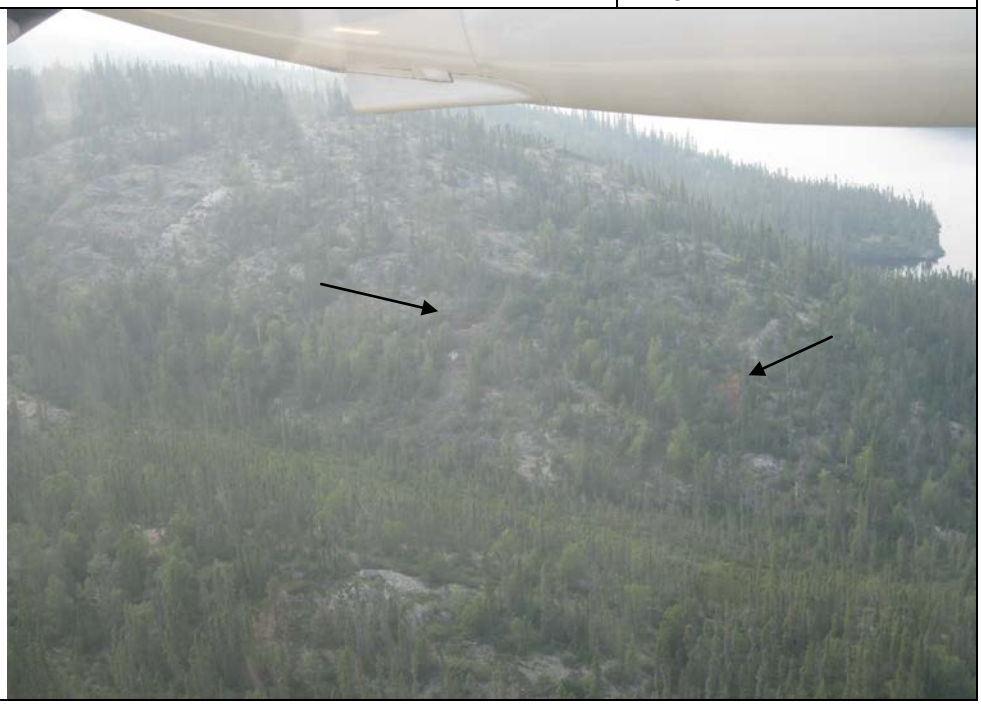
Photo No. 6

Date: 7/14/2010

Direction Photo taken: Northeast

Description:
Main Showing (APEC 3b) Trenches 2 to 4 with waste rock embankment and laydown area to the left of photo.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 7		
Date: 7/14/2010		
Direction Photo taken: Southwest		
Description: Access road that runs to the Main Showing past the East Showing which is located on the rock ridge on the right side of the photo.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 8		
Date: 7/15/2010		
Direction Photo taken: West		
Description: East Showing, Trench 6 (APEC 5) in center of photo in foreground, and area of oxidized bedrock to the right side of the photo.		

PHOTOGRAPHIC RECORD

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 1

Date: 7/14/2010

Direction Photo taken: Northeast

Description: Camp Area. APEC 1A

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 2

Date: 7/14/2010

Direction Photo taken: Southeast

Description: Camp Area APEC 1B and 1C

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 3

Date: 7/14/2010

Direction Photo taken:
South

Description:
Camp Area APEC 1D

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 4

Date: 7/15/2010

Direction Photo taken:
Northeast

Description:
Camp Area APEC 1F. Fuel spill had occurred were spade is on the ground as evident by the darker veneer of soil cover on bedrock.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 5		
Date: 8/22/2009		
Direction Photo taken: Northeast		
Description: Camp Area APEC 1G Drums 18 and 19		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 6		
Date: 7/14/2010		
Direction Photo taken: Southeast		
Description: Main Showing APEC 1H at Drums 20 and 21.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 7		
Date: 7/14/2010		
Direction Photo taken: Southwest		
Description: Camp Area APEC 2a Burn Area 1		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 8		
Date: 7/14/2010		
Direction Photo taken: east		
Description: Camp Area APEC 2b Burn Area 2.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 9		
Date: 7/14/2010		
Direction Photo taken: West		
Description: Main Showing, Trench 1 (APEC 3b). Note exposed bedrock on ridge and water filled trench.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 10		
Date: 7/14/2010		
Direction Photo taken: East-northeast		
Description: Main Showing, (APEC 3a), Ore pile north of trench. Note the green blooms on the ore pile where arsenic rich ore is present.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 11

Date: 7/14/2010

Direction Photo taken: North

Description:
Main Showing (APEC 3a), green annabergite on surface of waste rock pile. This hydrated nickel arsenate was observed as small piles in the waste rock deposits, in all showings.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 12

Date: 7/14/2010

Direction Photo taken: North-northwest

Description:
Main Showing (APEC 3a) looking at the north end of Trench 1 and the waste rock piles near ground and ore pile in the background.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 13		
Date: 7/14/2010		
Direction Photo taken: South		
Description: Trench 1		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 14		
Date: 7/14/2010		
Direction Photo taken: North-northwest		
Description: Access route from Trench 1 area to Trench 2 (APEC 3a to 3b). Note that the area has re-vegetated with spruce and birch as well as alders.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 15 **Date: 7/14/2010** **Direction Photo taken: North** **Description: Trench 2 APEC 3b close up**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 16 **Date: 7/14/2010** **Direction Photo taken: South** **Description: Main Showing (APEC 3b) outflow area and laydown yard south end. Embankment down the ridge to laydown area.**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 17		
Date: 7/14/2010		
Direction Photo taken: Southeast		
Description: Trench 2 APEC 3b waste rock embankment close up of the southern end.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 18		
Date: 7/14/2010		
Direction Photo taken: East-southeast		
Description: Main Showing (APEC 3b) Waste rock and potential ore concentrate at northern end of laydown yard and Trench 2.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 19		
Date: 7/14/2010		
Direction Photo taken: South-southeast		
Description: Main Showing (APEC3b) access road to Trenches 3 and 4 as well as the entrance to Trench 2 (left side)		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 20		
Date: 7/14/2010		
Direction Photo taken: North		
Description: Main Showing (APEC 3b), Ore concentrate on waste rock embankment on the west side of the access road to the upper elevations of the site.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 21

Date: 7/14/2010

Direction Photo taken:
West

Description:
Main Showing (APEC 3b) drainage creek for the area with evidence of arsenic rich rock (greenish powder) evident in discrete locations across the clearing.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 22

Date: 7/14/2010

Direction Photo taken:
South

Description:
Main Showing (APEC 3b), laydown area with some discrete areas of greenish powder indicative of arsenic rich rock weathering.

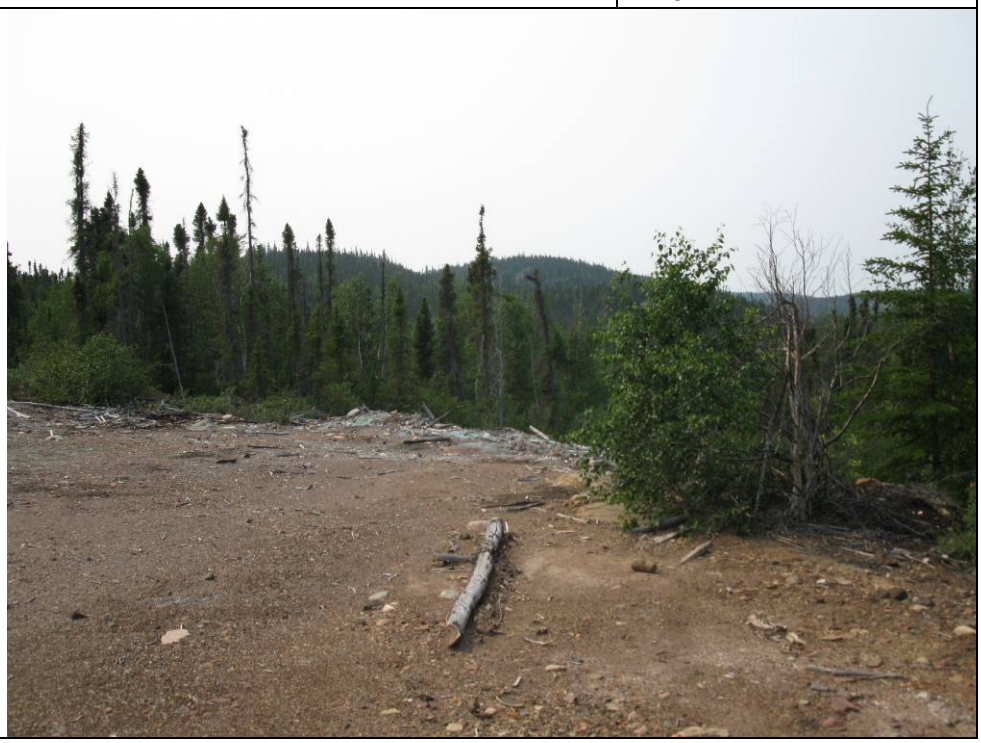
Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 23

Date: 7/14/2010

Direction Photo taken: Southeast

Description:
Main Showing APEC 3b laydown area near eastern limit above the drainage creek bed. Note the arsenic rich rock weathering near the edge of the clearing.



Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 24

Date: 7/14/2010

Direction Photo taken: South

Description:
Main Showing, Trench 4 (APEC 3b), with approximately 0.15m standing water.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 25

Date: 7/14/2010

Direction Photo taken: Northeast

Description:
Main Showing APEC 3b Creek bed coming from the Trench 1 area and southward through clearing due west of laydown area. Note the arsenic rich rock weathering near the edge of the clearing.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 26

Date: 7/14/2010

Direction Photo taken: Overview

Description:
Main Showing (APEC 3b), creek bed with white precipitate material present intermittently along its alignment. Likely residue from drilling mud used during exploration drilling.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 27

Date: 7/14/2010

Direction Photo taken: South

Description:
Main Showing APEC 3b Waste rock piles on the west side of access road to top of Trench 2. Note the arsenic rich rock weathering near the edge of the clearing.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 28

Date: 7/14/2010

Direction Photo taken: South

Description:
Main Showing (APEC 3b), Waste rock piles between the west wall of Trench 2 and the access road to the top of the mine workings. Some evidence of arsenic rich rock weathering (greenish powder like material).

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 29		
Date: 7/14/2010		
Direction Photo taken: West-northwest		
Description: Main Showing Trench 3 (APEC 3b)		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 30		
Date: 7/14/2010		
Direction Photo taken: South		
Description: Main Showing, Trench 4 (APEC 3b), with approximately 0.15m standing water.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 31

Date: 7/14/2010

Direction Photo taken:
West

Description:
West Showing (APEC 4) Adit entrance and base of Trench 5 at top of photo.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 32

Date: 7/14/2010

Direction Photo taken:
South

Description:
West Showing (APEC 4), Access road towards the Main Showing although heavily grown-in south of this location.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 33		
Date: 7/14/2010		
Direction Photo taken: North		
Description: West Showing APEC 4 access road towards the camp. The connection to the camp area is not well defined north of this location. Note waste rock on the access road and to the west (left side of photo).		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 34		
Date: 7/14/2010		
Direction Photo taken: West		
Description: West Showing (APEC 4) waste rock pushed over edge of access road embankment. The vegetation at the top of the photo is indicative of the area between the ridge and Lake Sachowia.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 35 **Date: 7/15/2010** **Direction Photo taken: North** **Description: East Showing (APEC 5) Trench 6**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 36 **Date: 7/15/2010** **Direction Photo taken: North** **Description: East Showing (APEC 5), Trench 6 to the left of photo with waste rock pushed southward down the ridge slope.**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 37		
Date: 7/15/2010		
Direction Photo taken: Southeast		
Description: East Showing (APEC 5), looking southeast from trench down waste rock slope.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 38		
Date: 7/15/2010		
Direction Photo taken: Overview		
Description: East Showing (APEC 5), looking down from top of trench cut.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 39 **Date: 7/15/2010** **Direction Photo taken: Northwest** **Description: East Showing, looking upwards at smaller trench in gossan. Oxidized rock is located on the ridge approximately 20 m north of Trench 6.**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 40 **Date: 7/15/2010** **Direction Photo taken: Northwest** **Description: East Showing APEC 5 overburden below the area of heavy oxidation located due north of Trench 6.**		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 41		
Date: 7/15/2010		
Direction Photo taken: Southeast		
Description: Waterfall at outflow from Sachowia Lake to Joan Lake.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201
Photo No. 42		
Date: 7/15/2010		
Direction Photo taken: Southeast		
Description: View of West Showing from west end of Sachowia Lake.		

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 43

Date: 7/15/2010

Direction Photo taken: West

Description:
Trench #1.

Client: PWGSC/ INAC-CARD	COPPER PASS MINE	Project No. 350047-201

Photo No. 44

Date: 7/15/2010

Direction Photo taken:
Southwest

Description:
Blast hole south of pond.

APPENDIX D

CD-ROM OF SUPPORTING DOCUMENTS

List of Supporting Documents

EHS MS Manual
EHS MS Policy
EHS SOP Manual
1994 GSL CLEANUP REPORT (AANDC 0- AES)
DOT WINTER ROAD FIELD SAFETY GUIDE
WCB AB WORKING ON ICE GUIDELINES
Mine Closure and Reclamation Guidelines (2013)
Abandoned Military Sites Protocol (2007)
AANDC Mine Opening Remediation Guidelines (2011)
GNWT Archaeological Guidelines
AANDC Land Use Guidelines
AANDC Pit and Quarry Guidelines
DFO Freshwater Intake Guidelines
DFO Freshwater Withdrawal Guidelines

APPENDIX E

COPPER PASS WINTER ROAD RULES

ABORIGINAL AFFAIRS ON NORTHERN DEVELOPMENT CANADA

(AANDC)

COPPER PASS WINTER ROAD PROJECT

WINTER ROAD RULES

2014

Introduction

Aboriginal Affairs on Northern Development Canada (ANDC) received a land use permit from the Mackenzie Land and Water Board for the Remediation and Reclamation of the abandoned nickel mining operation located at the Copper Pass Mine Site. This permit allows AANDC to construct a Winter Ice Road to the site to assist in the Remediation of the site.

The 2014 Winter Road Rules (WRR) are to be implemented to ensure the safety of all road users and to protect the environment. Compliance is the responsibility of the remediation contractor. It is the responsibility of the remediation contractor to take the time to read and understand the document.

The dangers associated with winter road travel are very real and it is important for road users to follow the WRR. Individuals, who ignore the rules and act irresponsibly, place the safety of all road users and the environment at risk.

Speed/weight restrictions, haul truck spacing, and convoy travel are key components of safe Winter Road travel.

- X Strict adherence to all speed and weight restrictions is critical to road user safety. Even marginally exceeding the specified limits can compromise the integrity of the ice. Speed limits indicate the maximum allowable speeds and drivers are expected to use common sense and good judgement in reducing speeds as required compensating for changing traffic, road and weather conditions.

- X Drivers must maintain ½ kilometre spacing between haul trucks at all times when travelling on ice including when slowing to travel onto and off lakes.

Ron Breadmore
Project Manager
Contaminants and Remediation Directorate
Department of Indian and Northern Affairs
Tli Cho Region

Purpose and Scope

The Winter Road Rules (WRR) have been established by AANDC to ensure traffic safety and environmental protection. The WRR apply to all persons operating on the winter road directly or indirectly under the authority of PWGSC on behalf of AANDC. The winter road is private for the sole use of the remediation contractor however their continued access is dependent upon compliance with these rules and regulations.

A. Definitions

X **CONVOY**: Group of two or more trucks (vehicles) dispatched to travel together on the winter road.

X **EMPTY TRUCK STATUS**: Empty haul truck status remains in effect until the payload exceeds 3,400 kg or 7,500 lbs.

X **END USERS**: Companies authorized by AANDC/PWGSC to access the winter road for the purpose of transporting goods and materials.

X **HOTSHOT STATUS**: Vehicle designation authorized by AANDC/PWGSC to facilitate expeditious travel by permitting delivery trucks not exceeding five (5) ton tandem rating to: travel on the winter road and/or; exceed posted speed limits by 10 kph and/or; pass other vehicles in a safe manner.

X **LAD 1**: For the purposes of the WRR, LAD1 refers to radio frequency 154.1 and is the primary means of communication on the winter road.

X **LOADED TRUCK STATUS**: Loaded haul truck status remains in effect when the payload exceeds 3,400 kg or 7,500 lbs.

X **ROAD MAINTENANCE PERSONNEL (RMP)**:

X **WINTER ROAD**: Copper PassWinter Road (15 kms in length)

B. Regulations

1. General

a) AANDC through PWGSC reserves the right to amend the WRR at any time.

b) AANDC through PWGSC may suspend travel on the winter road at any time and without prior notice.

c) Speed limits, convoy size, truck spacing, load restrictions and pilot car requirements will be determined by AANDC through PWGSC.

d) End user access to the winter road for the purpose of transporting goods and materials must be pre-authorized in writing by AANDC through PWGSC.

e) In the event of an accident, spill, or dangerous emergency situation, the incident will be reported to security or dispatch personnel by the most expeditious means available.

Responsible parties will be held liable for any injuries, equipment damage and/or environmental clean up.

f) Changing motor oil along the winter road is not permitted. Drivers are expected to have oil changes and other preventative maintenance completed at appropriate facilities prior to departure.

g) It will be the responsibility of the remediation contractor to remove any disabled or otherwise stranded trucks and/or equipment operating under their authority from the winter road as soon as possible. Should the company not have a means to do so on their own, they must make arrangements to remove the equipment, knowing that they will be billed for any such services rendered.

h) Winter road users are responsible for reporting motor vehicle accidents in accordance with applicable Northwest Territories statutes and/or remediation contractor policy.

i) All winter road users are encouraged to report concerns or inappropriate activity involving wildlife including but not limited to abandoned carcasses, injured wildlife and incidents of wildlife harassment. Sightings/incidents should be reported to Environment and Natural Resources (ENR) by telephone at 867-873-7181 or via LAD1 radio to (ENR) reporting/inspections stations along the winter road. Reports should provide as much detail as possible, including date, time, location, and description of event, vehicle descriptions/registration plate numbers.

2. Enforcement

The remediation contractor is responsible for traffic control and enforcement of the WRR on the Winter Road.

3. Road Maintenance

a) Remediation contractor personnel designated as Road Maintenance Personnel (RMP) are responsible for winter road construction and maintenance.

b) To the extent possible major road maintenance initiatives will be scheduled to minimize interference with road traffic.

c) RMP are responsible for the provision of adequate traffic control for all work areas.

4. Signage

a) The remediation contractor is responsible for all winter road signage.

b) All traffic signs are to be of a size and construction so as to be clearly visible to all road users in daylight and darkness.

c) Traffic signs will be posted along the winter road to clearly show current speed limits, restricted travel lanes, road maintenance areas, road hazards and other information as required.

5. Remediation Contractor (or Haulage Subcontractor)

a) The remediation contractor is to provide a Winter Road Orientation Program for all winter road drivers. The program must include:
   1. A thorough review of the Winter Road Rules.
   2. Provision of a valid 24-hour contact telephone number for emergency response assistance
   3. General overview of winter road travel and trip preparation.
   4. Identification of common winter road travel problems/solutions.
   5. Instruction on the use of tire chains and troubleshooting malfunctioning trailer braking systems, including clearing frozen airlines.
   6. Familiarization with NWT legislation regarding the reporting of spills, logbooks, the illegal use of radar detection devices, reporting of accidents, load restrictions and pilot car requirements.
   7. Review the responsibilities and liabilities of the remediation contractor in the case of an incident including any ongoing environmental clean up.

b) Upon completion of the orientation, the remediation contractor will ensure drivers signs a "Road User Declaration", as per WRR Section "D", certifying that he/she has read and understands the current WRR.

C. Rules of the Road

1. Speed Restrictions

a) All posted speed restrictions will designate maximum loaded speeds, except as follows:
   1. Speeds posted for "All Trucks" will indicate maximum speeds for both empty and loaded trucks, including hotshots
   2. Speeds posted for "Flooding Zones" or "Maintenance Zones" will indicate maximum speeds for both empty and loaded trucks, including hotshots.

b) Empty trucks may travel at 10kph above loaded speed restrictions unless otherwise designated.

c) Hotshots may travel at 10kph over posted speed restrictions except on Flooding Zones, Maintenance Zones, or other areas where posted speed restrictions apply to "All Trucks".

d) All trucks including hotshots must slow to 10kph when travelling on/off lakes.

e) When loaded inbound and loaded outbound trucks meet on a lake, both must slow to 10 kph while passing.

f) Loaded inbound/outbound trucks must yield to empty inbound/outbound trucks by slowing to 10 kph and allowing them to pass in a safe manner. Empty inbound/outbound trucks must slow to 15kph and communicate their intentions via LAD1 prior to passing loaded inbound/outbound trucks.

g) Trucks must slow to 10 kph while passing trucks stopped on lakes.

h) The maximum speed limit for pick-up trucks (one ton rating or less) is 40 kph.

PENALTY First Offence: 5-Day Suspension Second Offence: Banned from the Winter Road

2. Truck and Convoy Spacing

a) Drivers are responsible for ensuring interval spacing between convoys is maintained when travelling the winter road.

b) Haul truck drivers must maintain ½ kilometre spacing between trucks within convoys when travelling the winter road.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

3. Dangerous Driving and Unsafe Practices

a) Operating a vehicle in a dangerous or unsafe manner is prohibited and includes but is not restricted to the following:

1. Operating a haul truck in excess of 15 kph above the designated speed limit.
2. Operating a truck on the winter road during any period that travel has been suspended.
3. Loaded trucks overtaking and passing other trucks.

PENALTY First Offence: Banned from the Winter Road

4. Driving Without Due Care and Attention

a) Operating a vehicle without due care and attention is prohibited and includes but is not restricted to the following:

1. Operating a haul truck continuously too close to the snow bank when travelling on lakes.
2. Failing to obey winter road signage or other traffic control devices.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

5. Stopping on Lakes

a) Trucks stopping on lakes is prohibited unless unavoidable and authorized by AANDC or their delegate.

b) Should a truck/trailer be required to remain parked on a lake for mechanical or other unavoidable reason, the driver must:
1. Obtain authority from security,
2. Ensure the truck/trailer is parked and clearly marked so as not to present a safety hazard to other traffic and,
3. Make arrangements to have the disabled truck/trailer recovered as soon as possible.

c) Any driver stopping to offer assistance must use extreme caution and maintain reasonable spacing between trucks.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

6. Stopping on Portages

a) Should a truck/trailer be required to remain parked on a portage or other winter road access area for mechanical or other reason, the driver must:
1. Obtain authority from security as soon as possible and,
2. Clearly marked so as not to present a safety hazard to other traffic and,
3. Make arrangements to have the truck/trailer recovered as soon as possible.

b) Any driver stopping to offer assistance must use extreme caution.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

7. Right-of-Way

a) Road maintenance vehicles have the right-of-way over all winter road traffic.

b) Loaded trucks must yield to empty trucks by slowing to 10kph and allowing them to pass in a safe manner. Empty trucks must slow to 15kph and communicate their intentions via LAD1 prior to passing loaded trucks.

c) Safe driving practices and common sense will dictate the right-of-way in other instances.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

8. Portage Traffic

a) Convoy leaders must broadcast the portage number they are entering, direction of travel, and number of trucks in the convoy and identify any heavy/oversize loads via LAD1 radio prior to entering all portages.

b) All drivers must advise opposing traffic of their progress through portages via LAD1 as required to ensure safe traffic flow.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

9. Interference with Security/Road Maintenance Personnel

a) All vehicles will stop when requested to do so by a Security personnel or representative of AANDC.

b) Vehicles stopped by a Security personnel or other representative of AANDC will remain stopped until advised otherwise.

c) Any verbal abuse to a Security personnel or AANDC Representative is prohibited.

d) Knowingly misleading a Security personnel or AANDC Representative is prohibited.

PENALTY First Offence: Banned from the Winter Road

10. Drugs, Alcohol and Firearms

a) The possession of drugs, alcohol or firearms on the winter road is strictly prohibited.

b) Security personnel who have reason to believe a driver is in possession of alcohol, drugs or firearms may, with the individual's consent, conduct a search of their person and any vehicle under their control

c) Refusing to consent to a search in accordance with this section constitutes an offence under this section.

PENALTY First Offence: Banned from the Winter Road forthwith and will not be permitted to continue the trip.

11. Littering and Refuse Disposal

a) Drivers must carry garbage bags in their trucks at all times for the purpose of storing their refuse for proper disposal at winter road camps.

b) Littering on or near the winter road is prohibited.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

12. Safety Restrictions and Equipment

a) Haul trucks are restricted to one driver. Exception: As authorized by AANDC, a trainer may accompany a trainee for instructional purposes provided they do not collectively exceed the allowable operating hours for a single driver.

b) Haul truck drivers are not permitted to transport passengers on the winter road unless authorized by AANDC.

c) Truck sleepers are not to be occupied while traveling on the winter road.

d) While operating a vehicle on the winter road, all drivers must be in possession of survival equipment suitable for arctic climates including but not restricted to a parka, wind pants, winter footwear, headwear and mitts.

e) All haul trucks operating on the winter road must be equipped with tire chains, flashlight, reflective traffic triangles, tool kit, dolly pads and container of methyl hydrate.

PENALTY
First Offence: Written Warning
Second Offence: 3-Day Suspension
Third Offence: 7-Day Suspension
Fourth Offence: Banned from the Winter Road

13. Use of Professional Camera and Media Equipment

a) Trucking companies and Drivers shall not use or allow commercial, media, video or rolling film cameras (Media Cameras) either inside or attached to the outside of vehicles or to transport media personnel as passengers on the Winter Road.

PENALTY
First Offence: Banned from the Winter Road

14. Hours of Work/Log Books

a) Drivers must maintain an up-to-date logbook.

b) Drivers and contracted carriers must surrender logbooks to security personnel for examination upon request.

c) Haul truck drivers must comply with territorial and federal statutory requirements relating to hours of work rest periods, logbooks and must rest a minimum of 8 hours in any 24-hour period.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

15. Communications

a) All vehicles including road maintenance equipment must be equipped with a LAD1 radio.

b) Drivers will monitor LAD1 at all times while operating on the winter road.

c) Drivers will restrict the use of LAD1 to operational or emergency related communications.

d) LAD1 communications will be conducted in a professional and courteous manner.

PENALTY First Offence: Written Warning Second Offence: 3-Day Suspension Third Offence: 7-Day Suspension Fourth Offence: Banned from the Winter Road

16. Spills, Motor Vehicle Accidents, and Dangerous/Emergency Situations

a) Notwithstanding statutory requirements under Territorial or other legislation:
   1. All persons operating on the winter road shall report any spill, property damage/injury accident or other dangerous/emergency situation to security or dispatch personnel as soon as possible.
   2. Drivers involved in a motor vehicle accident with another vehicle must provide their road number, name and company to the other driver as soon as possible.

PENALTY First Offence: 3-Day Suspension Second Offence: 7-Day Suspension Third Offence: Banned from the Winter Road

17. Radar Detection Devices

a) Possession of radar detection devices while operating on the winter road is prohibited.

b) Security personnel who have reason to believe a person is in possession of a radar detection device may, with the individual's consent, conduct a search of any vehicle under their control.

c) Refusing to consent to a search in accordance with this section constitutes an offence under this section.

PENALTY First Offence: Banned from the Winter Road

18. Removing, Altering or Tampering with Signage or Traffic Control Devices

a) Removing, altering or otherwise tampering with winter road signage or other traffic control devices is prohibited.

PENALTY First Offence: Banned from the Winter Road

19. Wildlife

a) Feeding wildlife while operating/travelling on or near the winter road is strictly prohibited.

PENALTY First Offence: Banned from the Winter Road

D. Road User Declaration

I have read and fully understand and will comply with the 2014 Winter Road Rules date February 27, 2014.

Driver's Name (Print): _____

Driver's Name (Signature): _____

Driver's (Company): _____

Driver's Road Number: _____

Company Representative: _____

Dated: _____

NOTE: A signed copy of this declaration must be filed at the remediation contractor's office upon completion of orientation and prior to being dispatched northbound for your first winter road trip.