Public Works and Government Services Canada

Requisition No. EZ899-150376/C

SPECIFICATIONS
For
Replacement Salt Shed , Fireside Maintenance Camp
Km 839, Alaska Highway, B.C.

Project No. R.017173.605 June 13, 2014

APPROVED BY:

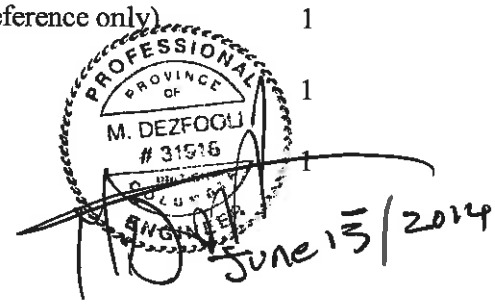
Alaska Hwy Program Manager, EASS — June 13 2014 — Date

for C. Patterson — 2014-06-13 — Date
Construction Safety Coordinator

TENDER:

Project Manager — June 13 2014 — Date

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA M. DEZFOOLI # 31916 June 13 2014



Appendices

PART 1 GENERAL

1.1 Section Includes

.1 Precedence.
.2 Related Sections.
.3 Title and description of Work.
.4 Contract Method.
.5 Work Schedule
.6 Access to Site.
.7 Contractor use of Premises.
.8 Owner Occupancy.
.9 Setting out of work.
.10 Work by Others.
.11 Owner Furnished Items.
.12 Measurement for Payment.

1.2 Precedence

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.3 Related Sections

.1 Section 01 14 00 – Work Restrictions
.2 Section 01 33 00 – Submittal Procedures
.3 Section 13 34 24 – Pre-engineered Salt Shed

1.4 Description of Work and Project Location

.1 PWGSC intends to replace first of its six canvas covered steel truss arch salt shed structures with tapered member steel frame clear span structures with a gabled roof. The dimension of the new structure is to be such that the existing footprint is closely duplicated. Footprint of the shed is approximately 1250 square meter. Deconstruction of the canvas structure has been performed by PWGSC and no grading work is required. The new building is to be located over a pre existing liner that shall not be disturbed by the Contractor. The liner consists of granular filter material covered by geotextile and overlaid by geomembrane. The resultant composition is sloped in two directions.

Work under this contract is for the design, supply and installation of a salt shed as specified in Section 13 34 24 – Pre-engineered Salt Shed, located at the Fireside Maintenance yard located at km 839 of the Alaska Highway in north east British Columbia as shown in the attached drawings. For reference, the Town of Fort Nelson is located at km 455 and the Town of Watson Lake is located at km 1020 of the Alaska Highway. Work includes, but is not limited to, the following:

.1 Design, supply and install steel building system complete with a foundation in conformity with pertinent loading conditions.
.2 Excavate place and compact material for structure foundation as specified by design.
.3 Provide and run a construction camp as necessary.
.4 Supply Certified Independent Testing and Survey Services.

.5 Other related work.

.2 Designer Qualification: Professional Engineer registered in B.C with a minimum of 15 years documented experience in work of this section.

.3 Installer Qualification: Minimum of 10 years documented experience in work of this section.

1.5 Contract Method

.1 Design and construct work under a lump sum contract.

1.6 Work Schedule

.1 Work Completion:

.1 Preparations of required submittals to commence immediately upon receipt of notice to proceed.

.2 Achieve substantial performance by September 1 2014.

.3 Achieve final completion by September 15, 2014.

.4 Achieve the delegated design component of the project by July 25, 2014.

1.7 Access to Site

.1 Maintain and control Public traffic through construction zone in accordance with Section 01 35 33 Heath and Safety.
.2 Allow Departmental Representative and its Consultant(s) unrestricted access to inspect all phases of the Work.
.3 Maintain fire, police and emergency access on the Highway at all times.
.4 Maintain access to Private, Public and Commercial facilities for Contract duration.

1.8 Contractor Use of Premises

.1 With the exception of items detailed in Section 01 14 00 Work Restrictions, Contractor has unrestricted use of site until Contract Completion.
.2 Contractor shall limit use of premises for Work, for storage, and for access, to allow:
  .1 Owner occupancy.
  .2 Public usage.

1.9 Layout of Work

.1 Departmental Representative has established control monuments and will provide a list of control monuments
.2 Contractor to:
  .1 Set additional control points as necessary.
  .2 Set all layout and work stakes necessary to complete work.
  .3 Provide measurements for Payment in paper format.
  .4 Not damage control monuments.

1.10 Owner Furnished Items

.1 Designated areas of the Fireside Gravel Pit (km 839) will be made available to the Contractor for:
- .1 Common excavation material.
- .2 Select granular sub-grade fill material production as required in the design.
- .3 Production of sub-base gravels as required in the design.
- .4 Production of base gravels as required in the design.
- .5 Disposal of waste/unsuitable excavation material.
- .6 Lay down area for materials and equipment.

1.11 Measurement for Payment

.1 All work listed in Division One Sections of this specifications there will be no separate payment, but is considered incidental unless noted otherwise.

1.12 Highway Regulation

.1 Observe and obey all regulations concerning hauling and traffic.
.2 Hauling equipment will be restricted to legal loads.

1.13 Storage and Handling of Material

.1 Transport, store and handle materials in such a manner as to preserve their quality and fitness for work.
.2 Handle materials and execute required cleanup in accordance with accepted environmental practices to approval of Departmental Representative or designated regulatory agency.

1.14 Standard Test Procedures

.1 Contractor is advised that all referenced standard tests in these specifications refer to revisions current at time of tendering.

1.15 Regulations

.1 Federal, Provincial and Municipal laws and regulations apply to all work under this contract.

1.16 Site Visit

.1 Submission of tender will be considered proof that Contractor has examined sites and is familiar with conditions likely to affect work.

1.17 Start-Up Meeting

.1 Start-up meeting to be arranged following award and prior to the commencement of work.

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 Precedence

.1 For Federal Government Projects, Division 1 Sections take precedence over technical specification Sections in other Divisions of this Project Manual.

1.2 Related Sections

.1 Section 01 32 18 – Construction Progress Schedules – Bar (GANTT) Chart.
.2 Section 01 35 43 – Environmental Protection.

1.3 Existing Services

.1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions to a minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.3 Provide for pedestrian and vehicular traffic as required by Departmental Representative.

1.4 Use of the Work Site

.1 Prior to the construction phase, Contractor shall identify and submit the required areas for parking, storage, and construction and erection equipment to the Departmental Representative. After review and acceptance, these will become the site for the work.

.2 The Work Site will be made available to the Contractor for its exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.

.3 While the Work Site is under the Contractor's control, the Contractor shall be entirely responsible for the security of the Work Site and of the Work.

.4 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of the source. Snow/ice shall be removed by the Contractor as necessary for the performance and inspection of the Work.

.5 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and the Environmental Procedures for this project. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.

.6 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at its expense.

.7 The Contractor may work 24 hours per day, seven days per week with the following restrictions:
.1 No hauling of material during inclement weather.

1.5 Work Conducted in and Adjacent to Waterways

.1 All components of the Work shall be conducted in accordance with Section 01 35 43 Environmental Protection.

.2 The Contractor is responsible for the development and supply of construction access to the Work as approved by the Departmental Representative.

1.6 Access to Adjacent Properties

.1 Construction operations shall be conducted so as to cause minimal inconvenience to the Public and to owners of adjoining property. Existing access to property shall be maintained as far as possible and if new access

must be provided, every effort shall be taken to provide the new access before the existing access is removed.

1.7 Utilities

.1 There are active utilities within the Highway Right of Way.

.2 The locations of Utilities shown are not necessarily exact nor is there any guarantee that all Utilities in existence within the limits of the Work Site have been shown on the Drawings.

.3 If it is determined by the Departmental Representative that Utilities affected by the permanent Work will be relocated by Other Contractors, the Contractor shall cooperate and coordinate as required with Other Contractors engaged in Utility relocation operations on the Work Site.

.4 The Contractor shall establish and maintain direct and continuous contact with the owners or operators of any Utilities which may interfere with the Work. The Contractor shall cooperate with them at all times and in all places of Work. The Contractor shall keep the Departmental Representative informed of all communications with the Utility companies and authorities.

.5 The Contractor shall notify the Departmental Representative and the Utility companies at least seven (7) Days in advance of any activities which may interfere with the operation of such Utilities.

.6 Whenever working in the vicinity of Utilities, the Contractor shall locate such Utilities and expose those that may be affected by the Work, using hand labour as required.

.7 The Contractor shall assess the possible impact of its operation on all utilities and shall protect, divert, temporarily support or relocate, or otherwise appropriately treat such Utilities to ensure that they are preserved.

.8 The Contractor shall immediately report any damage to Utilities to the Departmental Representative and to the Utility company or authority affected, and shall promptly undertake such remedial measures as are necessary at no additional cost to the Owner.

1.8 Survey of Existing Property Conditions

.1 Submission of tender is deemed to be confirmation that the Contractor has inspected the site and is conversant with all conditions affecting execution and completion of work.

.2 The Contractor shall regularly monitor the condition of the Work Site and of property on and adjoining the Work Site throughout the construction period, and shall immediately notify the Owner if any deterioration in condition is detected. Such monitoring shall cover all pertinent features and property including, but not limited to, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.

.3 The Departmental Representative may, but shall not be obligated to, survey and record the condition of the Work Site and of property on or adjoining the Work Site prior to the commencement of construction by the Contractor. If requested, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.

.4 Whenever supplied with survey records, the Contractor shall satisfy itself as to the accuracy and completeness of the survey records provided by the Departmental Representative for any area before commencing construction in that area. Commencement of construction in any area shall be interpreted to signify that the Contractor has accepted such survey records as being a true

record of the existing conditions prior to construction.

.5 The provision of the records of a survey of existing conditions by the Departmental Representative shall in no way limit or restrict the Contractors responsibility to exercise proper care to prevent damage to all property within or adjacent to the Work Site, whether all such property is covered by the survey or not.

1.9 Protection of Persons and Property

.1 The Contractor shall comply with all applicable safety regulations of the Workers Compensation Board of British Columbia (WCB) including, but not limited to, WCBs Industrial Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.

.2 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.

.3 The Contractor shall promptly take such measures as are required to repair, replace or compensate for any loss or damage caused by the Contractor to any property.

1.10 Use of Public Areas

.1 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Site and entering public roadways shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Site and transporting materials shall be loaded in a manner which will prevent dropping of materials or debris on the roadways, and, where contents may otherwise be blown off during transit, such loads shall be covered by tarpaulins or other suitable covers. Spills of material, including rocks and debris from loaded trucks, shall be removed or cleaned immediately by the Contractor at no cost to the Owner. All activities shall be in accordance with Section 01 35 43 - Environmental Protection and the Environmental Protection Plan prepared by the contractor for the project. Hauling units on Alaska Highway not to exceed legal highway load limits. The traveled lanes of the Alaska Highway shall remain a Public Highway subject to the rules and laws of Public Highways in the Province of British Columbia. The Contractor is responsible for ensuring all equipment accessing the Highway meets all requirements for vehicles traveling on Public Highways in the Province.

1.11 Supervisory Personnel

.1 Within five days after award notification, the Contractor shall submit to the Departmental Representative confirmation of the names of the supervisory personnel and other key staff designated for assignment on the Contract.

The following personnel shall be included in the list:

.1 Project Superintendent.

.2 Safety Representative.

.2 The above personnel shall perform the following duties:

.1 The Project Superintendent shall be employed full time and shall be present on the Work Site each and every work day that Work is being performed, from the commencement of Work to Total Performance of the

Work.

.2 Project Superintendent shall nominate a Deputy Project Superintendent who shall have the authority of the Project Superintendent during the latter's absence.

.3 Safety Representative shall possess safety experience in general construction. Duties shall encompass all matters of safety activities from commencement of Work until Total Completion of the Work.

1.12 Construction Signage

.1 No Signs or advertisements, other than regulatory or warning signs, are permitted on site.

.2 Signs and notices for Safety and instruction shall be provided by the Contractor. Graphic symbols shall be diamond grade and conform to CAN3-Z321.

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

.4 Signage shall be coordinated with other Contractors.

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 Section Includes
.1 Mobilization and Demobilization

1.2 Related Sections
.1 Section 01 52 00 – Construction Facilities

1.3 Description
.1 Consists of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, camp, buildings, shops, offices, supplies and incidentals to and from the project site.

1.4 Measurement for Payment
.1 Fifty (50) percent of Lump Sum Contract Price for Mobilization and Demobilization, not to exceed five (5) percent of the Contract Value, to be paid when mobilization to site is complete.
.2 Remainder of Lump Sum Contract Price for Mobilization and Demobilization to be paid when work is complete and all materials, equipment, camp, buildings, shops, offices and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other agencies having jurisdiction.

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 Section Includes

.1 Coordination of work with other contractors and work by Departmental Representative under administration of contract.

1.2 Related Sections

.1 Section 01 11 00 – Summary of Work
.2 Section 01 33 00 – Submittal Procedures

1.3 Coordination

.1 Coordinate progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction work with progress of work of other contractors and work by Owner, under instructions of Departmental Representative.

1.4 Construction Organization and Start-up

.1 Within fifteen (15) days after award of contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
.2 Senior representatives of the Owner, PWGSC, Consultant, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
.3 Establish time and location of meeting and notify parties concerned a minimum five (5) days before meeting.
.4 Incorporate mutually agreed variations to contract documents into agreement, prior to signing.
.5 Agenda to include the following:
  .1 Appointment of official representative of participants in Work.
  .2 Schedule of work, progress scheduling in accordance with Section 01 32 18 – Construction Progress Schedule.
  .3 Schedule of submission of shop drawings, samples, and colour chips in accordance with Section 01 33 00 – Submittal Procedures.
  .4 Requirements for temporary facilities, site signage, offices, storage sheds, utilities and fences in accordance with Section 01 32 18 – Construction Facilities.
  .5 Delivery schedule of specified equipment in accordance with Section 01 32 18 – Construction Progress Schedules.
  .6 Site security in accordance with Section 01 52 00 – Construction Facilities.
  .7 Proposed changes, change orders, procedures, approvals, required, mark-up percentages permitted, time extensions, overtime and administrative requirements (GC).
  .8 Departmental Representative furnished materials.
  .9 Take-over procedures, acceptance, and warranties in accordance with Section 01 77 00 – Closeout Procedures.
  .10 Monthly progress claims, administrative procedures, photographs, and holdbacks (GC).
  .11 Appointment of inspection and testing agencies or firms in accordance with Section 01 45 00 – Quality Control.
  .12 Insurances and transcript of policies (GC).
.6 Comply with Department Representative's allocation of mobilization

areas of site; for field offices and sheds, access, traffic and parking facilities.

.7 During construction, coordinate use of site and facilities through Departmental Representative's procedures for intra-project communications: submittals, reports and records, schedules, coordination drawings, recommendations, and resolution of ambiguities and conflicts.

.8 Comply with instructions of Departmental Representative for use of temporary utilities and construction facilities.

.9 Coordinate field engineering and layout work with Departmental representative.

1.5 Project Meetings

.1 Schedule and administer weekly project meetings throughout progress of work as determined by Departmental Representative.

.2 Prepare agenda for meetings.

.3 Distribute written notice of each meeting four (4) days in advance of meeting date to Departmental Representative.

.4 Provide physical space and make arrangements for meetings.

.5 Preside at meetings.

.6 Record minutes. Include significant proceedings and decisions. Identify action by parties.

.7 Reproduce and distribute copies of minutes within three days after each meeting and transmit to meeting participants, affected parties not in attendance and Departmental Representative.

1.6 On-Site Documents

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

- .1 Contract drawings.
- .2 Specifications.
- .3 Addenda.
- .4 Reviewed shop drawings.
- .5 Change orders.
- .6 Other modifications to contract.
- .7 Field test reports.
- .8 Copy of approved work schedule.
- .9 Manufacturers' installation and application instructions.
- .10 Labour conditions and wage schedules.

1.7 Schedules

.1 Submit preliminary construction progress schedule in accordance with Section 01 32 18 – Construction Progress Schedule.

.2 After review, revise and re-submit schedule to comply with revised project schedule.

.3 During progress of work, revise and re-submit as directed by Departmental Representative.

1.8 Construction Progress meetings

.1 During course of work and weeks prior to project completion, schedule progress meetings monthly or as directed by Departmental Representative.

.2 Contractor, Major Subcontractors involved in the work, and Departmental Representative are to be in attendance.

.3 Notify parties minimum three (3) days prior to meetings.
.4 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within three (3) days after the meeting.
.5 Agenda to include the following:
.1 Review, approval of minutes of previous meeting.
.2 Review of work progress since previous meeting.
.3 Field observations, problems, conflicts,
.4 Problems which impede construction schedule.
.5 Review of off-site fabrication delivery schedules.
.6 Corrective measures and procedures to regain projected schedule.
.7 Revision to construction schedule.
.8 Progress schedule during succeeding work period.
.9 Review submittal schedules; expedite as required.
.10 Maintenance of quality standards.
.11 Review proposed changes for affect on construction.
.12 Other business.

1.9 Submittals

.1 Make submittals to Departmental Representative for review.
.2 Submit 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 re-submit 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 Process substitutions through Departmental Representative.
.6 Process change orders through Departmental Representative.
.7 Deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative.

1.10 Coordination Drawings

.1 Provide information required by Departmental Representative for Preparation of coordination drawings.
.2 Review and approve revised drawings for submittal to Departmental Representative.

1.11 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 Performance and for access to Owner-occupied areas.
.4 Notify Departmental Representative of instructions for completion of items of work determined in Departmental Representative's final

inspection.

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 Precedence

.1 For Federal Government projects, Division 1 Sections take precedence over technical specification sections in other Divisions of this Project Manual.

1.2 Measurement Procedures

.1 Cost of providing Construction Progress Schedules will be considered incidental to the work and no additional payment will be made.

1.3 Definitions

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

.2 Bar Chart (GANTT): A graphic display of schedule-related information. In typical bar chard, 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 five day work week and define schedule calendar working days as part of Bar Chart (GANTT) submission.

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

.6 Master Plan: A summary-level schedule that identifies major activities and key milestones.

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

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

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

1.4 Requirements

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified contract duration.

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

.3 Limit activity durations to maximum of approximately 20 working days to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate

as defined times of completion are of essence of this contract.

1.5 Submittals

.1 Submit to Departmental Representative within 10 working days of Award of contract Bar Chart (GANTT) as Master Plan for planning, monitoring and reporting of project progress.

.2 Submit Project Schedule to Departmental Representative within 10 working days of receipt of acceptance of Master Plan.

1.6 Master Plan

.1 Structure schedule to allow orderly planning, organizing and execution of work as Bar Chart (GANTT).

.2 Departmental Representative will review and return revised schedules within 5 working days.

.3 Revise impractical schedule and resubmit within 5 working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.7 Project Schedule

.1 Develop detailed Project Schedule derived from Master Plan.

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

- .1 Award.
- .2 Permits.
- .3 Submission of:
  - .1 Environmental Protection Plan.
  - .2 Campsite Plan.
  - .3 Traffic Management Plan.
  - .4 Shop drawings, samples.
- .4 Mobilization.

1.8 Project Schedule Reporting

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

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

1.9 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.

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 Section Includes

.1 Shop drawings and production data.
.2 Certificates and transcripts.
.3 Required Contractor Submittals.

1.2 Related Sections

.1 Section 01 32 18 – Construction Progress Schedules
.2 Section 01 35 33 – Health and Safety Requirements
.3 Section 01 35 43 – Environmental Procedures

1.3 Administrative

.1 Submit to Departmental Representative, submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in work. Failure to submit in ample time is not considered sufficient reason for an extension of contract time and no claim for extension by reason of such default will be allowed.
.2 Work affected by submittal shall not proceed until review is complete.
.3 Present shop drawings, product date, samples and mock-ups 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 specific project will be returned without being examined and shall 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 Verify field measurements and affected adjacent work are coordinated.
.8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
.10 Keep one reviewed copy of each submission on site.

1.4 Shops Drawings and Product Data

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by contractor to illustrate details of a portion of work.
.2 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 supplies and installed. Indicate cross

references to design drawings and specifications.

.3 Allow ten (10) 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 Accompany submissions with transmittal letter 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.

.7 Submissions shall include:
- .1 Date and revision dates.
- .2 Project title and number.
- .3 Name and address of:
  - .1 Subcontractor.
  - .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 Performance characteristics.
  - .3 Standards.

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

.9 Make all submissions via online project system OPROMA unless otherwise directed by the Departmental Representative.

.10 Delete information not applicable to project.

.11 Supplement standard information to provide details applicable to project.

.12 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, 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.

.13 The review of shop drawings by Public Works & Government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with general concept. This review shall not mean that PWGSC approves detail design inherent in shop drawings,

responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. 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 coordination of work of all sub-trades.

1.5 Certificates and Transcripts

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

.2 Submit transcription of insurance immediately after award of contract.

1.6 Required Contractor Submittals

.1 General

.1 This Clause identifies the plans, programs and documentation required prior to mobilization on site and during the construction phase.

.2 Pre-Mobilization Submittals

.1 Submittal Schedule and Acceptance

.1 Submit the following plans and programs to the Departmental Representative for review a minimum of 10 days prior to mobilization to the project site. The Contractor shall not begin any sit work until the Departmental Representative has authorized acceptance of the submittals in writing. The Contractor shall not construe the Departmental Representative's authorization of the submittals to imply approval of any particular method or sequence for conducting the work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the work in strict accordance with the requirements of Federal or Provincial regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them:

.1 Project Schedule, detailing the schedule of the workdays and manpower required to complete each phase of the project (e.g., mobilization, construction sequencing, excavation, steel erection, backfilling, roadway reconstruction and demobilization).

.2 Contractor Chain of Command, listing key Contractor personnel, including names and positions, addresses, telephone, cellular telephone

and/or pager numbers. The list shall include the names and telephone/cellular telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.

.3 Work Plan, describing the Contractor's intended methods of construction including, but not limited to, the environmental mitigation strategies and projected number of personnel on site.

.4 Construction Access Plan, which shall include, but not be limited to, engineering drawings and procedures for accessing all areas of the work.

.5 Environmental Protection Plans (EPP), which shall meet the requirements of Section 01 35 43 – Environmental Procedures.

.6 Camp Site Plan, showing the layout of fences, parking areas and buildings, and describing the facilities for food and waste storage in accordance with Section 01 35 43 – Environmental Procedures. The maximum area of the campsite shall be as indicated in the design and approved by the Departmental Representative.

.7 Occupational Health and Safety Program – The Contractor shall have a Certificate of Recognition (COR) or Registered Safety Plan (RSP) including a site specific Health and Safety Plan acceptable to the Departmental Representative. The Contractor shall implement and maintain the Health and Safety Plan during the work.

.3 Construction Phase Submittals

.1 Monthly Progress Reports in accordance with Section 01 32 18 – Construction Progress Schedules – Bar Chart (GANTT).

.2 Quality Control Inspection Reports – The Contractor shall maintain a daily inspection report that itemizes the results of al Quality Control inspections conducted by the Contractor. The reports shall be made available for review by the Departmental Representative upon request. A summary of all Quality Control inspections conducted to date shall be submitted by the Contractor with each request for payment.

.3 Shop Drawings – The Contractor shall submit all shop drawings required to fabricate and conduct the work a minimum 30 days prior to fabrication.

.4 Progress Photographs:

.1 Formats:

.1 Prints 200 x 300 mm, colour, glossy, complete with binding edge or in three hole plastic sleeves.

.2 Electronic: jpg files, minimum three mega pixels.

.2 Submission requirements: Electronic submission via online project system OPROMA.

.3 Identification: Clearly name each photo with the date and

a brief description of the work in the photograph. Files names shall be in accordance with naming convention for electronic files as provided by the Departmental Representative.

.5 Submission Frequency: prior to commencement of work and monthly thereafter with progress statement, or as directed by construction Manager or Departmental Representative.

.6 Submit CD with all electronic pictures as part of closeout package.

.7 Weekly traffic control reports detailing any traffic accidents, near misses, disruption to traffic or observed abnormal traffic patterns.

.4 Project Completion Submittals:

.1 Record Drawings – The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-built changes to the work and the Contractor shall submit a set of Contract Drawings clearly marked to record as-built changes to the work.

.2 Quality Control Records – The Contractor shall submit a bound and itemized set of project quality control.

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 Related Sections

.1 All sections.

1.2 References

.1 Government of Canada
- .1 Canada Labour Code, Part II
- .2 Canada Occupational Health and Safety Regulations

.2 Province of British Columbia
- .1 Worker's Compensation Act Part 3, Occupational Health and Safety
- .2 Occupational Health and Safety Regulations.

1.3 Workers' Compensation Coverage

.1 Comply fully with the Workers' Compensation Act, regulations and orders pursuant thereto, and any amendments up to the completion of the work.

.2 Maintain Workers' Compensation Board coverage during term of the contract, until and including the date that the Final Certificate of Completion is issued.

1.4 Compliance with Regulations

.1 PWGSC may terminate the contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.

.2 It is the Contractor's responsibility to ensure that all workers are qualified, competent and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.

1.5 Submittals

.1 Submit the following:
- .1 Copies of reports or directions issued by Federal, Provincial, Territorial Health and Safety inspectors.
- .2 Copies of incident and accident reports.
- .3 Complete set of Material Safety Data Sheets (MSDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
- .4 Emergency Procedures.
- .5 Health and Safety Plan.

.2 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures and provide comments to the Contractor within two days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative on request.

.3 Medical surveillance: where prescribed by legislation, regulation, or safety program, submit certification of medical surveillance for site personnel prior to commencement of work and submit additional certifications for any new site personnel to Departmental Representative.

.4 Submission of the Health and Safety Plan and any revised version, to the Departmental Representative, is for information and reference

purposes only. It shall not:

.1 Be construed to imply approval of the Departmental Representative.

.2 Be interpreted as a warranty of being complete, accurate and legislatively compliant.

.3 Relieve the Contractor of his legal obligations for the provision of health and safety on the project.

1.6 Responsibility

.1 The Contractor shall be responsible for:

.1 Assume responsibility as the Prime Contractor or work under this contract.

.2 The safety of persons and property on site.

.3 The protection of persons off-site and the environment to the extent that they may be affected by the conduct of the work.

.4 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable Federal, Provincial, Territorial and Local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.7 General

.1 Provide safety barricades and lights around work site as required to provide a safe working environment for workers and protection for pedestrian and vehicular traffic.

.2 Ensure that non-authorized persons are not allowed to circulate in designated construction areas of the work site.

.1 Provide appropriate means by use of barricades, fences, warning signs, traffic control personnel and temporary lighting as required.

.2 Secure site at night-time as deemed necessary to protect site against entry.

1.8 Regulatory Requirements

.1 Comply with specified codes, acts, bylaws, standards and regulations to ensure safe operations at site.

.2 In the event of conflict between any provision of the above authorities, the most stringent provision will apply. Should a dispute arise in determining the most stringent requirement, the Departmental Representative will advise on the course of action to be followed.

1.9 Filing of Notice

.1 The Contractor is to complete and submit an Advance Notice of Project as required by British Columbia Worker's Compensation Branch.

.2 Provide copies of all notices to the Departmental Representative.

1.10 Health and Safety Plan

.1 Conduct a site-specific hazard assessment based on review of Contract Documents, required work and project site. Identify any known and potential health risks and safety hazards.

.2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:

.1 Primary requirements:

.1 Contractor's Safety Policy.
.2 Identification of applicable compliance obligations.
.3 Definition of responsibilities for project/organization chart for project.
.4 General safety rules for project.
.5 Job-specific safe work procedures.
.6 Inspection policy and procedures.
.7 Incident reporting and investigation policy and procedures.
.8 Occupation Health and Safety Committee/Representative procedures.
.9 Occupational Health and Safety meetings.
.10 Occupational Health and Safety communications and record keeping procedures.

.2 Summary of health risks and safety hazards resulting from analysis of hazard assessment, with respect to site tasks and operations which must be performed as part of the work.
.3 List hazardous materials to be brought on site as required by the work.
.4 Indicate engineering and administrative control measures to be implemented at the site for managing identified risks and hazards.
.5 Identify personal protective equipment (PPE) to be used by workers.
.6 Identify personal protective equipment (PPE) to be used by workers.
.7 Identify personnel and alternates responsible for site safety and health.
.8 Identify personnel training requirements and training plan, including site orientation for new workers.

.3 Develop the plan in collaboration with all subcontractors. Ensure that work/activities of subcontractors are included in the hazard assessment and are reflected in the plan.
.4 Revise and update Health and Safety Plan as required and resubmit to Departmental Representative.
.5 The review of Health and Safety Plan by Public Works & government Services Canada (PWGSC) is for the sole purpose of ascertaining conformance with General Directive 073. PWGSC's review shall not relieve the Contractor of responsibility for errors or omissions in final Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract Documents.

1.11 Emergency Procedures .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contact (i.e. Names/telephone numbers) of:
.1 Designated personnel from own company.
.2 Regulatory agencies applicable to work and as per legislated regulation.
.3 Local emergency resources.
.4 Departmental Representative (site staff).

.2 Included the following provisions in the emergency procedures:
- .1 Notify workers and first aid attendant of the nature and location of the emergency.
- .2 Evacuate all workers safely.
- .3 Check and confirm the safe evacuation of all workers.
- .4 Notify the fire department or other emergency responders.
- .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
- .6 Notify Departmental Representative.

.3 Provide written rescue/evacuation procedures as required for, but not limited to:
- .1 Work at high angles.
- .2 Work in confined spaces or where there is a risk of entrapment.
- .3 Work with hazardous substances.
- .4 Underground work.
- .5 Work on, over, under and adjacent to water.
- .6 Workplaces where there are persons who require physical assistance to be moved.

.4 Revise and update Emergency Procedures as required and re-submit to the Departmental Representative.

1.12 Health and Safety Coordinator

.1 Employ and assign to work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
- .1 Have minimum 2 years' site-related working experience specific to activities associated with Construction.
- .2 Have working knowledge of occupational safety and health regulations.
- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of work and report directly to and be under direction of site supervisor.

1.13 Hazardous Products

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials and regarding labeling and provision of Material Safety Data Sheets (MSDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

.2 Where use of hazardous or toxic waste cannot be avoided:
- .1 Advise Departmental Representative beforehand of the products intended for use. Submit applicable MSDS and WHMIS documents.

1.14 Unforeseen Hazards

.1 Should any unforeseen or peculiar safety-related factor, hazard, or

condition become evident during performance of work, immediately stop work and advise Departmental Representative verbally and in writing.

1.15 Posted Documents

.1 Post legible versions of the following documents on site:
- .1 Health and Safety Plan.
- .2 Sequence of Work.
- .3 Emergency Procedures.
- .4 Site drawing showing project layout, locations of first-aid station, evacuation route and marshalling station and the emergency transportation provisions.
- .5 Notice of Project.
- .6 Floor Plans.
- .7 Notice as to where copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
- .8 Workplace Hazardous Information System (WHMIS) documents.
- .9 Material Safety Data Sheets (MSDS).
- .10 List of names of joint Health and Safety Committee members of Health and Safety Representative as applicable.

.2 Post all Material Safety Data Sheets (MSDS) on site, in a common area, visible to all workers and in locations accessible to tenants when work of the contract includes construction activities adjacent to occupied areas.

.3 Postings and Insert Postings should be approved by Departmental Representative.

1.16 Meetings

.1 Attend health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.

1.17 Correction of Noncompliance

.1 Immediately address health and safety noncompliance issues identified by authority having jurisdiction or by Departmental Representative.

.2 Provide Departmental Representative with written report of action taken to correct noncompliance of health and safety issues identified.

.3 Departmental Representative may stop work if noncompliance of health and safety regulations is not corrected. The General/subcontractors will be responsible for any costs arising from such a "stop work order".

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 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 the 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.

.3 Wetted Perimeter: area of stream where water is currently running or pooled.

.4 In-stream Work: any work performed below the high water mark, either within or above the Wetted Perimeter of any Fisheries Sensitive Zone.

.5 Fisheries Sensitive Zone: in-stream aquatic habitats and out of stream habitat features such as side channels, wetlands, and riparian areas.

.6 Invasive plants: are any alien plant species that have the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on both disturbed and un-disturbed sites, and can cause widespread negative economic, social and environmental impacts. (www.agf.gov.bc.ca/cropprot/noxious.htm)

1.2 Measurement Procedures

.1 Preparation and implementation of the Environmental Protection Plan (EPP) in accordance with this Section 01 35 43 – Environmental Procedures will not be measured separately for payment and will be considered incidental to the work.

1.3 Regulatory Overview

.1 Comply with all applicable environmental laws, regulations and requirements of Federal, Provincial 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 the Departmental Representative to conduct the Work.

.3 Pay specific attention to the provincial BC Land Use permit, Water License and Quarry Permit.

.4 Pay specific attention to the following as applicable:

- .1 BC Land Use Permit, Water License and Quarry Permit.
- .2 Migratory Birds Convention Act, as amended in 1994.
- .3 Pay specific attention to the provincial BC guidelines under Peace Region Least Risk Timing Windows: Biological Rational (2009).
- .4 BC MOE guidelines in Standards and Best Practices for

Instream Works (2004).

1.4 Submittals

.1 The Contractor is required to prepare an Environmental Protection Plan (EPP) in accordance with Section 01 33 00 – Submittal Procedures. The EPP should include all relevant environmental impacts/issues at the site as indicated by the completion of the EPP Checklist. Prior to commencing construction activities or delivery of materials to site, submit EPP (see Appendix C for checklist) for review and approval by the Departmental Representative. The EPP will require the Contractor to carefully think through the entire project, including identifying what activities as works will be occurring, both generally and at specific sites, and by what methods. The Environmental Protection Plan shall be completed by a P. Biol. Or RPBio, or other qualified professional, and shall, at a minimum, include the following:

- .1 The specifics of a detailed monitoring program. This includes details and rationale concerning sampling locations, timing, duration, and methods, and identification of the person(s) who will be carrying out the monitoring program.
- .2 The process and protocol for ensuring that supervisors and individual staff employed by the Contractor are very clear on which environmental standards need to be achieved, how they will be achieved, and establishing how the Contractor will ensure that this is successfully occurring.
- .3 Erosion, drainage, and sediment control plan which identifies type and location of erosion and sediment controls to be provide including monitoring and reporting requirements to assure that control measures are in compliance with the requirements of the applicable MOE Approval or Notification for instream work or under MOE guidelines, and all other applicable regulations including the requirements of these specifications.
- .4 Drawings should show locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of any excess or spoil materials including methods to control runoff and to contain materials on-site.
- .5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.
- .6 Spill Control Plan: including procedures, instructions, and reports to be used in even of unforeseen spill of regulated substance.
- .7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .8 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water

or ground; and detailed provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.9 Outline the avoidance and mitigation measures which the Contractor will undertake and implement to ensure compliance with the environmental regulations applicable to the project (which may include requirements provided in MOE Approval or Notifications for Instream Work, NWPA Approval for Instream Work, DFO Fisheries Act requirements etc.) and these contract specifications.

.10 The procedures for stopping the work and implementing changes to the construction methods should the Contractor not be achieving the environmental requirements as outlined in these specifications.

.11 The procedures for stopping work should the Contractor encounter archaeological anomalies or human remains.

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

1.5 Site Access and Parking

.1 The Contractor shall review both short and long access requirements with the Departmental Representative; both at the start-up and on an on-going basis In consultation with the Departmental Representative, the contractor shall formulate an agreement for worker transportation to and from the work site and where workers shall park their private vehicles. Generally, personal vehicles shall be parked at least 10 metres distance from any watercourse.

.2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.

1.6 Protection of Work Limits

.1 The Contractor shall include in the Environmental Protection Plan (EPP) details on the work limits, how these shall be marked and what procedures will be employed to ensure trespass outside these limits does not occur, to the satisfaction of the Departmental Representative.

1.7 Erosion Control

.1 Erosion control measures that prevent sediment from entering any waterway, water body or wetland in the vicinity of the construction site are a critical element of the project and shall be implemented by the Contractor.

.2 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating activities associated with the construction activities. The Contractor shall prepare n Erosion Control Plan, to be part of the EPP, to the satisfaction of the Departmental Representative.

.3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively they are to be repaired. The Departmental Representative will monitor the

Contractor's erosion control performance.

.4 Erosion control measures must be in compliance with both Federal and Provincial legislation where required. Contractors should be referencing the provincial MOE Standards and Best Practices for Instream Works (2004) where required.

1.8 Pollution Control

.1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres to any surface water.

.2 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative, and in accordance with all applicable federal and provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement and sand blasting agents.

.3 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous products shall be stored no closer than 100 metres from any surface water.

.4 An impervious berm shall be constructed around fuel tanks and other potential spill area. The berms shall be capable of holding 110% of the largest potential spill and shall be maintained in good working order on the site. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.

.5 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads and on-site work such as rock drilling and blasting by methods that are approved by the Departmental Representative.

.6 The Contractor shall provide spill kits, to the satisfaction of the Departmental Representative, at refuelling, lubrication and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The Contractor and site staff shall be informed of the location of the spill response kit(s) and trained in its use.

.7 Timely and effective actions shall be taken to stop contain and clean up spills as long as the site is safe to enter. The Departmental Representative shall be notified immediately of any spill as well as the provincial authorities. Basic instructions and phone numbers shall be part of the Contractor's EPP.

.8 In the even of a major spill, the Contractor shall prioritize the clean up

and all other work shall be stopped, where appropriate, and personnel devoted to spill containment and clean up.

.9 The costs involved in a major spill incident (control, clean up, disposal of contaminants, and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the pre-spill condition to the satisfaction of the Departmental Representative.

1.9 Equipment Maintenance, Fueling and Operation

.1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) outside before delivery to the work site.

.2 Equipment fueling sites will be identified by the Contractor to the satisfaction of the Departmental Representative. Except for chainsaws, any fuelling closer than 100 metres to any surface water (streams, wetlands, water bodies or watercourses) shall require discussion with the Departmental Representative.

.3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any surface water. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain a presence during refueling with immediate attention to the fuelling operations.

.4 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in Pollution Control.

.5 Equipment use on the project shall be fuelled with E10, and low sulphur diesel fuels where available, and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of the vehicles is avoided.

.6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations satisfactory to the Departmental Representative. Waste lubrication product (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas viewpoints, etc. or anywhere within the work area.

.7 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working condition.

.8 Fuel containers and lubricant products shall be stored only in secure locations to the satisfaction of the Departmental Representative. Fuel tanks or other potential deleterious substance containers shall be secured to ensure they are tamper-proof and cannot be drained by vandals when left overnight. Alternatively, the Contractor may hire a security person employed to prevent vandalism.

1.10 Operation of Equipment

.1 Equipment movements shall be restricted to the "footprint" of the construction area. The work limits shall be identified by stake and ribbon or other methods to the satisfaction of the Departmental

Representative. No machinery will enter work in or cross over streams, rivers, wetlands, waterbodies or watercourse, nor damage aquatic and riparian habitat or trees and plant communities. Where construction activities require working close to surface water, the Contractor is required to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) does not enter any surface water areas.

.2 The Contractor shall instruct workers to prevent pushing, placement, ravelling, storage or stockpiling of any materials (e.g. slash, rock, fill or top soils) in the tree bordering the right-of-way or into surface water.

.3 When, in the opinion of PWGSC, negligence on the part of the Contractor result in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at hi or her expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative.

.4 Restrict vehicle movements to the work limits.

.5 Workers' vehicles are to remain within the construction footprint.

1.11 Managing Invasive Plant Vegetation

.1 Keep equipment clean and avoid parking, turning around or staging equipment in known invasive species infested areas, or mow prior to use.

.2 Wash equipment prior to mobilization to site.

.3 Minimize unnecessary disturbance of roadside aggregates or soil, and retain desirable roadside vegetation whenever possible.

.4 Where possible, begin mowing or brushing in "invasive plant free" areas and end in infested areas.

.5 Where possible, use only clean fill material from an "invasive plant free" source.

.6 Whenever possible, re-see with grass mixtures that are free of weeds, locally adapted, non-invasive, and quick to establish. Spread seed in the early spring or late fall to ensure successful establishment.

1.12 Fire Prevention and Control

.1 A fire extinguisher shall be carried an available for use on each machine and at locations within the quarry in the event of a fire. Basic firefighting equipment is recommended (e.g. a water truck; minimum 500 imperial gallons with 500 feet of fire hose and a pump capable of producing 45 psi water pressure at the nozzle, three shovels, two Pulsaki's , and two five gallon backpack pumps) shall be maintained at the construction site t a location known and easily accessible to all Contractor's staff. Contractor's staff shall receive basic training in early response to wildfire events during the "environmental briefing".

.2 Construction equipment shall be operated in such a manner and with all original manufacturers' safety devices to prevent ignition of flammable materials in the area.

.3 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented.

.4 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The departmental Representative shall be notified of any fire immediately as well as the applicable Provincial Authorities. Basic instruction and phone numbers will be provided on-site by the Contractor and will be discussed in the project start-up meeting.

.5 Fires or burning of waste materials is not permitted.

.6 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.

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

.8 Obtain all required permits from the Province.

1.13 Wildlife

.1 Avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from bears, cougars, wolves, elk or moose that display aggressive behavior or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.

.2 Notify the Departmental Representative immediately about dens, litters, nests, carcasses (road kills), bear activity or encounters on or around the site or crew accommodations. Other wildlife related encounters are to be reported within 24 hours.

1.14 Relics and Antiquities

.1 Artifacts, relics, antiquities, and items of historical interest such as cornerstones, commemorative plaques, inscribed tablets and any objects found on the work site that may be considered artifacts shall be reported to the Departmental Representative immediately. The Contractor and workers shall wait for instruction before proceeding with their work.

.2 All historical or archaeological objects found in the rock quarry are protected under federal and provincial Acts and regulations. The Contractor and workers shall protect any articles found and request direction from the Departmental Representative.

.3 Human remains must be reported immediately to the local RCMP.

1.15 Waste Materials Storage and Removal

.1 The Contractor and workers shall dispose of hazardous wastes in conformance with the applicable federal and provincial regulations and should be part of the EPP.

.2 All wastes originating from construction, trade, hazardous and domestic sources, shall not be mixed, but will be kept separate.

.3 Construction, trade, hazardous waste and domestic waste materials shall not be burned, buried, or discarded at the construction site. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers, and disposed of at an appropriate waste landfill site located outside the work area.

.4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials where possible.

.5 Sanitary facilities, such as portable container toilets, shall be provided

by the Contractor and maintained in a clean condition.

1.16 Wastewater Discharge Criteria

.1 Wash water, meltwater collection, rinse water resulting from the cleaning of fuel tanks and pipelines, contaminated groundwater, and/or any other liquid effluent stream will be released onto the ground at a at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters, and will conform to the discharge requirements set out in the provincial Water Act Officer prior to discharging any treated wastewater.

.2 Contractor must obtain approval from the provincial Water Act Officer prior to discharging any treated wastewater.

1.17 Cap Wastewater Discharge Criteria

.1 Camp wastewater will be released onto the ground at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters and conform to the discharge requirements set out in the provincial Water Act Permit.

.2 If unable to meet the discharge criteria, provide additional storage and/or treatment necessary to meet criteria prior to discharge. Treat all camp wastewater to conform to the discharge requirements set out in the Water Act Permit.

.3 No direct discharge is allowed to wetland or surface waters.

.4 Contractor must obtain approval from the water Act Officer prior to discharging treated wastewater

1.18 Drainage

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water. Drainage should be part of the EPP.

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

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements such as the provincial Water Act.

.4 Provide an erosion and sediment control plan that identifies type and location of 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, Provincial, and Municipal laws and regulations.

.5 Submit and Erosion, Sediment and Drainage Control Plan to Departmental Representative for review and approval prior to commencing Work in fisheries sensitive areas or in areas that may affect fisheries sensitive areas and specifically address the protection of water bodies, water courses, and 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.

.6 Any dewatering activities will be released onto the ground at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters.

.7 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.

1.19 Site Clearing, Plant Protection, and Nestling Bird Protection

.1 Any clearing done during nestling season must have a bird survey completed first and approved by the Departmental Representative. Information on nesting season can be found in the Peace Region Least Risk Timing Windows: Biological Rational (2009) produced by the B.C. provincial government.

.2 Protect trees, plants on site and adjacent properties where indicated.

.3 Wrap in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of 2 metres.

.4 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.

.5 Minimize stripping of topsoil and vegetation.

.6 Restrict tree removal to areas indicated or designated by Departmental Representative.

1.20 Environmental Protection Supplies

.1 Comply with federal and provincial 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 30 m or more and as required of polypropylene silt fence (typial height of 09.m) and the necessary stakes for installation. This will be used as necessary to prevent sediment transport into water bodies.

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

.5 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.

.6 Unused Erosion, Sediment and Drainage Control supplies will remain the property of Departmental Representative until the completion of

the Contract.

.7 Provide inventory of environmental protection supplies prior to mobilization.

1.21 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, shall inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

.3 Departmental Representative will issue a 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.

1.22 Environmental Monitoring

.1 The monitoring program must be anticipatory and responsive to construction practices or environmental changes, reflecting the site specific conditions, level of sensitivity of the receiving environment, potential adverse effects, and level of environmental risk. Submitted documents regarding the proposed monitoring program should clearly identify how monitoring will adhere to this approach.

.2 The monitoring program shall satisfy all regulatory requirements and terms of these specifications the onus is on the Contractor to monitor and ensure compliance, to identify arising problems, and to subsequently take responsibility and all necessary measures in response.

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 Inspection

.1 Contractor is responsible for all Quality Control under this specification. Departmental Representative will audit and monitor Contractor's operation and implementation of Contractor's Quality Control Plan.

.2 All testing and inspection shall be as determined in the Design and approved by the Departmental Representative.

.3 Departmental Representative will not take samples for quality control testing and will in no manner assist in any degree or in any respect of Contractor's operation from beginning of work to completion.

.4 Quality Control Plan:

- .1 Prepare and submit detailed written Quality Control Plan to Departmental Representative.
- .2 Contractor to submit Quality Control Plan ten (10) working days before proposed work on site begins.
- .3 Departmental Representative will review Contractor's Quality Control Plan and respond in writing within five (5) days.
- .4 Any change to Quality Control Plan must be submitted to Departmental Representative for approval 24 hours prior to implementing change.
- .5 Plan to include but not limited to following:
  - .1 Quality management and quality assurance program for the design.
  - .2 Identification of source and proof of quality of aggregates in general and standard proctor testing for all types of material to be used.
  - .3 Stockpile management.
  - .4 Compaction testing of the various materials to be placed.
  - .5 Name of Quality Control Testing Agency and its certification and proven capability to provide specific services required for project.
  - .6 Inspection plan to verify quality of the Work and critical.
  - .7 List of critical inspection points in the progression of the work.
  - .8 List roles of dedicated technical staff, their qualifications and experience.
  - .9 List of testing equipment, date last calibrated and by whom.

.5 Quality Control Testing and Inspection:

- .1 Contractor shall provide and maintain equipment and qualified personnel to perform all laboratory testing, field testing and inspection necessary to determine and monitor the characteristics and properties of all materials incorporated into work. Contractor shall monitor workmanship of final product in accordance with Quality Control Plan as most recently submitted and approved.
- .2 Contractor's Quality Control testing and inspection shall utilize qualified registered member of the Association of Professional Engineers and Geoscientists of British Columbia or a qualified , registered member of the Applied Science Technologists and Technicians of British Columbia who shall oversee all aspects of the Quality Control and Inspection. This person shall be designated as Quality Control Manager for the purpose of these specifications. Quality Control Manager shall be responsible for preparation and sign off of the Quality Control Plan, approving all quality control staff, all quality control testing and inspections and for signing submission, within five (5) working days, of all Quality Control testing and inspection records to Departmental Representative.

.3 Contractor to maintain a fully equipped and operational field laboratory on site for all stages of work, complete with heat and water as required by Departmental Representative.

.4 Contractor's Quality Control testing equipment and laboratory shall be well maintained and in good working condition. All testing equipment shall be calibrated and evidence of calibration shall be provided when requested by the Departmental Representative.

.6 Quality Control Records:

.1 Results from Quality Control testing shall be reported on test logs and plotted on charts immediately after each test is completed. Contractor shall report all test results. Reports shall be available for viewing on the project system OPROMA within 24 hours of the end of each working shift.

.7 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative's instruction, or law of Place of Work.

.8 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.

.9 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, then Contractor shall correct such Work and pay cost of examination and correction. If Such Work is found in accordance with Contract Documents, then Departmental Representative will pay cost of examination and replacement.

1.2 Measurement Procedures

.1 All quality control measures are to be considered incidental to the work unless otherwise specified.

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

.3 Provide equipment and field laboratory required for executing inspection and testing.

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

.5 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. Contractor shall pay costs for retesting and reinspection and no separate payment will be made.

1.3 Access to Work

.1 Allow Departmental Representative and inspection/testing agencies access to Work and quality control testing facilities. If part of Work is in preparation at location other than Contract Project Limits, allow Departmental Representative access to such Work whenever it is in progress.

.2 Cooperate to provide reasonable facilities for such access.

1.4 Procedures

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

.2 Provide labour and facilities that meet requirements necessary to carry out all tests listed within this specification.

1.5 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 removal 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 shall be determined by Departmental Representative.

1.6 Reports

.1 Submit all inspection and test reports to Departmental Representative in accordance with Section 01 33 00 – Submittal Procedures.

.2 Provide copies to Subcontractor of Work being inspected or tested, to manufacturer or fabricator of material being inspected or tested.

PART 2 PRODUCTS

2.1 Not Used

.1 Not Used

PART 3 EXECUTION

3.1 Not Used

.1 Not Used

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.

1.2 Scaffolding
.1 Provide and maintain scaffolding, ramps, ladders, swing staging, platforms and temporary stairs as necessary to carry out work.

1.3 Measurement Procedures
.1 Provision of Construction Facilities shall be considered incidental to the work and so no separate payment shall be provided.

1.4 Hoisting
.1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment. Make financial arrangements with subcontractors for use thereof.
.2 Hoists and cranes shall be operated by qualified operator.

1.5 Site Storage/Loading
.1 Confine work and operations of employees to area defined by Contract Documents. Do not unreasonably encumber premises with products.
.2 Do not load or permit to load any part of work with a weight or force that will endanger the work.

1.6 Equipment, Tool and Materials Storage
.1 Provide and maintain, in a clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
.2 Locate materials not required to be stored in weatherproof sheds on site in a manner to cause least interference with work activities.

1.7 Sanitary Facilities
.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.
.2 Post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8 Construction Signage
.1 Locate project identification sign as directed by Departmental Representative.
.2 Direct requests for approval to erect a Consultant/Contractor signboard to Departmental Representative. For consideration, general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording shall be in both official languages.
.3 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall conform to CAN3-Z321.
.4 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.

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 Section Includes
- .1 Related Sections.
- .2 Measurement Procedures.
- .3 Installation and Removal.
- .4 Hoarding.
- .5 Guiderail and Barricades.
- .6 Access to Site.
- .7 Public Traffic Flow.
- .8 Fire Routes.
- .9 Protection for Off-site and Public Property.
- .10 Protection of Structure Finishes.

1.2 Related Sections
- .1 Section 01 52 00 Construction Facilities.

1.3 Measurement Procedures
- .1 No separate payment under Temporary Barriers and Enclosures.

1.4 Installation and Removal
- .1 Provide temporary controls in order to execute Work expeditiously.
- .2 Remove from site all such work after use.

1.5 Hoarding
- .1 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.6 Guiderails and Barricades
- .1 Provide secure, rigid guiderails and barricades around deep excavations and open shafts.
- .2 Provide as required by governing authorities.

1.7 Access to Site
- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.8 Public Traffic Flow
- .1 Provide and maintain competent signal flag persons, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the Public.

1.9 Fire Routes
- .1 Maintain access to property for use by emergency response vehicles.

1.10 Protection for Off-site and Public Property
- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

1.11 Protection of Structure Finishes
- .1 Provide protection for finished and partially finished structure finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers and hoardings.
- .3 Confirm with Departmental Representative locations and installation schedule three (3) day prior to installation.
- .4 Be responsible for damage incurred due to lack of or improper protection.

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 Description

.1 This section specifies requirements of regulatory agencies related to establishment and removal of construction camps.

1.2 Requirements of Regulatory Agencies

.1 Camp and service area locations are subject to approval of Departmental Representative and are to be established and operated in accordance with local regulations governing operations of field camps.

.2 Prior to installation of camp and services, submit plan of layout to Departmental Representative for approval.

.3 Apply to authority having jurisdiction for authorization for use of water and disposal of domestic sewage wastes. Obtain authorization prior to establishing camp.

.4 Comply with all federal, provincial and municipal Environment Regulations.

1.3 Measurement for Payment

.1 Establishment of the Construction Camp shall be considered incidental to the work and not separate payment provided.

PART 2 PRODUCTS

2.1 Not Used

.1 Not used.

PART 3 EXECUTION

3.1 Mobilization

.1 Mobilize equipment, camp, personnel and material. Establish temporary buildings, shops, offices and facilities. Obtain necessary license and approvals.

.2 Upon vacating camp and services area sites, clean up and leave in condition satisfactory to Departmental Representative.

3.2 Maintenance

.1 Maintain camps in neat and tidy condition.

.2 No separate payment for camp clean up.

END OF SECTION

PART 1 GENERAL

1.1 Section Includes

.1 Related Sections.
.2 Measurement Procedures.
.3 Qualification of Surveyors.
.4 Survey Reference Points.
.5 Survey Requirements.
.6 Records.
.7 Submittals.

1.2 Related Sections

.1 Section 01 11 00 - Summary of Work.
.2 Section 01 33 00 – Submittal Procedures.

1.3 Measurement Procedures

.1 Cost for providing Surveys and Site preparation will be paid for under the unit price for "Provide Independent Certified Testing Services and Survey Crew".

1.4 Qualifications of Surveyor

.1 A qualified registered surveyor licensed to practise in British Columbia, acceptable to the Departmental Representative, shall perform the required surveying for the Contractor.

1.5 Survey Reference Points

.1 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
.2 Make no changes or relocations without prior written notice to Departmental Representative.
.3 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
.4 Require surveyor to replace control points in accordance with original survey control.

1.6 Survey Requirements

1. Establish working points based on existing control monuments provided by the Departmental Representative and as required by the Design
2. Stake for work to be performed by the Contractor.
3. Provide As Built surveys of the Work including open floor plan, frame and additional bracing, foundation and anchorage, and connection details.
4. The Departmental Representative may elect to verify surveys. Verification of the survey by the Departmental Representative does not abdicate the Contractor's responsibility for the correctness and accuracy of the survey.
5. Contractor shall complete all measurement surveys for payment and submit cross sections and other requirements for payment by the end of the month in which they were taken.

1.7 Records

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

2. Record locations of maintained, re-routed and abandoned service lines.

1.8 Submittals

1. Submit name and address of Surveyor to Departmental Representative.
2. On request of the Departmental Representative, submit documentation to verify accuracy of field engineering work.
3. Submit certificate signed by Surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform to Contract Documents.

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 Section Includes

.1 Related Sections.
.2 Measurement Procedures.
.3 Project Cleanliness.
.4 Final cleaning.

1.2 Related Sections

.1 Section 01 35 43 - Environmental Protection.
.2 Section 01 77 00 – Closeout Procedures.

1.3 Measurement Procedures

.1 Cost for Cleaning will be considered incidental to the Work and no additional payment will be made.

1.4 Project Cleanliness

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative or other Contractors.
.2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
.3 Clear snow and ice from access to road and bridge sites during active construction periods as necessary and when access to environmental protection facilities required outside active construction times.
.4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
.5 Provide at least one (1) bear proof container on site for collection of waste materials and debris.
.6 Remove waste material and debris from site at end of each working day.
.7 Dispose of waste materials and debris off site.
.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
.9 Provide adequate ventilation during use of volatile or noxious substances.
.10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.5 Final Cleaning

.1 When Work is Substantially Performed, remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
.2 Prior to final review, remove surplus products, tools, construction machinery and equipment.
.3 Remove waste products and debris including that caused by Departmental Representative or other Contractors.
.4 Do not burn waste materials on site.
.5 Make arrangements with and obtain permits from Authorities Having

Jurisdiction for disposal of waste and debris.

.6 Inspect finishes, and ensure specified workmanship and operation.

.7 Remove dirt and other disfiguration from exterior surfaces.

.8 Sweep and wash clean paved areas.

.9 Clean drainage systems.

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 Section Includes

.1 Administrative procedures preceding preliminary and final inspections of work.

1.2 Inspection and Declaration

.1 Contractor's Inspection: Contractor and all subcontractors shall 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 shall correct work accordingly.

.3 Completion: submit written certificate that following have been performed:
  .1 Work has been completed and inspected for compliance with Contract Documents.
  .2 Defects have been corrected and deficiencies have been completed.
  .3 Equipment and systems have been tested, adjusted and balanced and are fully operational.
  .4 Operation of systems have been demonstrated to Owner's personnel.
  .5 Work is complete and ready for Final Inspection.

.4 Final Inspection: when items noted above are completed, request final inspection of work by Owner, Departmental Representative and Contractor. If work is deemed incomplete by Owner and Departmental Representative, complete outstanding items and request re-inspection.

1.3 Measure for Payment

.1 No separate payment for Closeout Procedures.

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 Section Includes

.1 Related Sections.
.2 As-built, samples, and specifications.
.3 Recording Actual Site Conditions.
.4 Final Survey.
.5 Materials and Finishes.
.6 Warranties and bonds.

1.2 Related Sections

.1 Section 01 33 00 - Submittal Procedures.
.2 Section 01 45 00 – Quality Control.
.3 Section 01 71 00 – Examination and Preparation.
.4 Section 01 77 00 – Closeout Procedures.

1.3 As-built, Samples and Specifications

.1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
  .1 Approved Design Drawings.
  .2 Specifications.
  .3 Addenda.
  .4 Change Orders and other modifications to the Contract.
  .5 Reviewed shop drawings, product data, and samples.
  .6 Field test records.
  .7 Inspection certificates.
  .8 Manufacturer's certificates.
  .9 Quantity measurements.
  .10 As Built Records.
.2 Store record documents and samples in field office apart from documents used for construction.
.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.

1.4 Recording Actual Site Conditions

.1 Record information on set of black line opaque Drawings and in copy of the Project Manual.
.2 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
.3 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 approved Design Drawings.
.4 References to related shop drawings and modifications.

.4 Specifications: legibly mark each item to record actual construction.
.1 Changes made by Addenda and Change Orders.

1.5 Final Survey

.1 Submit final site survey certificate in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

.2 Submit "RECORD" drawings.

1.6 Materials and Finishes

.1 Provide specifications for applied materials and finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for reordering custom manufactured products.

1.7 Warranties and Bonds

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.

.4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

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 Related Sections

.1 Section 01 33 00 – Submittal Procedures
.2 Section 01 35 43 – Environmental Protection

1.2 References

.1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92637.
.2 National Fire Code of Canada 1995.
.3 Transportation of Dangerous Goods Act (TDG Act) 1992, (T19.01).
.4 Transportation of Dangerous Goods Regulations (TDGR), (SOR/8577, SOR/85585, SOR/85609, SOR/86526).

1.3 Definitions

.1 Dangerous Goods: Product, substance, or organism that specifically listed or meets the hazard criteria established in Transportation of Dangerous Goods Regulations.
.2 Hazardous Material: Product, substance, or organism that is used for its original purpose; and that is either dangerous goods or a material that may cause adverse impact to the environment or adversely affect health of persons, animals, or plant life when released into the environment.
.3 Hazardous Waste: Any hazardous material that is no longer used for its original purpose and that is intended for recycling, treatment or disposal.
.4 Workplace Hazardous Materials Information System (WHMIS): A Canada-wide system designed to give employers and workers information about hazardous materials used in the workplace. Under WHMIS, information on hazardous materials is to be provided on container labels, material safety data sheets (MSDS), and worker education programs. WHMIS is put into effect by a combination of federal and provincial laws.

1.4 Submittals

.1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.
.2 Submit to Departmental Representative current Material Safety Data Sheet (MSDS) for each hazardous material required prior to bringing hazardous material on site.
.3 Submit hazardous materials management plan to Departmental Representative that identifies all hazardous materials, their use, their location, personal protective equipment requirements, and disposal arrangements.

1.5 Storage and Handling

.1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
.2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
.3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.

.4 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.

.5 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:

.1 Store hazardous materials and wastes in closed and sealed containers that are in good condition.

.2 Label containers of hazardous materials and wastes in accordance with WHMIS.

.3 Store hazardous materials and wastes in containers compatible with that material or waste.

.4 Segregate incompatible materials and wastes.

.5 Ensure that different hazardous materials or hazardous wastes are not mixed.

.6 Store hazardous materials and wastes in a secure storage area with controlled access.

.7 Maintain a clear egress from storage area.

.8 Store hazardous materials and wastes in a manner and location that shall prevent them from spilling into the environment.

.9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.

.10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.

.6 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.

.7 Report spills or accidents immediately to Departmental Representative and the ESO. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.6 Transportation

.1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.

.2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.

.3 If hazardous waste is generated on site:

.1 Coordinate transportation and disposal with Departmental Representative.

.2 Ensure compliance with applicable provincial laws and regulations for generators of hazardous waste.

.3 Use only a licensed carrier authorized by provincial authorities to accept subject material.

.4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept this material.

.5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.

.6 Ensure that only trained personnel handle, offer for transport,

or transport dangerous goods.

.7 Provide a photocopy of all shipping documents and waste manifests to Departmental Representative.

.8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.

.9 Report any discharge, emission, or escape of hazardous materials immediately to the Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

PART 2 PRODUCTS

2.1 Materials

.1 Only bring on site the quantity of hazardous materials required to perform work.

.2 Maintain MSDS in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

PART 3 EXECUTION

3.1 Disposal

.1 Dispose of hazardous waste materials in accordance with applicable Federal and Provincial acts, regulations and guidelines.

.2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.

.3 Send hazardous wastes only to authorized hazardous waste disposal treatment facilities.

.4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.

.5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

.6 Dispose of hazardous wastes in a timely fashion in accordance with applicable provincial regulations.

END OF SECTION

PART 1 GENERAL

1.1 Related Requirements

.1 Section 01 11 00 – Summary of Work
.2 Section 01 32 18 – Construction Progress Schedule – BAR (GANTT) Chart
.3 Section 01 33 00 – Submittal Procedures
.4 Section 01 35 43 – Environmental Protection
.5 Section 01 45 00 – Quality Control

1.2 References

.1 ASTM International
  .1 ASTM A 185/A 185M-[07], Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
  .2 ASTM D 260, Standard Specification for Boiled Linseed Oil.
  .3 ASTM D 1751-[04], Standard Specification for Preformed Expansion Joint Filler for Concrete paving and structural Construction (Non extruding and Resilient Bituminous Types).
.2 Canadian General Standards Boards (CGSB)
  .1 CAN/CGSB-19.24, Multicomponent, Chemical-Curing Sealing Compound.
.3 CSA International
  .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  .2 CSA A3000, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
  .3 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement

1.3 Administrative Requirements

.1 Pre-installation Meetings: in accordance with Section 01 32 18 Construction Progress Schedule – BAR (GANTT) Chart, convene pre-installation meeting one (1) week prior to beginning concrete works.
  .1 Ensure key personnel and Departmental Representative attends.

1.4 Action and Informational Submittals

.1 Provide submittals in accordance with Section 01 33 00 Submittal Procedures.
.2 Shop Drawings:
  .1 Submit placing drawings prepared in accordance with approved design to clearly show size, shape, location and necessary details of reinforcing.
  .2 Submit drawings showing formwork and falsework design to CSA A23.1/A23.2.
  .3 Submit Drawings stamped and signed by a professional engineer registered or licensed in the province of British Columbia, Canada.
.3 At least two (2) weeks prior to beginning Work, inform Departmental Representative of source of fly ash.

.1 Do not change source of fly ash without written approval of Departmental Representative.

.4 Provide testing result and inspection reports for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.

.5 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time as determined in the Design for concrete to be delivered to site of work and discharged after batching.

1.5 Quality Assurance

.1 Provide to Departmental Representative two (2) weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.

.1 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets the performance requirements of the Design.

1.6 Delivery, Storage and Handling

.1 Delivery and Acceptance Requirements:

.1 Concrete hauling time: deliver to site of work and discharged within maximum amount of time specified in design after batching.

.1 Do not modify maximum time limit without receipt of prior written agreement from Departmental Representative and concrete producer as described in CSA A23.1/A23.2.

.2 Deviations to be submitted for review by the Departmental Representative.

.2 Concrete delivery: ensure continuous concrete delivery from plant meets CA A23.1/A23.2.

PART 2 PRODUCTS

2.1 Design Criteria

.1 All concrete must be designed, specified and produced in accordance with CAN/CSA A23.1-9/23.2-09 with CAN/CSA A23.3-04 (R2010). For durability, the concrete is to be designed for exposure to de-icing salts.

.2 Ensure concrete supplier meets performance criteria of concrete as established in the Design and provide verification of compliance as described in Part 1 – Quality Assurance.

2.2 Mixes

.1 Concrete mixes to be specified by the designer.

PART 3 EXECUTION

3.1 Preparation

.1 Provide Departmental Representative 24 hours notice before each concrete pour.

.2 Verify that concrete reinforcing was placed in accordance with Design.

.3 During concreting operations:
- .1 Development of cold joints is not allowed.
- .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.

.4 Protect previous work from staining.

.5 Clean and remove stains prior to application of concrete finishes.

3.2 Installation/Application

.1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.

.2 Sleeves and inserts:
- .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduits, bolts, waterstops, joint fillers and other inserts required to be built-in, unless otherwise specified by Design.

3.3 Finishes

.1 Formed surfaces exposed to view in accordance with CSA A23.1/A23.2.

.2 Exposed site concrete:
- .1 Screed to plane surfaces.
- .2 Provide round edges.
- .3 Trowel smooth to provide lightly brushed non-slip finish.

3.4 Field Quality Control

.1 Concrete testing to CSA A23.1/A23.2 by CSA certified testing laboratory designated and paid for by the contractor. Provide results of testing within two (2) days of each test, and include in the close-out documentation.

3.5 Cleaning

.1 Clean in accordance with Section 01 74 11 – Cleaning.

.2 Use trigger operated spray nozzles for water hoses.

.3 Designate cleaning area for tools to limit water use and runoff.

.4 Cleaning of concrete equipment to be done in accordance with Section 01 35 43 – Environmental Protection.

3.6 Waste Management

.1 All unused concrete, concrete materials including but not limited to additives, curing compounds and wash water to be collected and disposed of off-site either at an approved landfill or to a concrete supplier equipped to dispose of all such material in accordance with applicable legislation. Provide certificate of acceptance of these materials indicating quantity and general condition of the materials accepted.

.2 Provide appropriate are on job site where concrete trucks can be safely washed with collection of the wash water for appropriate disposal.

.3 Do not dispose of unused concrete, wash water, admixtures and additive materials into sewer systems, lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

END OF SECTION

PART 1 GENERAL

1.1 Related Requirements
- .1 Section 13 34 24 – Structural Steel for Buildings
- .2 Section 01 45 00 – Quality Control

1.2 References
- .1 ASTM International
  - .1 ASTM A 325-07a, Standard Specification for Structural Bolts, steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
  - .2 ASTM 325M-08, Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength.
  - .3 ASTM A 490M-04ae, Standard Specification for High-Strength Steel Structural Bolts, Classes 10.9 and 109.3, For Structural Steel Joints.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-95.10-99, Protective Coatings for Metals.
- .3 Canadian Institute o Steel Construction (CISC)/Canadian Paint Manufacturers Association (CPMA)
  - .1 Handbook of the Canadian Institute of Steel Construction.
  - .2 CISC/CPMA Standard 2-75, Quick-Drying Primer for use on Structural Steel.
- .4 Canadian Standards Association (CSA International)
  - .1 CSA G40.20G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
  - .2 CAN/CSA-G164-M92, Hot Dip Galvanizing of Irregularly Shaped Articles.
  - .3 CAN/CSA-S16, Limit States Design of Steel Structures.
  - .4 CAN/CSA-S136, North American Specifications for the Design of Cold Formed Steel Structural Members.
  - .5 CSA W47.1, Certification of Companies for Fusion Welding of Steel.
  - .6 CSA w48, Filler Metals and Allied Materials for Metal Arc Welding.
  - .7 CSA W55.3, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
  - .8 CSA W59 Welded Steel Construction (Metal Arc Welding).
- .5 Master Painters Institute
  - .1 MPI-INT 5.1, Structural Steel and Metal Fabrications.
  - .2 MPI-EXT 5.1, Structural Steel and Metal Fabrications.
- .6 The Society for Protective Coatings (SSPC) and National Association of Corrosion Engineers (NACE) International
  - .1 NACE No. 3/SSPCE SP-6, Commercial Blast Cleaning.

1.3 Action and Informational Submittals
- .1 Provide submittals in accordance with Section 01 33 00 Submittal Procedures.
- .2 Shop Drawings:
  - .1 Provide drawings stamped and signed by Professional Engineer registered or licensed in the Province of British Columbia, Canada.
- .3 Erection Drawings:

.1 Submit erection drawings indicating details and information necessary for assembly and erection purposes including:
  .1 Description of methods.
  .2 Sequence of erection.
  .3 Type of equipment used in erection.
  .4 Temporary bracings.

.4 Fabrication drawings:
  .1 Submit fabrication drawings showing designed assemblies, components and connections are stamped and signed by qualified Professional Engineer licensed in the Province of British Columbia, Canada.

.5 Source Quality Control Submittals:
  .1 Submit copy of mill test reports two (2) weeks prior to fabrication of structural steel.
    .1 Mill test reports to show chemical and physical properties and other details of steel to be incorporated in project, in accordance with approved design.
    .2 Provide mill test reports certified by metallurgists qualified to practice in the Province of British Columbia, Canada.

.6 Fabricator Reports:
  .1 Provide structural steel fabricator's affidavit stating that materials and products used in fabrication conform to applicable material and products standards specified and indicated in design.

1.4 Delivery, Storage and Handling

.1 Deliver materials in manufacturer's original, undamaged containers with identification labels intact.

.2 Deliver, store and handle materials in accordance with Section 01 11 00 Summary of Work.

.3 Dispose of packaging waste in accordance with Section 01 11 00 Summary of Work and Section 01 35 43 Environmental Procedures.

PART 2 PRODUCTS

2.1 Design Requirements

.1 Design details and connections in accordance with requirements of CAN/CSA-s16 and CAN/CSA-S136 to resist forces moments, shears and allow for movements as indicated in design.

.2 Shear connections:
  .1 Select framed beam shear connections from an industry accepted publication such as "Handbook of the Canadian Institute of Steel Construction" when connection for shear only (standard connection) is required.
  .2 Select or design connections to support reaction from maximum uniformly distributed load that can be safely supported by beam in bending, provided no point loads act on beam, when shears are not indicated.

.3 For composite construction select or design minimum end connection to resist reaction resulting from factored movement resistance as

tabulated in the "handbook of the Canadian Institute of Steel Construction" assuming 100% of shear connection with depth of steel deck and/or slab as shown in design.

.4 Submit sketches and design calculations stamped and signed by qualified professional engineer licensed in the Province of British Columbia, Canada for design.

2.2 Materials

.1 As determined in design.

2.3 Fabrication

.1 Fabricate structural steel in accordance with CAN/CSA-S16, CAN/CSA-S136 and in accordance with design.

2.4 Shop Painting

.1 Clean, prepare surfaces and shop prime structural steel in accordance with applicable standards as specified in design.

.2 Paint exposed surfaces of the structure in accordance with applicable standards as specified in the design.

.1 Colour samples to be provided to Departmental Representative two (2) weeks prior to start of fabrication. Colour to be approved by Departmental Representative.

PART 3 EXECUTION

3.1 Application

.1 Comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions and datasheets.

3.2 Erection

.1 Erect structural steel, as indicated and in accordance with CAN/CSA-S16, CAN/CSA-S136 and in accordance with erection drawings.

.2 Field cutting or altering of structural members to the approval of the Departmental Representative in consultation with the Design Engineer.

3.3 Field Quality Control

.1 Inspection and testing of materials and workmanship will be carried out by a certified testing laboratory approved by the Departmental Representative.

.2 Provide safe access and working areas for testing on site, as required by testing agency and as authorized by Departmental Representative.

.3 Submit test reports to Departmental Representative within one (1) week of completion of inspection.

.4 Consultant will pay costs of tests as specified in Section 01 11 00 Summary of Work and Section 01 45 00 Quality Control.

.5 Test shear studs in accordance with CSA W59.

3.4 Field Painting

.1 Paint in accordance with specifications of design.

.1 Touch up damaged surfaces and surfaces without shop coat with primer and top coat to NACE No. 3/SSPC-SP-6 except as specified otherwise by design.

3.5 Cleaning

.1 Clean in accordance with Section 01 74 11 Cleaning.

.2 Store and dispose of waste in accordance with Section 01 11 00 Summary of Work and Section 01 35 43 Environmental Protection.

END OF SECTION

PART 1 GENERAL

1.1 Related Requirements

1 Section 01 11 00 – Summary of Work
2 Section 01 45 00 – Quality Control
3 Section 03 30 00.01 – Cast in Place Concrete
4 Section 05 12 23 – Structural Steel for Buildings
5 Section 26 05 00 – Common Work Results – Electrical

1.2 Action and Information Submittals

1 Submit in accordance with Section 01 11 00 – Summary of Work and 01 33 00 – Submittal Procedures:
2 Product Data:
- .1 Submit manufacturer's instructions, printed product literature and data sheets for standard building assembly components and include product characteristics, performance criteria, physical size, finish, and limitations.

3 Delegated Design Submittals:
- .1 Indicate plans and grid lines, structural members and connection details, bearing and anchorage details as necessary, framed openings accessories, schedule of materials and finishes, camber and loadings, fasteners and welds.
- .2 Submit erection drawings to Departmental Representative, indicating erection dimensions and methods.

4 Shop Drawings:
- .1 Submit drawings stamped and signed by Professional Engineer registered in the Province of British Columbia who is taking responsibility for design.

5 Manufacturer's Field Reports: submit manufacturer's written reports within three (3) days of review, verifying compliance of Work, as described in Field Quality Control.

1.3 Salt Shed Requirements

1 Contractor shall supply and erect one pre-engineered, un-insulated structure, for the purpose of storing road salt and sand, over an existing liner system, as shown in the attached drawings, for reference only, in accordance with relevant standards specified in the design. Welding to be in accordance with the CSA standard(s) appropriate to the type(s) of metal.
- .1 The contractor is able to design the shed using any appropriate combination of materials. The design and finished product is to comply with the contract documents.
- .2 Salt shed is to be in the location shown on the drawing "Revised Boundary Survey Plan" with a service life of 25 years.

2 Provide salt shed structure and enclosure to physical dimensions as indicated:
- .1 27.5 m (90') wide, clear span
- .2 52.0 m (170') long
- .3 Minimum 6.7 m (22') clear height, with a gable-type roof

3 Provide a door opening on the north-east side of the shed with the

physical dimensions indicated:
- .1 7.3 m (24') wide
- .2 6 m (20') high

4 Shed must be engineered to climatic conditions expected at the site and in accordance with NBC 2010 and BCBC 2012.
- .1 Use of climatic data from the Town of Watson Lake (closest major settlement) at km 1020 shall be considered acceptable.
- .2 Wind, snow and ice load shall be based on a probability of exceedence 1 in 50 years.

5 Provide adequate ventilation in accordance with the Canadian Environmental Protection Agency (CEPA) "Code of Practice for the Environmental Management of Road Salts" and the Salt Institution "Salt Storage Handbook" utilizing fixed blade, drainable, all welded aluminum construction louvers.

6 Shed must be certified by a Professional Engineer registered in the Province of British Columbia. Contractor to provide engineered shop drawings of salt shed stamped, dated and signed by Professional Engineer.
- .1 Provide all design calculations and design drawings to the Departmental Representative for review in accordance with Section 01 33 00 – Submittal Procedures.

1.4 Foundation Requirements

1 Foundations shall be designed to support the salt shed. Design to be by a Professional Engineer registered in British Columbia.

2 The Contractor is responsible to obtain any geotechnical data and design services required.

3 All concrete works to be designed in accordance with the contract documents including Section 03 30 00.01 Cast-in-Place Concrete.

4 Foundation shop drawings must be stamped and signed by the design Professional Engineer and submitted to the Departmental Representative for review. If the design Professional engineer for the foundation is not the coordinating engineer, then the coordinating engineer is also to stamp and sign the documents to indicate the foundation design has been coordinated with the design of the rest of the structure.
- .1 Provide all design calculations and design drawings to the Departmental Representative for review in accordance with Section 01 33 00 – Submittal Procedures.

5 Contractor shall conduct concrete testing in accordance with Section 03 30 00.01 Cast-in-Place Concrete and provide results to the Departmental Representative if concrete is used in the foundation.

1.5 Delivery, Storage and Handling

1 Deliver, store and handle materials in accordance with manufacturer's written instructions.

2 Delivery and acceptance requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

3 Storage and handling requirements:
- .1 Store materials in accordance with manufacturer's recommendations.
- .2 Store and protect fabricated components from damage.
- .3 Replace defective or damaged materials with new.

1.6 Warranty

1 Contractor warrants Work of this section is in accordance with the design and contract specifications for a period of 5 years.

PART 2 PRODUCTS

2.1 Products

1 Designer is responsible for the choice of materials and products unless otherwise specified.

2 If the Contractor chooses to utilize treated wood in the design, it is to be in accordance with CSA 080-08 Wood Preservation.

PART 3 EXECUTION

3.1 Examination

1 Verify conditions of substrates previously installed are acceptable for salt shed installation in accordance with Design and manufacturer's instructions if applicable.
- .1 Visually inspect substrate in presence of Departmental Representative.
- .2 Inform Departmental Representative immediately of unacceptable conditions upon discovery.
- .3 Proceed with salt shed installation only after unacceptable conditions have been remedied and receipt of written approval from Departmental Representative.

3.2 Foundation Installation

1 Excavate required size and depth as determined in Design.

2 Any concrete work for foundations to be in accordance with Section 03 30 00.01 Cast-in-Place Concrete.

3.3 Salt Shed Installation

1 Salt shed to be assembled on site as determined in the Design and as stated in the erection plans.

2 Location to be as indicated in drawings attached to these specifications.

.3 Erection of framing system

.1 Fit members square against abutting components.

.2 Position members plumb, square, and level.

.3 Temporarily brace members until permanently fastened.

.4 Do not splice load bearing members.

.5 Align and adjust various members forming parts of a complete frame or structure after assembly but before fastening.

.6 Rigidly connect members using welds or bolts.

.7 Installation Tolerances:

.1 Maximum variation from location: Plus or minus 6 mm (1/4 inch).

.2 Maximum variation from plane: 6mm in 3 m (1/4inch in 10 feet).

.4 Installation of metal panels

.1 Install in accordance with manufacturer's instructions and approved Shop Drawings.

.2 Install aligned, level, and plumb.

.3 Permanently fasten panels to supports in concealed locations. Exposed fasteners permitted on trim members only.

.4 Locate panel joints over supports.

.5 Lap end joints 100 mm (4 inches) minimum.

.6 Install trim to maintain visual continuity of system.

.7 Install joint sealers and gaskets to prevent water penetration.

.8 Flash penetrations through roofing with metal trim to match panels:

.1 Lap flashings over roof panels 300 mm(12 inches) minimum on all sides and seal with double bead of joint sealer.

.2 Install metal draw band and joint sealer at top of pipe penetrations, if any.

.3 Install water diverter at uphill side of square and rectangular penetrations.

3.4 Field Quality Control

1 Coordinating Engineer shall verify compliance of work, in handling, installing applying, protecting and cleaning of product.

3.5 Cleaning

1 Leave Work area clean at end of each day.

2 Upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

3.6 Waste Management

1 Separate waste materials from salt shed fabrication and erection for reuse and recycling as necessary.

2 Waste excavation material may be disposed of in designated area of Fireside Gravel Pit in accordance with Section 01 11 00 – Summary of Work.

3 Other waste materials to be disposed of in accordance with Section 01 35 43 – Environmental Protection at landfills operating with all required provincial and environmental permits. Copies of Landfill's permits to be provided to the Departmental Representative five (5) days prior to initial disposal at landfill. Provide copies of certificates from landfill accepting each load of material indicating the quantity and general description of the materials accepted.

END OF SECTION

General

1.1 GENERAL

1. Work within this contract includes supply and installation all electrical components related to the new salt shed on Alaska Highway maintenance site located in Fireside, BC.
2. The word "Provide" shall mean "Supply and Install" the product and services indicated in the performance specifications herein.

1.2 REFERENCE CODES, STANDARDS AND GUIDELINES

1. The electrical systems for this facility shall be designed by a licensed Professional Engineer in conformance with all federal, provincial and municipal laws and regulations and shall conform to the latest edition or revision of the codes and standards of the following technical associations and organizations:
    1. CSA - Canadian Standards Association
    2. NBC - National Building Code
    3. ULC - Underwriter's Laboratory of Canada
    4. Canadian Electrical Code (CEC), CSA-C22.1, latest edition and Provincial amendments and Bulletins.
    5. Provincial Electrical Safety Code
    6. Specific requirements listed in this document may exceed the minimum requirements stated in the codes, standards, etc. of the above organizations. The Design Build Contractor is advised that in all cases the most restrictive requirements shall apply.

1.3 REFERENCE DRAWINGS AND DOCUMENTS

1. Design shall be based on the information contained in this specification. Design shall also be coordinated with the requirements of all other disciplines.
2. Refer to Survey Plan for information related to proposed location of the building.

1.4 GENERAL ELECTRICAL REQUIREMENTS

1. GENERAL
    1. The Design Build Contractor shall include all design, documentation, labour, materials and equipment required for installing, testing and commissioning of electrical systems as detailed in all sub-sections of this Electrical Performance Specification.
    2. Existing Conditions: Investigate site and local conditions affecting work under this specification. Co-ordinate with Civil and Structural disciplines to ensure work can be performed in a seamless manner and without any interruption to the existing activities on site.

3. Obtain approvals from Departmental Representative before commissioning systems and putting into service. System commissioning shall be performed in the presence of the Departmental Representative.
4. Permits and Regulations: Obtain all regulatory permits and pay all fees for performing the work based on the approved final engineering drawings.
5. Review approved drawings with Departmental Representative, and authorities having jurisdiction to ensure compliance with all applicable codes and bylaws.
6. Submit drawings stamped and signed by a Professional Engineer registered in the Province of British Columbia who is taking responsibility for the design.

2. EXECUTION OF WORK
1. Install all wiring and equipment neatly. Equipment installed improperly, to be removed and replaced at no cost to Departmental Representative.
2. Protect and maintain work until all installation has been completed and accepted. Protect work against damage during installation. Cover with tarpaulins if necessary. Repair all damage to floor and wall surfaces resulting from carrying out work, without expense and to the satisfaction of the Departmental Representative.
3. On completion of work, remove tools, surplus and waste material and leave work in clean, perfect condition.

3. VOLTAGE UTILIZATION
1. Electrical voltage shall be 120/240V, 1-phase, 3-wire.

4. LAWS, RULES, ORDINANCES, PERMITS AND CERTIFICATIONS
1. Comply with requirements of the Electrical Supply Authority, the latest edition of the Canadian Electrical Code, with all Provincial and Municipal Laws, Rules and Ordinances, and to the satisfaction of those organizations having jurisdiction over same.
2. Prepare and submit to the proper authorities all required drawings and obtain all necessary permits and pay all fees connected therewith.
3. Be responsible for arranging, and pay all required fees, for inspection of the work by authorities having jurisdiction over same.
4. Furnish certificates necessary as evidence that work installed conforms to the regulations of authorities having jurisdiction.

5. WORKMANSHIP AND MATERIALS
1. All equipment supplied under this contract shall be new and best of its respective kind, of uniform pattern throughout and be compatible with the environment in which it is located.

6. IDENTIFICATION OF EQUIPMENT
1. Provide lamicoid label, black lettering on white background for all panelboards, disconnect switches, equipment cabinets, pull boxes, splitters, light switches and receptacles. All labels are to be fastened on to the devices using a 2-part epoxy; self adhesive labels are not acceptable.

2. Provide type written directory for any new panelboard or any existing panelboard that is affected during the work of this contract. All directories shall be securely mounted on the inside of the panel door and shall have a protective transparent cover.

7. COPPER CURRENT CARRYING ELECTRICAL COMPONENTS
   1. All current carrying components of the electrical installation shall be copper. This shall include all conductors, bus work, interconnecting components, etc. No aluminum components will be allowed.

8. BUILDING ENVELOPE INTEGRITY
   1. Avoid penetrating through building envelope air barrier. Where penetrations are necessary, maintain the integrity of the air barrier using suitable materials and methods approved by building envelope contractor.

1.5 REQUIREMENTS FOR ELECTRICAL ENGINEERING

1. GENERAL
   1. Electrical design and installation by Design-Build Contractor shall be coordinated by design and installation performed by other disciplines and submitted drawings shall clearly show such coordination.

2. DRAWING REQUIREMENTS
   1. The construction drawings for submission shall include:
      1. Site plan
      2. Single line diagram
      3. Details for underground conduits and wiring or cables
      4. Grounding details
      5. Luminaire schedule (on the drawing)
      6. Junction box and cabling installation details

1.6 LIGHTING

1. Interior lighting
   1. Provide high bay luminaires for interior of the building. Utilize aimable luminaires and install all in the middle section of ceiling structure for easy access. As an example, install three rows of luminaires; two rows to be aimed to the opposite sides of the space and one row to be aimed down for lighting middle section of the space. Refer to sketch ESK-1 for an illustration of the example noted above.
   2. Maintained light level requirements: 5 footcandle Avg, 5:1 Max/Min and 3:1 Avg/Min. Submit a point-to-point lighting calculation c/w information for the proposed luminaire type for review.
   3. Lighting control shall be through a line voltage switch or switches adjacent to the building entrance. Provide suitable protection for light switch.

4. All interior luminaires to be high efficiency LED type with rugged and durable construction, suitable for use in harsh environments and able to perform in temperatures as low as -40°C. Install luminaires as high as possible.
5. All interior lighting shall be 120V.
6. Provide one spare interior luminaire.

2. Exterior lighting
   1. Provide exterior lighting for all four sides of the new slat shed building.
   2. Maintained light level requirements: 5 footcandle Avg for entrance side and 1 footcandle for other sides, 3:1 Avg/Min. Submit a point-to-point lighting calculation c/w information for the proposed luminaire type for review.
   3. All exterior lighting to be controlled by a common photocell with a by-pass switch inside the building at the entrance. Install the by-pass switch at an accessible high level and label.
   4. All exterior luminaires to be high efficiency LED type with rugged and durable construction, suitable for use in harsh environments and able to perform in temperatures as low as -40°C.
   5. All exterior lighting shall be 120V.
   6. Provide one spare exterior luminaire.

1.7 POWER

1. Provide power to new salt shed building from the existing generator distribution system (120/208V, 1-phase, 3-wire) that is located in Shop building at south west of new structure, approximately 55 meters away. Refer to sketch ESK-2.
2. Provide a 60A feeder to the new building and install a weatherproof and lockable fused disconnect switch on the exterior wall of the building on the side that is closest to existing Shop building. Provide a 60A breaker or fused disconnect switch (to be verified on site) in the existing generator distribution system in Shop building. Any new breaker shall match existing breakers.
3. Provide wiring from the disconnect switch to a surface mounted panelboard with minimum of 12 circuits. Install the panelboard in a lockable aluminum cabinet to provide protection and locate as close as possible to the entrance. Panelboard to have minimum of three (3) spare 15A breakers. All breakers to be bolt-on type.
4. Provide two GFCI receptacles each on a dedicated 15A circuit immediately inside the building, one on either side of the entrance. Receptacles to be outdoor type c/w cover.
5. Wiring from Shop building to the new salt shed building is to be installed underground. Minimum cover requirement for the installation is to be based on table 53 of CEC for vehicular areas.
6. Routing of wiring in existing Shop building is to be coordinated with building users. Seal off all penetrations.

1.8 WIRING METHODS

1. Underground wiring is to be installed using RPVC conduit or in armoured Teck cable. Transition to Rigid Galvanized Steel (RGS) conduit in exposed locations: e.g. where conduits or cables emerge from ground level slab. Provide warning tape in all trenches.
2. All exterior wring installation shall be weatherproof, suitable for exterior installation and resistant to corrosion. All junction and pull boxes to be c/w gasket and cover. Utilize only weatherproof fittings. All wiring to be securely fastened to the building with appropriate CSA approved fasteners.
3. Generally, use electrical metallic tubing (EMT) in the building interior and in above grade slabs except where subject to mechanical injury. EMT conduit fittings shall be steel type i.e. regular die-cast alloy fittings and couplings are not acceptable. Provide plastic bushings (insulated throat) for all connectors. Install pull boxes provided every 16 meters or less.
4. Use RGS threaded conduit for all surface installations up to 1.5m [5'] above the slab.
5. All wiring shall be RW90 copper, 600V rated with XLPE insulation. Minimum wire size shall be #12 gauge.

1.9 OUTLET BOXES AND WIRING DEVICES

1. Surface mounted boxes shall be cast iron FS or FD with factory-threaded hubs and mounting feet. Sheet steel boxes with knockouts are not acceptable.
2. All switches and receptacles shall be extra heavy duty specification grade c/w metal heavy duty weatherproof cover.

1.10 GROUNDING AND BONDING

1. Grounding and bonding shall be installed in accordance with Canadian Electrical Code requirements.
2. Ground wire shall be bare soft drawn, stranded copper.
3. All conduit runs containing feeders and branch circuits shall be complete with an insulated green ground conductor bonded to all outlet boxes, junction boxes, equipments enclosures, etc. The conduit system shall be continuous but shall not be relied on to serve as the equipment grounding means.
4. Multi conductor Teck cables shall utilize the integral ground conductor.

1.10 SEISMIC RESTRAINTS

1. Provide restraint on all equipment, which is part of the building electrical services and systems, to prevent injury or hazard to persons and equipment in and around the structure. Restrain all such equipment in its normal position in the even of an earthquake. Restraints shall meet the requirements of the latest edition of National Building Code and amendments.
2. Contractor shall hire a professional structural engineer who specializes in the restraint of building elements and is registered with the local engineering association, herein referred

to as the Seismic Consultant. Contractor shall allow for coordination, provision of seismic restraints, as well as all cost for the review services by the Seismic Consultant.

3. After completion of the electrical installation, the Contractor's Seismic Consultant shall review the work and submit original signed National Building Code Letter of Assurance – Schedules B1, B2 and C-B – to the Departmental Representative.

1.11 AS-BUILT DRAWINGS AND O & M MANUALS

At completion of construction, provide:

1. CAD drafted as-built drawings to include:
   1. Size and routing of all conduits for main feeders and branch circuits including power and lighting.
   2. Number and size of conductors in raceways and cables.
   3. Location of all junction and pull boxes.
   4. Location of all devices, equipment and luminaires.
   5. Location by accurate horizontal and vertical dimensions of the routes and terminations of all raceways and cables installed underground beyond the building.
2. Operation and Maintenance Manuals to include:
   1. Technical and product data for all components used in the installation and name and addresses of the local suppliers.
   2. Approved shop drawings.
   3. Wiring and schematic diagrams.
   4. Spare parts list.
   5. Copies of warranties and certificates.

The O & M manual shall be bound in a three "D-ring" hard back reinforced vinyl covered binder c/w index tab separators to divide the different sections. Provide three (3) hard copies of each as-built drawings and O & M manual. In addition, provide three (3) CDs containing all record as-built drawings and O & M manuals in pdf format.

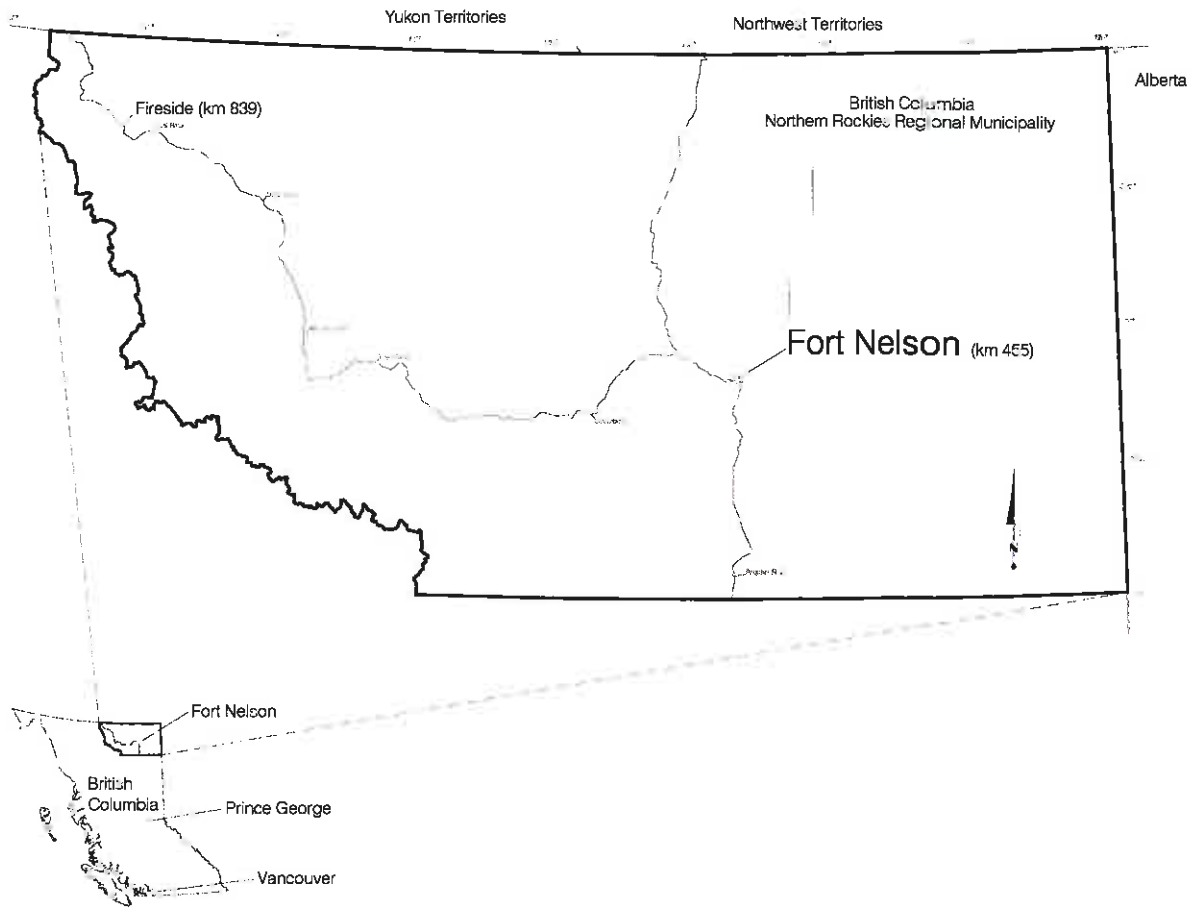
Products

2.1 Not used.

Execution

3.1 Not used.

End of Section



project title / titre du projet	drawing title / titre du dessin
ALASKA HIGHWAY BRITISH COLUMBIA	LINE DIAGRAM PROJECT LOCATION

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

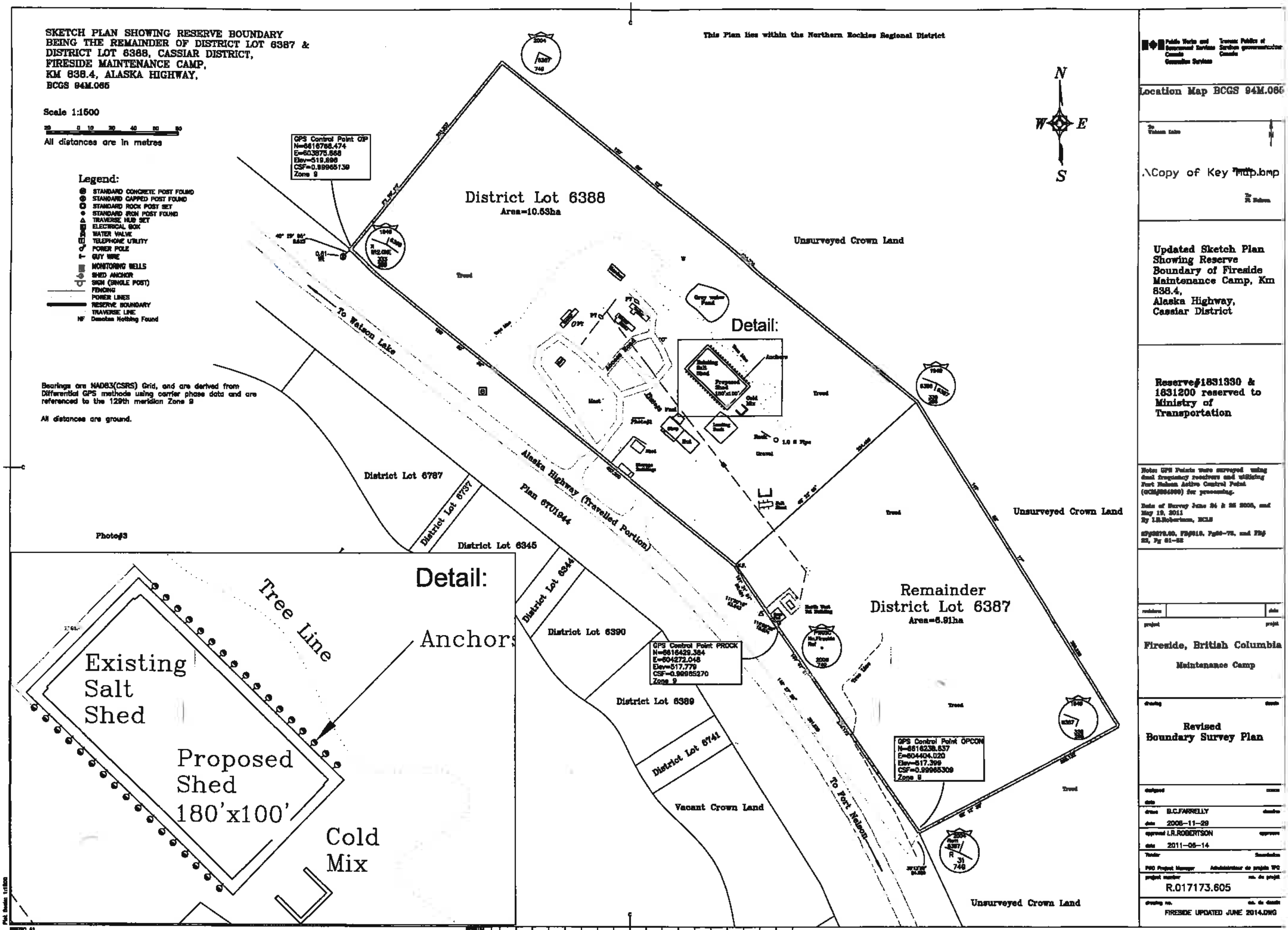
REAL PROPERTY SERVICES
Pacific Region

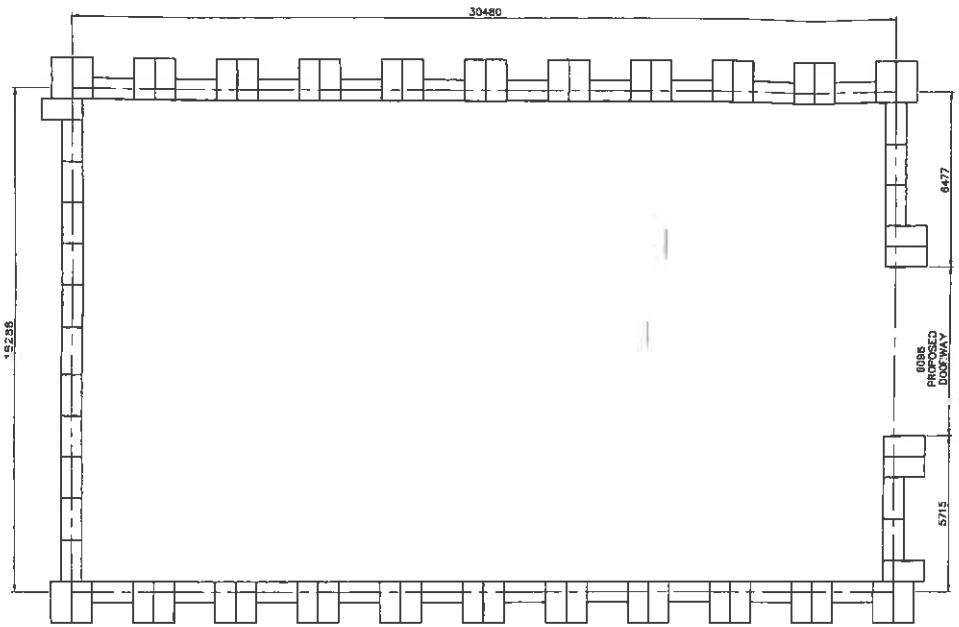
designed by / conçu par	drawn by / dessiné par	scale / échelle	date / date
A.H.G.	A.H.G.	N.T.S.	June 2013

approved by / approuvé par	project no. / projet no.
	R.017173.605

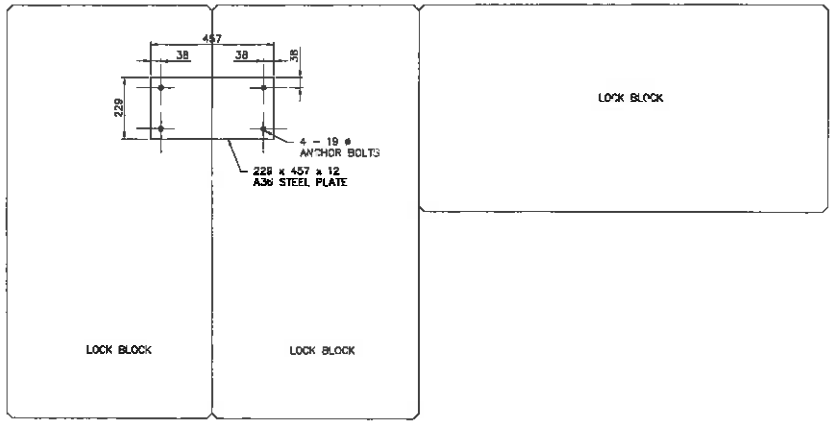
PWGSC Project Manager	Administrateur de Projets TPSGC	sheet / feuille
GEORGE SMITH		R.017173.605-02

Project Location


SKETCH PLAN SHOWING RESERVE BOUNDARY BEING THE REMAINDER OF DISTRICT LOT 6387 & DISTRICT LOT 6388, CASSIAR DISTRICT, FIRESIDE MAINTENANCE CAMP, KM 838.4, ALASKA HIGHWAY, BCGS 94M.065
Scale 1:1500
All distances are in metres
Legend:
STANDARD CONCRETE POST FOUND
STANDARD CAPPED POST FOUND
STANDARD ROCK POST SET
STANDARD IRON POST FOUND
TRAVERSE HUB SET
ELECTRICAL BOX
WATER VALVE
TELEPHONE UTILITY
POWER POLE
GUY WIRE
MONITORING WELLS
SHED ANCHOR
SIGN (SINGLE POST)
FENCING
POWER LINES
RESERVE BOUNDARY
TRAVERSE LINE
NF Denotes Nothing Found
Bearings are NAD83(CSRS) Grid, and are derived from Differential GPS methods using carrier phase data and are referenced to the 129th meridian Zone 9
All distances are ground.
This Plan lies within the Northern Rockies Regional District
GPS Control Point OP
N=6616766.474
E=603575.558
Elev=519.896
CSF=0.99965139
Zone 9
District Lot 6388
Area=10.53ha
Unsurveyed Crown Land
Detail:
To Watson Lake
Alaska Highway (Travelled Portion)
Plan 6TU1944
District Lot 6787
District Lot 6737
District Lot 6345
District Lot 6344
District Lot 6390
District Lot 6389
District Lot 6741
Vacant Crown Land
Photo#3
GPS Control Point PROCK
N=6616429.384
E=604272.048
Elev=517.779
CSF=0.99965270
Zone 9
Remainder
District Lot 6387
Area=6.91ha
GPS Control Point OPCON
N=6616238.637
E=604404.020
Elev=517.399
CSF=0.99965309
Zone 9
To Fort Nelson
Unsurveyed Crown Land
Detail:
Tree Line
Anchors
Existing Salt Shed
Proposed Shed 180'x100'
Cold Mix
N
W
E
S
Location Map BCGS 94M.065
\Copy of Key map.bmp
Updated Sketch Plan Showing Reserve Boundary of Fireside Maintenance Camp, Km 838.4, Alaska Highway, Cassiar District
Reserve#1831330 & 1831200 reserved to Ministry of Transportation
Fireside, British Columbia
Maintenance Camp
Revised Boundary Survey Plan
B.C.FARRELLY
2008-11-29
I.R.ROBERTSON
2011-06-14
R.017173.605
FIRESIDE UPDATED JUNE 2014.DWG
Plot Scale: 1:1500
F:\PROJ\FIRESIDE SALT SHED\DRAWINGS\FIRESIDE UPDATED JUNE 2014.DWG



LOCK BLOCK LAYOUT
1:100



PLATING DETAIL
1:10

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
2. ALL ELEVATIONS ARE IN METRES.
3. ALL STEEL PLATES, BOLTS, ETC TO BE GALVANIZED.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Pacific Region
SERVICES IMMOBILIERS
Région du Pacifique

Revision/Révision	Description/Description	Date/Date
1	–	–
0	–	–
D	–	–
C	–	–
B	–	–
A	ISSUE FOR REVIEW	2010-12

A detail number / numéro de détail
B source drawing no. / de dessin no.
C detail on drawing no. / détail sur dessin no.

Client/Client

Project title/Titre du projet

ALASKA HIGHWAY, B.C.
EXISTING SALT SHED STRUCTURAL REHABILITATION PLUS NEW SHED INSTALLATION

Consultant Signature Only

Designed by/Conçu par
SNC - LAVALIN INC

Drawn by/Dessiné par
G. CHEN

PWGSC Project Manager/Administrateur de Projets TPSGC
KEN MORTON

Regional Manager, Architectural and Engineering Services, Gestionnaire régional, Services d'architecture et de génie, TPSGC
PRESTRAL PAUL

Drawing title/Titre du dessin

FORT NELSON KM 445
GROWERS GREENHOUSE STRUCTURES (60' x 180')
EQUIPMENT SHED INSTALLATION
LOCK BLOCK LAYOUT AND DETAILS

Project No./No. du projet	Sheet/Feuille	Revision no./ No. de révision no.
R.017173.020	05 OF 38	A

SC – A1 – 0410594

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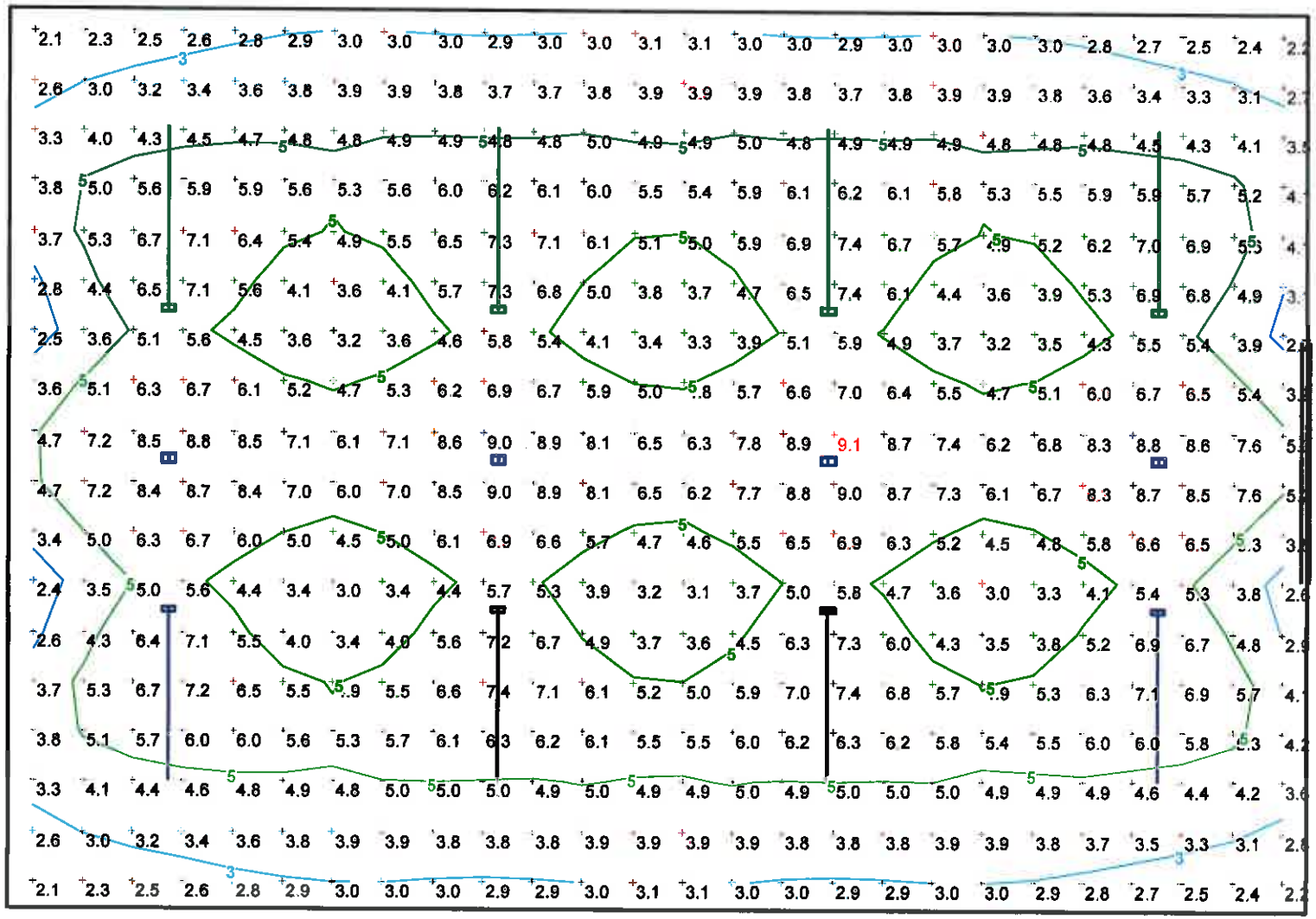


Plan View

Scale 1" = 16'

Alaska Highway, Fireside - Salt Shed

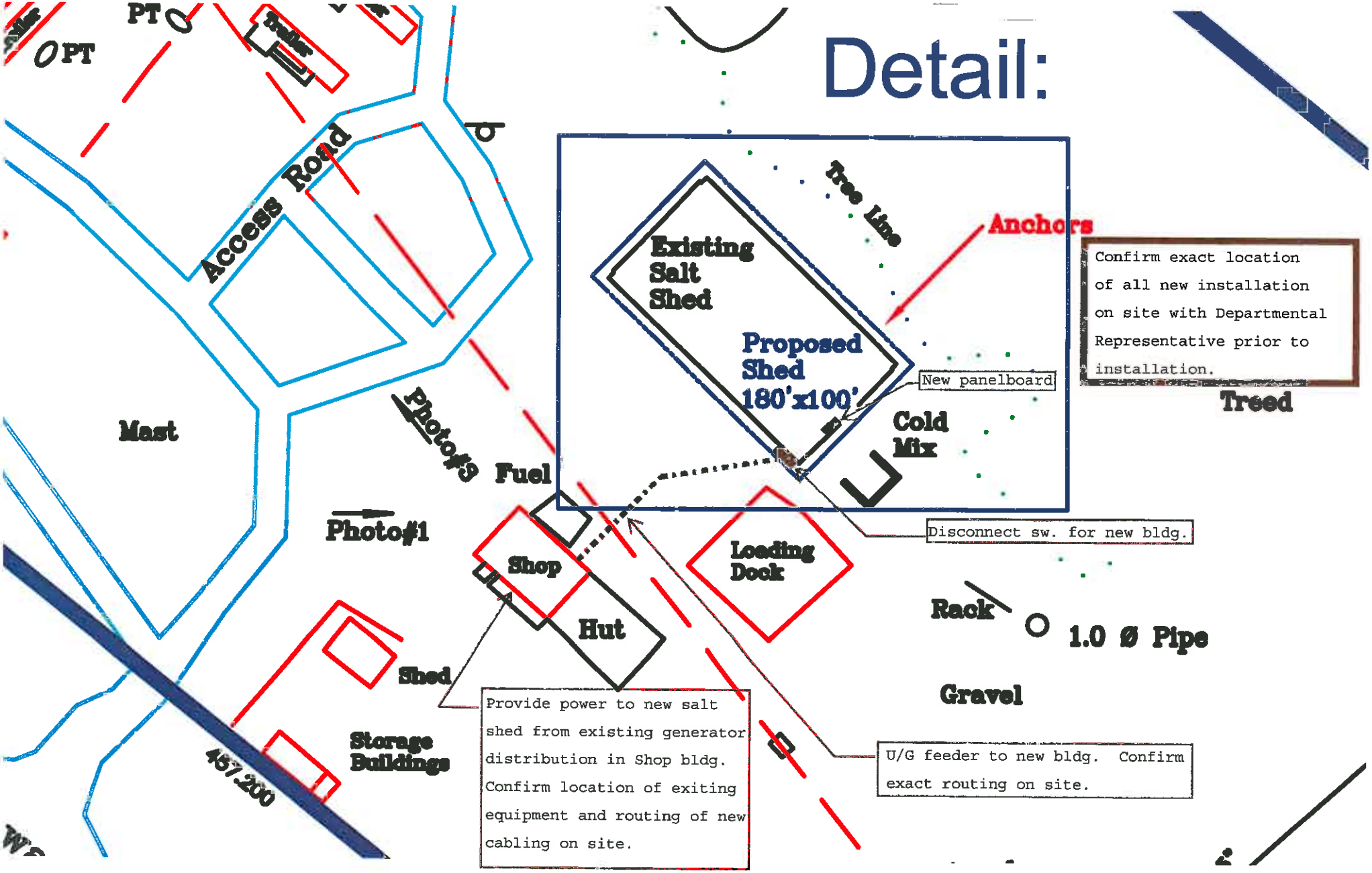
Interior Lighting Example Using 12 x 90W Aimable LED Luminaires

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	5.0 fc	9.1 fc	2.1 fc	4.3:1	2.4:1

ESK-1

Calculated values include direct and interreflected components.


Detail:
PT
PT
Access Road
Mast
Photo#3
Photo#1
Fuel
Shop
Hut
Shed
Storage Buildings
467.200
Existing Salt Shed
Proposed Shed 180'x100'
Tree Line
Anchors
Confirm exact location of all new installation on site with Departmental Representative prior to installation.
Treed
New panelboard
Cold Mix
Disconnect sw. for new bldg.
Loading Dock
Rack
1.0 Ø Pipe
Gravel
Provide power to new salt shed from existing generator distribution in Shop bldg. Confirm location of exiting equipment and routing of new cabling on site.
U/G feeder to new bldg. Confirm exact routing on site.

ESK-2

Environmental Protection Plan (EPP) – Checklist

Note: This checklist was developed to assist the Contractor in determining and mitigating environmental issues at site. It is considered a generic checklist and it is in the Contractor's best interest to review the PWGSC Environmental Management Plan (EMP) or the Environmental Assessment (EA) as supporting documents in the completion of the site Environmental Protection Plan (EPP).

EPP Framework	Content Requirements	Yes	No	N/A
Project Setting and Site Activities				
Project Description	A brief description of the project and its location is provided.			
Environmental Sensitivities	Sensitive or protected features that could be impacted as a result of the Contractor's activities are described.			
Site Activities	A scope of work and a list of all construction or related activities to be undertaken during the project are provided.			
Project Schedule and Site Drawings				
Project Schedule	A project schedule is provided, including scheduled shut-downs and restricted work periods due to environmental requirements.			
Site Drawing	One or more site drawings(s) are provided, indicating the site location; site set-up and layout; erosion and sediment controls; in-stream work areas; and environmental sensitivities.			
Potential Environmental Impacts and Controls				
Potential Environmental Issues and Impacts	The potential environmental issues and impacts that may result from the construction activities are described. Environmental Reports (Environmental Assessments; Fish Habitat and Compensation etc) will be provided to the contractor especially with respect to any in-stream work procedures that will be required. For example, in-stream works will impact fish and fish habitat in the surrounding ecosystem. It is the Contractor's responsibility to ensure the work is completed in a manner that causes the least impact on the ecosystem (see section on Mitigation).			
Permits, Approvals, and Authorizations	List required permits, approvals and authorizations. As applicable, environmental mitigation measures prescribed by regulatory agencies and included in project permits, approvals and authorizations are described. NOTE: DFO, MOE and NWPA approvals and authorizations for in-stream works are PWGSC's responsibility however, the Contractor must be aware of the requirements of these approvals/authorizations. Permitting for water withdrawal from the waterbody as part of construction activities is part of the Contractor's responsibility.			
Mitigation Strategies	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided. All work in BC must adhere to the BC MOE "Standards and Best Practices for Instream Works".			
Erosion and Sediment Control	Erosion and sediment controls are provided, as appropriate for the jurisdiction.			
Waste Management and Hazardous Materials				

Waste Management and Hazardous Materials	Hazardous materials that will be used and/or stored on site are listed. Expected hazardous and non-hazardous waste materials along with proper handling, containment, storage, transportation and disposal methods are listed. As appropriate for the jurisdiction, estimated waste quantities and specific handling procedures are also provided. For example, re-fuelling of equipment will be conducted at least 100m away from any active drainage courses.			
EPP Implementation				
Site Representative	Name(s) and contact details for the person(s) who will be the Contractor's Site Representative(s) are provided.			
Training and Communication	Training and communication details are provided.			
Monitoring and Reporting	Monitoring and inspection procedures, including a schedule of monitoring activities and reporting procedures are provided. For example, this would include downstream monitoring activities for increased siltation during in-stream works.			
Documentation	Information and/or records that will be maintained relating to the EPP and end environmental matters on the project site are described.			
EPP Update	EPP review and update procedures are provided.			
Environmental Emergency Response Procedures				
Environmental Emergency Response Procedures	Potential incidents that may impact the environment are identified, and emergency response procedures to prevent and respond to incidents are provided. An environmental emergency response contact list is also provided.			

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

Revised Jan 2014

Project Title	
Project Description	
Project Type	
Comments	

Issued By	Document Type	Yes	No	N/A
PWGSC Responsibility				
Federal				
DFO - Fisheries Act http://laws.justice.gc.ca/en/F-14/	Under the *Fisheries Act*, no one may carry out any work or undertaking that results in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery unless authorized under section 35(1) of the Act. (e.g. new bridges that are not clear span; erosion protection works that extend into the river channel in aquatic systems which will impact commercial, recreational or Aboriginal fisheries).			
	Self Assessment Review – DFO *Measures to Avoid Harm* (formerly known as Notification to DFO). Proponent completes a self assessment review using the DFO *Measures to Avoid Harm*. Most projects will fall under this category and will require an EEE and a contractor EPP. • Clear span bridges • Temporary ford stream crossing • Ice bridges and snow fills • Bridge maintenance • Maintenance of riparian vegetation in existing ROW			
	Types of waterbodies where DFO review or self assessment is not required are: • Roadside drainage ditches • Quarries and aggregate pits • Any other waterbody that does not contain fish at any time during any given year			
	Section 36 – under this Section of the Fisheries Act the proponent can be FINED resulting from deposition of substances deleterious to fish in waters frequented by fish – this includes release of silt laden waters from construction activities.			

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

Revised Jan 2014

Transport Canada NWPA http://laws.justice.gc.ca/en/N-22/text.html	Section 5(2) Work Assessment for work resulting in insignificant impacts on navigability.			
	Section 6(4) Formal Approval for existing structures (existing bridges).			
	Minor Works and Waters Order – This is an amendment to the NWPA that streamlines the federal review process by establishing classes of waters and works (projects) that do not require an Application or Approval through the NWPP because they are "minor" in nature. These would include such "works" as repairs to riprap (no gryones) or "waters" that are not large enough for vessel traffic (ie. Contact Creek). http://www.tc.gc.ca/eng/marinesafety/oep-nwpp-minorworks-menu-1743.htm			
Indian and Northern Affairs Canada – Indian Act	Approval for activities on lands under their jurisdiction. This was originally addressed under the EA review process and must now must be addressed by the PM or ES personnel under the EEE process (see below).			
Migratory Birds Convention Act (MBCA)	Environment Canada is responsible for implementing the ***Migratory Birds Convention Act***, which provides for the protection of migratory birds through the ***Migratory Birds Regulations***. This must be included and addressed in the EEE where applicable.			
Environmental Effects Evaluation (EEE)	The Canadian Environmental Assessment Act was amended on July 6, 2013 and under the new Act, only projects on the current Regulations Designating Physical Activities, such as the construction of pipelines and mines, will require environmental assessments. While the new act removes the previous requirement for federal departments to conduct EAs of projects identified in the Act and regulations, a new clause applies to PWGSC and all other departments and agencies. This clause, Section 67 of CEAA 2012, states that " departments must not carry out a project on federal lands, or exercise any power or perform any duty or function that would permit a project to be carried out, in whole or in part, on federal lands, or exercise any power or perform any duty or function that would permit a project to be carried out, in whole or in part, on federal lands, unless the department determines that the project is not likely to cause significant adverse environmental effects." As such, PWGSC has developed an Environmental Effects Evaluation report to ensure that the environmental effects of all site work undertaken in the completion of projects are mitigated and/or avoided			

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

Revised Jan 2014

	completely.			
Species at Risk Act (SARA) *http://www.sararegistry.gc.ca/default_e.cfm*	A list of federally-listed species at risk likely to occur at a given subject site must be compiled in order to identify potential impacts & propose mitigation measures for minimizing impacts to these species as a result of project activities. In cases where suitable habitat for a given species exists at/near the project site, mitigation measures are recommended, including avoidance of areas containing said habitat and informing site workers of these issues to prevent incidents.			
First Nations Notifications and Consultations *http://clss.nrcan.gc.ca/googledata-donneesgoogle-eng.php*	Natural Resources Canada has developed an overlay to be used with Google Earth & Google Maps to identify First Nations lands throughout the country. Notifications of projects within 5 km of such lands and/or directly upstream from such lands should be submitted to the relevant First Nations for a determination of their interest in a given project and/or to request any traditional knowledge they may have to offer.			
Provincial – Note one submission package for instream works is sent to FrontCounter BC at MOE who then send off to the appropriate departments for approval/notification/permitting – this does not apply to the archeological.				
Wildlife Act – WLAP – MOE *http://www.qp.gov.bc.ca/statreg/stat/W/96488_01.htm*	Wildlife Act – Section 34 – Birds, Nests and Eggs – vegetation clearing should not occur during critical bird nesting periods, which typically occur in the spring and summer. Contact the local WLAP for vegetation clearing timing windows.			
Water Act - Water Stewardship Division - MOE *http://www.qp.gov.bc.ca/statreg/stat/W/96483*	Section 9 – regulates changes in or about a stream and ensure that water quality, riparian habitat, and the rights of licensed water users are not compromised. This is an approval process and takes approximately 140 days. An application fee is also required. Works requiring approval include channel realignment, retaining wall or bank protection stabilization ect.			
Environmental Stewardship Division - MOE	Notification process for such works as replacement and maintenance of culverts and outfalls; temporary stream diversions around a worksite and takes approximately 45 days to receive notification approval. In general, those works requiring a notification are those that do not involve any diversion of water.			
Fish Protection Act – MOE *http://wlapwww.gov.bc.ca/habitat/fishprotectionact/*	This Act was passed in 1997 and is reviewed as part of the Water Act under Section 9 when applying for approval.			
Ministry of Forests, Lands and Natural Resources Operations	When completing projects such as quarry pits and new highway alignments, a request is put into the archaeological branch of MFLNSO via the			

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

Revised Jan 2014

Archaeological http://www.for.gov.bc.ca/archaeology/requesting_archaeological_site_information/process_steps.htm Contact: Hayley Bond (250) 953-3343	EEE process to search the data base. An archaeological assessment may be required on those areas that are previously undisturbed or undeveloped.			
BC Parks	Various permits are required when completing construction activities within the Parks. Please note that all works within **150 feet** of the centreline of the highway (Right-of-Way) are **NOT** subject to construction permitting. (this does not include permitting for fish surveys).			
Canada-British Columbia Agreement for Environmental Assessment Cooperation http://www.ceaa.gc.ca/default.asp?lang=En&n=04A20DBC-1	Most Alaska Highway Projects will not trigger this agreement, as both the Vancouver CEAA office and the Victoria BC Environmental Assessment Office (EAO) have confirmed that the types and scopes of the projects are not described in the *BC Environmental Assessment Act – Reviewable Projects Regulation. However, for due diligence, it is recommended that notifications for all Alaska Highway projects be submitted to CEAA* (info@ceaa-acee.gc.ca) for review and, if necessary, a determination of whether or not CEAA and/or the BC EAO should be involved. Due to the changes in the CEAA legislation this will be addressed under the EEE where possible.			
BC Ministry of Environment – BC Species and Ecosystems Explorer http://a100.gov.bc.ca/pub/eswp/	A list of provincially-listed species at risk likely to occur at a given subject site must be compiled in order to identify potential impacts & propose mitigation measures for minimizing impacts to these species as a result of project activities. This process involves conducting a search of the BC Species and Ecosystems Explorer inventory for the specific area of BC containing the proposed project site.			
Consultant Responsibility				
Provincial				
BC Parks ***Ministry of Forests, Lands and Natural Resources Operations*** http://www.env.gov.bc.ca/bcparks/permits/	Permit to Collect Fish For a Scientific Purpose - Regulation Research activities in parks and protected areas, including: collection; monitoring; survey and inventory; and, other research trigger a Park Permit - Ministry of Forests, Lands and Natural Resources Operations is responsible for the administration of fish and wildlife permits. Note that these permits are taking approx 6 months to receive due to recent involvement and subsequent consultation with Treaty 8. Subsection 42(1)(e) – It is the responsibility of the salvage crew to obtain the necessary permit required to complete a fish and amphibian salvage – in conjunction with the BC			

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

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	Parks permitting.				
Water Act – Regulation's Protection of Habitat - Section 42(1)	Permit to Collect Fish For a Scientific Purpose – Subsection 42(1)(e) – It is the responsibility of the salvage crew to obtain the necessary permit required to complete a fish and amphibian salvage – in conjunction with the BC Parks permitting.				
Note: research projects and inventory projects are under the same Permit and are applied for under the "Application to Collect Fish for a Scientific Purpose". **http://www.env.gov.bc.ca/pasb/applications/process/scientific_fish_collect.html#a5**					
Contractor Responsibility					
Federal	End-of- pipe guidelines for freshwater intake to avoid fish entrainment.				
DFO – End of Pipe Guidelines	End-of- pipe guidelines for freshwater intake to avoid fish entrainment.				
Provincial	Schedule A – Water License Applications – use of water from waterbody for road maintenance.				
Water Act - MOE					

Relevant Environmental Publications

The below list of documents are those commonly used when determining how to design and advance a project with the potential to impact a waterbody.

Agency	Publications	Summary
DFO	***Land Development Guidelines for the Protection of Aquatic Habitat - 1993***	This document is a good reference guide for any works that are occurring in or around the water.
	Canada's Fish Habitat Law	Document explaining the fish and fish habitat laws under the Fisheries Act.
	Riparian Revegetation	Information on minimizing, stabilizing and revegetating construction areas.
	Freshwater Intake End-of Pipe Fish Screen Guideline - 1995	Provides guidelines for the contractor to follow to ensure fish screens are used during freshwater intake operations at construction sites.
	Operational Statements Stream Crossings by Roads • Clear Span Bridges • Temporary Ford Stream Crossing • Ice Bridges and	Fisheries and Oceans Canada has developed a series of Operational Statements to streamline the undertaking of low risk activities. The Operational Statements outline conditions and measures for avoiding harmful alteration, disruption and destruction (HADD) of fish habitat, and applying them will ensure the project complies with subsection 35(1) of the *Fisheries Act*. You are NOT required to submit a proposal for review by Fisheries and Oceans Canada when you incorporate the measures and conditions outlined in an appropriate Operational Statement into

Responsibility Checklist For Authorizations/Approvals/Notifications/Permitting

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	• Snow Fills • Bridge Maintenance • Maintenance of Riparian Vegetation in Existing Rights-of Way	your plans. http://www.pac.dfo-mpo.gc.ca/habitat/os-eo/index-eng.htm
MOE	***Fish-stream Crossing Guidebook - 2002***	Guidelines in protection of fish and fish habitat and the safe passage of fish during construction at/on stream crossings.
	Standards and Best Practices for Instream Works - 2004	Guide to planning and carrying out the proposed construction activities to comply with relevant legislation, regulations and policies.
	A User's Guide to Working In and Around Water - 2005	Understanding the regulation under British Columbia's Water Act.
	Fish-Stream Identification Guidebook - 1998	Assists in providing information on determining fish streams.
	The Streamkeepers Handbook	A practical guide to stream and wetland care in regards to rehabilitation planting.