JUNE 22, 2021

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1.2 Codes, Bylaws, Standards

.1 Perform work to current Codes, Construction Standards and Bylaws, including Amendments up to the TENDER closing date.

.2 Perform work in accordance with the Canadian Highway Bridge Design Code CAN/CSA S6-19, and other indicated Codes, Construction Standards, and/or any other Code or Bylaw of local application.

.3 Comply with applicable local by laws, rules and regulations enforced at the location concerned.

.4 Meet or exceed requirements of Contract documents, specified standards, codes and referenced documents.

.5 In any case of conflict or discrepancy, the most stringent requirements shall apply.

1.3 Contract Documents

.1 The Contract documents, drawings and specifications are intended to complement each other, and to provide for and include everything necessary for the completion of Work.

.2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.

1.4 Other Contracts

.1 Further Contracts may be awarded while this contract is in progress. It is recommended that the Bidder visit the site prior to submission of tender to satisfy themselves of the nature of site conditions and the extent of work required.

.2 The Contractor shall confirm onsite all dimensions required for fabrication and dimensions shown on the Contract Drawings prior to the preparation of shop and fabrication drawings.

.3 Cooperate with other Contractors and Agencies in carrying out their respective works and carry out instructions from Departmental Representative.

.4 Coordinate work with that of other Contractors and Agencies. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor or Agency, report promptly to the Departmental Representative, in writing, anything which may interfere with proper execution of this Work.

1.5 Division of Specifications

.1 The specifications are subdivided in accordance with the current 6-digit National Master Specifications System.

.2 A division may consist of the work of more than 1 subcontractor. Responsibility for determining which subcontractor provides the labour, material, equipment and services required to complete the work rests solely with the Contractor.

.3 In the event of discrepancies or conflicts when interpreting the drawings and specifications, the specifications govern.

1.6 Time of Completion

.1 All work under this Contract shall be complete by December 15, 2021.

1.6 Time of Completion (Cont'd)

.2 All work under this Contract must be completed in accordance with the requirements specified in Section 1.9 Work Schedule.

1.7 Summary of Work

.1 The work should be represented as barrier replacements at the Kledo River Bridge (km 509.1) and Prochniak Creek Bridge (km 737.5) located on the Alaska Highway in Northern British Columbia.

.2 Work under this Contract generally includes, but is not limited to, the following services at Kledo River Bridge (km 509.1) and Prochniak Creek Bridge (km 737.5):

.1 Full removal of the existing barrier systems, full removal of existing bridge deck cantilevers, partial depth removal of existing bridge deck, and partial removal of approach transition barriers;

.2 Re-construction of bridge deck cantilivers;

.3 Fabrication, supply, and install new bridge barriers and deck drains;

.4 Installation of signage and all site finishes as specified.

.5 Specific work items for the Kledo River Bridge include: repair of erosion at the end of the northwest barrier flare as indicated on Drawing S03; bird nest removal as indicated on Drawing S03; removal of the flexible sealant from 10 bolt holes in the steel box girders; and sealing 10 bolt holes with a flexible sealant in the box girder at the end diaphragm near the south abutment.

.3 Unless specifically stated otherwise, the Work is to include the furnishing of all labour, materials, equipment, and services necessary to complete the Work. The intent is that the Contractor provides a complete Job.

1.8 Contractor

.1 Give all required Notices and comply with all local, provincial, and federal laws, bylaws, ordinances, rules, regulations, codes, and orders relating to the Work which are or come in force during the Performance of the Work.

.2 Coordinate all the Work and provide all labour, materials, equipment, and services necessary for delivery, storage, handling, protection, installation, removal, inspection, and replacement or maintenance as required to provide a complete Project.

.3 Use of site:
.1 Complete access for execution of work.
.2 Assume responsibility for assigned premises for performance of this work.
.3 Be responsible for coordination of all work activities on site.

.4 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with indicated phasing.

.5 Do not unreasonably encumber site with material or equipment.

1.9 Hours of Work

.1 Notify Departmental Representative of all after hours work, including weekends and holidays.

1.10 Work Schedule

.1 Carry on work as follows:
.1 Within 5 working days after Contract award, provide a "phasing bar chart" and a schedule showing anticipated progress stages and final completion of the Work within the time period required by the Contract documents. Indicate the following:
.1 Submission of shop drawings.
.2 Commencement and completion of Work of each section of the specifications or drawings as outlined.
.3 Final completion date within the time period required by the Contract documents.

1.10 Work Schedule (Cont'd)

.1 (Cont'd)

.1 (Cont'd)

.4 Fabrication of structural steel.

.5 Production of precast deck panels.

.6 On-site works.

.7 Final completion date within the time period required by the Contract documents.

.2 No changes shall be made to the approved Schedule without prior authorization from the Departmental Representative.

.3 Interim reviews of work based on the schedule will be conducted as decided by the Departmental Representative and the schedule shall be updated by the Contractor throughout the duration of the Contract to reflect actual progress of the work.

1.11 Cost Breakdown

.1 Before submitting the first request for a progress payment, submit a breakdown of the Contract lump sum amounts in detail as directed by the Departmental Representative and aggregating the total Contract price.

1.12 Documents Required

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

.1 Contract drawings.

.2 Contract specifications.

.3 Addenda to Contract documents.

.4 Copy of reviewed work schedule.

.5 Change orders.

.6 Other modifications to Contract.

.7 Field test reports.

.8 Manufacturers' installation and application instructions.

.9 One set of record drawings and specifications for "as-built" purposes.

.10 Current construction standards of workmanship listed in technical Sections.

.11 Project Safety Plan.

1.13 Regulatory Requirements

.1 Obtain and pay for Building Permit, Certificates, Licenses, and other permits required by regulatory municipal, provincial or federal authorities to complete the work.

.2 Provide inspection authorities with plans and information required for issue of acceptance certificates.

.3 Furnish inspection certificates in evidence that the work installed conforms with the requirements of the authority having jurisdiction.

1.14 Examination

.1 Examine site and be familiar and conversant with existing conditions likely to affect work.

.2 Provide photographs of surrounding properties, objects and structures liable to be damaged or be the subject of subsequent claims.

1.15 Existing Services

.1 Where work involves breaking into or connecting to existing services, carry out work at times directed by the authorities having jurisdiction.

1.16 Location of Equipment and Fixtures

.1 Location of equipment, fixtures, and outlets indicated or specified are to be considered as approximate.

.2 Locate equipment, fixtures, and distribution systems to provide minimum interference and maximum usable space, and in accordance with manufacturer's recommendations for safety, access and maintenance.

.3 Submit field drawings or shop drawings to indicate the relative position of various services and equipment when required by the Departmental Representative and/or as specified.

1.17 Setting Out Work

.1 Assume full responsibility for and execute complete layout of work to locations, lines and elevations indicated.

.2 Assume full responsibility for dimensions, spacings, overall fit with field components, and exact locations of bolt holes and their spacings.

.3 Provide devices needed to lay out and construct work.

.4 Supply all access as required to facilitate Departmental Representative's inspection of work.

1.18 Quality of Work

.1 Ensure that quality workmanship is performed through use of skilled workers, under supervision of qualified tradespersons.

.2 The workmanship, erection methods, and procedures to meet minimum standards set out in the applicable codes and standards.

.3 In cases of dispute, decisions as to standard or quality of work rest solely with the Departmental Representative, whose decision is final.

1.19 Works Coordinated

.1 Coordinate work of subtrades:
.1 Designate one person to be responsible for review of Contract documents and shop drawings and managing coordination of Work.

.2 Convene meetings between subcontractors whose work interfaces and ensure awareness of areas and extent of interface required.
.1 Provide each subcontractor with complete plans and specifications for Contract, to assist them in planning and carrying out their respective work.
.2 Develop coordination drawings when required, illustrating potential interference between work of various trades and distribute to affected parties.

1.19 Works Coordinated (Cont'd)

.2 (Cont'd)

.2 (Cont'd)

.1 Identify on coordination drawings, structural elements, services lines, rough-in points, and indicate location of services entrance to site.

.3 Facilitate meetings and review coordination drawings. Ensure subcontractors agree and sign off on drawings.

.4 Record and distribute minutes of each meeting.

.5 Plan and coordinate work in such a way to minimize quantity of service line offsets.

.6 Submit copy of coordination drawings and meeting minutes to Departmental Representative for information purposes.

.7 Coordinate and plan for all necessary road closures ahead of time.

.3 Work cooperation:

.1 Ensure cooperation between trades in order to facilitate general progress of Work and avoid situations of spatial interference.

.2 Ensure that each trade provides all other trades reasonable opportunity for completion of Work and in such a way as to prevent delays, cutting, patching, and removal or replacement of completed work.

.3 Ensure disputes between subcontractors are resolved.

.4 Departmental Representative is not responsible for, or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.

.5 Maintain efficient and continuous supervision.

1.20 Review of Product Data and Samples

.1 In accordance with Section 01 33 00 - Submittal Procedures, submit the requested product data, MSDS sheets, and samples indicated in each of the technical Sections.

.2 Allow sufficient time for the following:

.1 Review of product data.

.2 Review of re-submission.

1.20 Review of Product Data and Samples (Cont'd)

.2 (Cont'd)
.3 Ordering of approved material and/or products.

1.21 Project Meetings

.1 Departmental Representative will arrange project meetings and assume responsibility for setting times and recording and distributing minutes.

1.22 Testing and Inspections

.1 Particular requirements for inspection and testing to be carried out by a testing service or laboratory approved by the Departmental Representative are specified in Section 01 45 00 – Quality Control.

.2 The Contractor will appoint and pay for the services of the testing agency or testing laboratory as specified, and where required for the following:
.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.
.2 Inspection and testing performed exclusively for Contractor's convenience.
.3 Tests specified to be carried out by the Contractor under the Departmental Representative's supervision.

.3 Where tests or inspections by a designated testing laboratory reveal work is not in accordance with the Contract requirements, Contractor shall pay costs for additional tests or inspections as the Departmental Representative may require to verify acceptability of corrected work.

.4 Contractor shall notify Departmental Representative 5 working days in advance of planned testing.

.5 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

1.22 Testing and Inspections (Cont'd)

.6 Pay costs for uncovering and making good work that is covered before required inspection or testing is completed and approved by Departmental Representative.

.7 The Departmental Representative may require, and pay for, additional inspection and testing services not included here (Clause 1.23).

.8 Provide Departmental Representative with 2 copies of testing laboratory reports and mill tests and certificates of compliance as soon as they are available.

1.23 As-Built Documents

.1 As work progresses, maintain accurate records to show all deviations from the Contract documents. Note on as-built specifications, drawings, and shop drawings as changes occur.

1.24 Cleaning

.1 Conduct daily cleaning and disposal operations. Comply with local ordinances and anti-pollution laws.

1.25 Environmental Protection

.1 Refer to section 01 35 43 - Environmental Procedures for additional requirements.

.2 Do not dispose of waste or volatile materials into water courses.

.3 Ensure proper disposal procedures in accordance with all applicable regulations.

1.26 Additional Drawings

.1 The Departmental Representative may furnish additional drawings for clarification. These additional drawings have the same meaning and intent as if they were included with plans referred to in the Contract documents.

1.26 Additional Drawings (Cont'd)

.2 Upon request, Departmental Representative may furnish up to a maximum of 6 sets of Contract documents for use by the Contractor at no additional cost. Should more than 6 sets of documents be required the Departmental Representative will provide them at additional cost.

1.27 System of Measurement

.1 The metric system of measurement (SI) will be employed on this Contract.

1.28 Familiarization with Site

.1 Before submitting tender, it is recommended that the Contractor visits the Project site to become familiar with all conditions likely to affect the cost of the Work.

1.29 Submission of Tender

.1 Submission of a tender is deemed to be confirmation of the fact that the Tenderer has analyzed the Contract documents and inspected the site and is fully conversant with all conditions.

1.30 Measurement and Payment

.1 There will be no measurement for work covered in this Section.

.2 Payment for work covered in this Section will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Mobilization, Demobilization and General Conditions of Contract.

.2 Traffic Control.

.3 Measurement and Payment.

1.2 Mobilization, Demobilization and General Conditions of Contract

.1 Payment of 25% of the Lump Sum Amount for the Mobilization, Demobilization, and General Conditions of Contract item shall be authorized when the Contractor has provided a Construction Schedule and Work onsite has commenced to the satisfaction of the Departmental Representative. Payment of 60% of the Lump Sum shall be made as a series of monthly payments, calculated on the basis of the expected schedule. If the Work falls behind or gets ahead of schedule, these payments will be adjusted accordingly. Payment of the remaining 15% shall be authorized when the Work is completed, and the site is cleaned-up to the satisfaction of the Departmental Representative.

.2 Payment of only 10% of the total tender price shall be scheduled as outlined above if the amount bid for Mobilization, Demobilization, and General Conditions of Contract is greater than 10%. Payment of the remainder of the amount shall be authorized when the site is cleaned to the satisfaction of the Departmental Representative.

.3 All items of work required under the Contract that are not idetified for Payment elsewhere shall be included in the scope of work for payment under the Lump Sum Amount for the Mobilization, Demobilization, and General Conditions of Contract item.

1.3 Traffic Control

.1 Payment for Traffic Control shall be considered incidental to the Work and no additional or separate payment will be made.

1.4 Measurement and Payment

.1 There will be no measurement for work under this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Description.

.2 Construction Progress Meetings and Project Meetings.

.3 Construction Organization and Start-Up.

.4 Schedules.

.5 Submittals.

.6 Closeout Procedures.

.7 Measurement and Payment.

1.2 Description

.1 Coordination of progress schedules, submittals, use of sites, temporary utilities, construction facilities, and construction Work, with progress of work by others under instructions of Departmental Representative.

1.3 Construction Progress Meetings and Project Meetings

.1 The Departmental Representative will schedule and administer project meetings as deemed necessary throughout progress of the Work.

.2 Agenda to include, but not limited to, the following:

.1 Review and approval of minutes of previous meeting.
.2 Review of Work progress since previous meeting.
.3 Field observations, problems, conflicts.
.4 Problems that 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.

1.3 Construction Progress Meetings and Project Meetings (Cont'd)

.2 (Cont'd)
.9 Review submittal schedules: expedite as required.
.10 Maintenance of quality standards.
.11 Review proposed changes for effect on construction schedule and on completion date.
.12 Other business.

.3 The Contractor shall provide physical space and make arrangements for meetings.

.4 The Departmental Representative will record minutes, including significant proceedings and decisions, identify action by parties, and set time and date for next progress meeting.

.5 The Departmental Representative will reproduce and distribute copies of minutes within ten (10) working days after each meeting and transmit to meeting participants, affected parties not in attendance, and Contractor.

1.4 Construction Organization and Start-Up

.1 Within 15 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.

.2 Departmental Representatives and senior representatives of the Contractor, major Subcontractors (if applicable), field inspectors and supervisors will be in attendance.

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

.4 Agenda to include, but not limited to, the following:
.1 Site specific health and safety requirements.
.2 Appointment of official representative of participants in Work.
.3 Schedule of Work, progress scheduling in accordance with Section 01 32 16 - Construction Progress and Reporting.

1.4 Construction Organization and Start-Up (Cont'd)

.4 (Cont'd)

.4 Schedule of submission of shop drawings, samples, colour chips, etc. in accordance with Section 01 33 00 - Submittal Procedures.

.5 Requirements for temporary facilities, storage sheds, utilities, etc. in accordance with Section 01 51 00 - Temporary Utilities.

.6 Delivery schedule of specified equipment in accordance with Section 01 32 16 - Construction Progress and Reporting.

.7 Site security in accordance with Section 01 52 00 - Construction Facilities.

.8 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.

.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.

.11 Appointment of inspection and testing agencies or firms in accordance with Section 01 45 00 - Quality Control.

.12 Insurances and transcript of policies.

.13 Other business.

.5 Comply with Departmental Representative's allocation of mobilization areas of sites; for field offices and sheds, access, traffic, and parking facilities.

.6 During construction, coordinate use of sites and facilities with Departmental Representative.

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

1.5 Schedules

.1 Submit preliminary construction progress schedule in accordance with Section 01 32 16 -Construction Progress Reporting to Departmental Representative coordinated with Departmental Representative's project schedule.

1.5 Schedules (Cont'd)

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

.3 During progress of Work, provide updated Construction Progress Schedule on a monthly basis with the Request for Process Payment.

1.6 Submittals

.1 Submit request for payment for review, and for transmittal to Departmental Representative.

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

.3 Deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative.

1.7 Closeout Procedures

.1 Notify Departmental Representative when work is considered ready for Substantial Performance, in accordance with Section 01 77 00 - Closeout Procedure.

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

.3 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

1.8 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for Mobilization, Demobilization and General Conditions of the Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Definitions.

.2 System Description.

.3 CPM Requirements.

.4 Submittals.

.5 Quality Assurance.

.6 Project Meetings.

.7 Work Breakdown Structure.

.8 Project Milestones.

.9 Master Plan.

.10 Detail Schedule.

.11 Review of the Construction Detail Schedule.

.12 Compliance with Detail Schedule.

.13 Progress Monitoring and Reporting.

.14 Progress Photographs.

.15 Measurement and Payment.

1.2 Definitions

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

.2 Actual Finish Date (AF): point in time that Work actually ended on activity.

.3 Actual Start Date (AS): point in time that Work actually started on activity.

1.2 Definitions (Cont'd)

.4 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.

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

.6 Completion Milestones: they are firstly Substantial Performance and secondly Project Completion.

.7 Constraint: applicable restriction that will affect performance of Project. Factors that affect activities can be scheduled.

.8 Control: process of comparing actual performance with planned performance, analyzing variances, evaluating possible alternatives, and taking appropriate corrective action as needed.

.9 Critical Activity: any activity on a critical path. Most commonly determined by using critical path method.

.10 Critical Path: series of activities that determines duration of Project. In deterministic model, critical path is usually defined as those activities with float less than or equal to specified value, often zero. It is longest path through Project.

.11 Critical Path Method (CPM): network analysis technique used to predict Project duration by analyzing which sequence of activities (which path) has least amount of scheduling flexibility (least amount of float).

.12 Data Date (DD): date at which, or up to which, Project's reporting system has provided actual status and accomplishments.

1.2 Definitions (Cont'd)

.13 Duration (DU): number of work periods (not including holidays or other non-working periods) required to complete activity or another Project element. Usually expressed as workdays or work weeks.

.14 Early Finish Date (EF): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can finish, based on network logic and schedule constraints. Early finish dates can change as Project progresses and changes are made to Project plan.

.15 Early Start Date (ES): in critical path method, earliest possible point in time on which uncompleted portions of activity (or Project) can start, based on network logic and schedule constraints. Early start dates can change as Project progresses and changes are made to Project Plan.

.16 Finish Date: point in time associated with activity's completion. Usually qualified by one of following: actual, planned, estimated, scheduled, early, late, baseline, target, or current.

.17 Float: amount of time that activity may be delayed from its early start without delaying Project finish date. Float is mathematical calculation and can change as Project progresses and changes are made to Project plan. This resource is available to both PSPC and Contractor.

.18 Lag: modification of logical relationship that directs delay in successor task.

.19 Late Finish Date (LF): in critical path method, latest possible point in time that activity may be completed without delaying specified milestone (usually Project finish date).

.20 Late Start Date (LS): in critical path method, latest possible point in time that activity may begin without delaying specified milestone (usually Project finish date).

1.2 Definitions (Cont'd)

.21 Lead: modification of logical relationship that allows acceleration of successor task.

.22 Logic Diagram: see Project network diagram.

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

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

.25 Monitoring: capture, analysis, and reporting of Project performance, usually as compared to plan.

.26 Near-Critical Activity: activity that has low total float.

.27 Non-Critical Activities: activities which when delayed, do not affect specified Contract duration.

.28 Project Control System: fully computerized system utilizing commercially available software packages.

.29 Project Network Diagram: schematic display of logical relationships of Project activities. Always drawn from left to right to reflect Project chronology.

.30 Project Plan: formal, approved document used to guide both Project execution and Project control. Primary uses of Project plan are to document planning assumptions and decisions, facilitate communication among stakeholders, and document approved scope, cost, and schedule baselines. Project plan may be summary or detailed.

.31 Project Planning: development and maintenance of Project Plan.

.32 Project Planning, Monitoring, and Control System: overall system operated by Departmental Representative to enable monitoring of Project Work in relation to established milestones.

1.2 Definitions (Cont'd)

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

.34 Quantified Days Duration: working days based on 5-day work week, discounting statutory holidays.

.35 Risk: uncertain event or condition that, if it occurs, has positive or negative effect on Project's objectives.

.36 Scheduled Finish Date (SF): point in time that Work was scheduled to finish on activity. Scheduled finish date is normally within range of dates delimited by early finish date and late finish date.

.37 Scheduled Start Date (SS): point in time that Work was scheduled to start on activity. Scheduled start date is normally within range of dates delimited by early start date and late start date.

.38 Start Date: point in time associated with activity's start, usually qualified by one of following: actual, planned, estimated, scheduled, early, late, target, baseline, or current.

.39 Work Breakdown Structure (WBS): deliverable-oriented grouping of project elements that organizes and defines total Work scope of Project. Each descending level represents increasingly detailed definition of Project Work.

1.3 System Description

.1 Construction Progress Schedule (Project Time Management): describes processes required to ensure timely completion of Project. These processes ensure that various elements of the Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring, and control.

.2 Planning: this is the most basic function of management, that of determining presentation of action, and is essential.

.1 It involves focusing on objective consideration of future, and integrating forward thinking with analysis; therefore, in planning, implicit assumptions are made about future so that action can be taken today.

.2 Planning and scheduling facilitates accomplishment of objectives and should be considered a continuous interactive process involving planning, review, scheduling, analysis, monitoring and reporting.

.3 Ensure that the planning process is iterative and results in generally top-down processing with more detail being developed as planning progresses, and decisions concerning options and alternatives are made. This implies progressively more reliability of scheduling data. Detail Project schedule is used for analysis and progress monitoring.

.4 Ensure project schedule efficiencies through monitoring.

.1 When activities begin on time and are performed according to estimated durations without interruptions, original Critical Path will remain accurate. Changes and delays will, however, create an essential need for continual monitoring of Project activities.

.2 Monitor progress of Project in detail to ensure integrity of Critical Path, by comparing actual completions of individual activities with their scheduled completions, and review progress of activities that has started but are not yet completed.

.3 Monitoring should be done sufficiently often so that causes of delays are immediately identified and removed if possible.

1.3 System Description (Cont'd)

.5 Project monitoring and reporting: as Project progresses, keep team aware of changes to schedule, and possible consequences. In addition to Bar Charts and CPM networks, use narrative reports to provide advice on seriousness of difficulties and measures to overcome them.

.6 Narrative reporting begins with statement on general status of Project followed by summarization of delays, potential problems, corrective measures and Project status criticality.

1.4 CPM Requirements

.1 Ensure Master Plan and Detail Schedule are practical and remain within specified Contract duration.

.2 Master Plan and Detail Schedule deemed impractical by Departmental Representative are revised and resubmitted for review.

.3 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute a change to the Contract. Duration of Contract may only be changed through bilateral Agreement.

.4 Consider Master Plan and Detail Schedule deemed practical by Departmental Representative, showing Work completed in less than specified Contract duration, to have float.

.5 First Milestone on Master Plan and Detail Schedule will identify start Milestone with an "ES" constraint date equal to Award of Contract date.

.6 Calculate dates for completion milestones from Plan and Schedule using specified time periods for Contract.

.7 Substantial Completion with "LF" constraint equal to calculated date.

1.4 CPM Requirements (Cont'd)

.8 Calculations on updates to be such that if early finish of Interim Certificate falls later than specified Contract duration then float calculation to reflect negative float.

.9 Delays to non-critical activities, those with float may not be basis for time extension.

.10 Do not use float suppression techniques such as software constraints, preferential sequencing, special lead/lag logic restraints, extended activity times or imposed dates other than required by Contract.

.11 Allow for and show Master Plan and Detail Schedule adverse weather conditions normally anticipated. Specified Contract duration has been predicated assuming normal amount of adverse weather conditions.

.12 Provide necessary crews and manpower to meet schedule requirements for performing Work within specified Contract duration. Simultaneous use of multiple crews on multiple fronts on multiple critical paths may be required.

.13 Arrange participation on and off site of subcontractors and suppliers, as required by Departmental Representative, for purpose of network planning, scheduling, updating and progress monitoring. Approvals by Departmental Representative of original networks and revisions do not relieve Contractor from duties and responsibilities required by Contract.

.14 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 Provide submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.5 Submittals (Cont'd)

.2 Submit to Departmental Representative Project Control System for planning, scheduling, monitoring, and reporting of project progress.

.3 Submit Project Control System to Departmental Representative for review; failure to comply with each required submission, may result in progress payment being withheld.

.4 Include costs for execution, preparation, and reproduction of schedule submittals in bid documents.

.5 Submit letter ensuring that schedule has been prepared in coordination with major Subcontractors, if applicable.

.6 Submit Project planning, monitoring, and control system data as required by Departmental Representative in following form:
.1 Files in original scheduling software and PDF formats containing schedule and cash flow information, labelled with data date, specific update, and person responsible for update.
.2 Master Plan Bar Chart.
.3 Construction Detail schedule Bar Chart.
.4 Listing of project activities including milestones and logical connectors, networks (sub-networks) from Project start to end. Sort activities by activity identification number and accompany with descriptions. List early and late start and finish dates together with durations, codes and float.
.5 Criticality report listing activities and milestones with up to 5 days total float used as first sort for ready identification of critical or near critical paths through entire project. List early and late starts and finishes dates, together with durations, codes and float for critical activities.
.6 Progress report in early start sequence, listing for each trade, activities due to start, underway, or finished. List activity identification number, description and duration. Provide columns for entry of actual start and finish dates, duration remaining and remarks concerning action required.

1.5 Submittals (Cont'd)

.6 (Cont'd)

.7 Within ten working days after each March 31 and September 30 occurring between commencement of Work and final completion, and within ten working days after final completion, provide to Departmental Representative:

.1 Statement of total person days of labour used on site in performance of Contract, including labour provided under subcontracts.

.2 Estimate of total value in dollars of material delivered to site and installed, including material provided and installed under sub-contracts.

1.6 Quality Assurance

.1 Use experienced personnel, fully qualified in planning and scheduling, to provide services from start of construction to Final Certificate, including Commissioning.

1.7 Project Meetings

.1 Meet with Departmental Representative within 5 working days of Award of Contract date, to establish Work requirements and approach to project construction operations.

1.8 Work Breakdown Structure

.1 Prepare construction WBS within 15 working days of Award of Contract date. Develop WBS through at least five levels: project, stage, element, sub-element and work package.

1.9 Project Milestones

.1 Project milestones form targets for both Master Plan and Detail Schedule of CPM construction network system. Include:

.1 Steel fabrication complete and ready to ship.

.2 Mobilization on-site.

.3 Start and end dates for all in-water works.

.4 Substantial Performance of the works.

.5 Completion of all site works.

1.9 Project Milestones (Cont'd)

.1 (Cont'd)

.6 Final Project Completion.

1.10 Master Plan

.1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.

.2 Prepare comprehensive construction Master Plan (CPM logic diagram) and dependent Cash Flow Projection within 15 working days of finalizing Agreement to confirm validity or alternates of identified milestones.

.1 Master Plan will be used as baseline.

.1 Revise baseline as conditions dictate and as required by Departmental Representative.

.2 Departmental Representative will review and return revised baseline within 10 work days.

.3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.

.4 Initial and subsequent Master Plans will include:

.1 File containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.

.2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.

.3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.

.4 Actual/projected monthly cash flow: expressed monthly and shown in both graphical and numerical form.

1.11 Detail Schedule

.1 Structure and base CPM construction networks system on WBS coding in order to ensure consistency throughout Project.

1.11 Detail Schedule (Cont'd)

.2 Prepare comprehensive construction Master Plan (CPM logic diagram) and dependent Cash Flow Projection within 15 working days of finalizing Agreement to confirm validity or alternates of identified milestones.

.1 Master Plan will be used as baseline.

.1 Revise baseline as conditions dictate and as required by Departmental Representative.

.2 Departmental Representative will review and return revised baseline within 10 work days.

.3 Reconcile revisions to Master Plan and Cash Flow Projections with previous baseline to provide continuous audit trail.

.4 Initial and subsequent Master Plans will include:

.1 File containing schedule and cash flow information, clearly labelled with data date, specific update, and person responsible for update.

.2 Bar chart identifying coding, activity durations, early/late and start/finish dates, total float, completion as percentile, current status and budget amounts.

.3 Network diagram showing coding, activity sequencing (logic), total float, early/late dates, current status and durations.

.4 Actual/projected cash flow: expressed monthly and shown in both graphical and numerical form.

.5 Provide detailed project schedule (CPM logic diagram) within 15 working days of Award of Contract date showing activity sequencing, interdependencies and duration estimates. Include listed activities as follows:

.1 Shop drawings.
.2 Samples.
.3 Approvals.
.4 Procurement.
.5 Construction.
.6 Installation.
.7 Site works.
.8 In-water works.
.9 Testing.
.10 Shutdown or closure activity.

1.11 Detail Schedule (Cont'd)

.5 (Cont'd)
.11 Commissioning and acceptance.

.6 Detail CPM schedule to cover in detail minimum period of 6 months beginning from Award of Contract date with each activity duration approximately 3 to 15 days.
.1 Show remaining activities for CPM construction network system up to Final Certificate and develop complete detail as project progresses.
.2 Detail activities completely and comprehensively throughout duration of project.

.7 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.

.8 Clearly show sequence and interdependence of construction activities and indicate:
.1 Start and completion of all items of Work, their major components, and interim milestone completion dates.
.2 Activities for procurement, delivery, installation and completion of each major piece of equipment, materials and other supplies, including:
.1 Time for submittals, resubmittals and review.
.2 Time for fabrication and delivery of manufactured products for Work.
.3 Interdependence of procurement and construction activities.
.3 Include sufficient detail to assure adequate planning and execution of Work. Activities should generally range in duration from 3 to 15 workdays each.

.9 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.

1.11 Detail Schedule (Cont'd)

.10 Ensure activities with no float are calculated and clearly indicated on logical CPM construction network system as being, whenever possible, continuous series of activities throughout length of Project to form "Critical Path".

.11 Insert Change Orders in appropriate and logical location of Detail Schedule. After analysis, clearly state and report to Departmental Representative for review effects created by insertion of new Change Order.

1.12 Review of the Construction Detail Schedule

.1 Allow 10 working days for review by Departmental Representative of proposed construction Detail Schedule.

.2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 5 working days.

.3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.

.4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.13 Compliance with Detail Schedule

.1 Comply with reviewed Detail Schedule.

.2 Proceed with significant changes and deviations from scheduled sequence of activities that cause delay, only after receipt of review by the Departmental Representative.

.3 Identify activities that are behind schedule and causing delay. Provide measures to regain slippage.

.1 Corrective measures, at no additional cost, may include:

.1 Increase of personnel on site for effected activities or work package.

1.13 Compliance with Detail Schedule (Cont'd)

.3 (Cont'd)
.1 (Cont'd)
.2 Increase in materials and equipment.
.3 Overtime work and additional work shifts.

.4 Submit to Departmental Representative, justification, project schedule data, and supporting evidence for approval of extension to Contract completion date or interim milestone date when required. Include as part of supporting evidence:
.1 Written submission of proof of delay based on revised activity logic, duration and costs, showing time impact analysis illustrating influence of each change or delay relative to approved contract schedule.
.2 Prepared schedule indicating how change will be incorporated into the overall logic diagram. Demonstrate perceived impact based on date of occurrence of change and include status of construction at that time.
.3 Other supporting evidence requested by Departmental Representative.
.4 Do not assume approval of Contract extension prior to receipt of written approval from Departmental Representative.

.5 In event of Contract extension, display in Detail Schedule that scheduled float time available for work involved has been used in full without jeopardizing earned float.
.1 Departmental Representative will determine and advise Contractor number of allowable days for extension of Contract based on project schedule updates for period in question, and other factual information.
.2 Construction delays affecting project schedule will not constitute justification for extension of contract completion date.

1.14 Progress Monitoring and Reporting

.1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating, and progress monitoring. Inspect Work with Departmental Representative at least once per Project to establish progress on each current activity shown on applicable networks.

.2 Update and reissue project Work Breakdown Structure and relevant coding structures as project develops and changes.

.3 Detailed Schedule Update is to occur on a monthly basis in conjunction with submission of Request for Progress Payment.

.4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.

.5 Submit to Departmental Representative copies of updated Detail Schedule.

.6 Requirements for progress monitoring and reporting are basis for progress payment request.

.7 Submit written report at least once per Project based on Detail Schedule, showing Work to date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:

.1 Description of progress made.

.2 Pending items and status of: permits, shop drawings, Change Orders, possible time extensions.

.3 Status of Contract completion date and milestones.

.4 Current and anticipated problem areas, potential delays and corrective measures.

1.14 Progress Monitoring and Reporting (Cont'd)

.7 (Cont'd)

.5 Review of progress and status of Critical Path activities.

1.15 Progress Photographs

.1 Provide digital photographs with dates and descriptions with progress reports. Relate dates and descriptions to photo file names in a separate text file.

.2 Viewpoints: determined by Departmental Representative.

.3 Frequency: with progress statement, at completion of each construction stage, and as directed by Departmental Representative.

1.16 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Molibization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Administrative.

.2 Product Data.

.3 Progress Photographs.

.4 Survey and Quality Testing Reports.

.5 Quality Control Plan.

.6 Measurement and Payment.

.7 Submittal Schedule.

1.2 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 product data, 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.

1.2 Administrative (Cont'd)

.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. Contractor to become familiar with all conditions likely to affect the cost of the Work before submission of their Tender documents.

.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.

1.3 Product Data

.1 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

.2 Delete information not applicable to project.

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

.4 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 product data sheets are rejected, noted copy will be returned and resubmission of corrected data sheets, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

1.3 Product Data (Cont'd)

.5 The review of product data sheets by Departmental Representative is for sole purpose of ascertaining conformance with general concept. This review shall not mean that Departmental Representative approves detail design inherent in product data sheets, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in product data sheets 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 co-ordination of Work of all sub-trades.

1.4 Progress Photographs

.1 Submit progress photographs in accordance with Section 01 32 16 - Construction Progress and Reporting.

1.5 Survey and Quality Testing Reports

.1 Submit certified survey and quality testing reports with progress reports.

1.6 Quality Control Plan

.1 Prepare and submit to Departmental Representative for review and approval of a Quality Control Plan including but not limited to:

.1 Quality control processes and procedures.
.2 Quality control reporting and frequency.
.3 Testing companies and agencies employed to provide materials testing.
.4 Frequency and types of testing.
.5 Verification of materials and installation procedures, including but not limited to structural steel, bolts, welds, paint.
.6 Dimension checks of pre-fabricated and site-fabricated elements.

1.7 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Molilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

1.8 Submittal Schedule

.1 All submittals shall be submitted to the Departmental Representative for review within ten (10) days of Award unless noted otherwise.

.2 The Departmental Representative will review and return submittals within five (5) days of receipt unless noted otherwise.

.3 Key submittals include, but are not limited to, the following:

.1 The Construction Schedule. For details regarding the Construction Schedule refer to 01 32 16 – Construction Progress.

.2 The Quality Control Plan. For details regarding the Quality Control Plan refer to Section 01 33 00 – Submittal Procedures, Clause 1.6.

.3 The Health and Safety Plan. For details regarding the Health and Safety Plan refer to Section 01 35 33 – Health and Safety, Clause 1.8.

.4 The Environmental Protection Plan. For details regarding the Environmental Protection Plan refer to Section 01 35 43 – Environmental Protection, Clause 1.6.

.5 The Traffic Control Plan. For details regarding the Traffic Control Plan refer to Section 01 55 00 – Trafic Control, Vehicle Access and Parking, Clause 1.4.

.6 The Demolition Plan. For details regarding the Demolition Plan refer to Section 02 41 99, Clause 3.4.7.

.7 Formwork, Falsework and Temprary Access Drawings. For details regarding this submission refer to Section 03 10 00 – Concrete Forming and Accessories, Clause 3.1.13.

1.8 Submittal Schedule (Cont'd)

.3 (Cont'd)

.8 Reinforcing Steel Shop Drawings. For details regarding this submission refer to Section 03 20 00 – Concrete Reinforcing, Clause 1.4.

.9 Cast-In-Place Concrete Submissions. For details regarding these submission refer to Section 03 30 00 – Cast-In-Place Concrete.

.10 Structural Steel Shop Drawings. For details regarding these submissions refer to Section 05 12 33 – Structural Steel for Bridges, Clause 1.4.

.11 Vehicle Thrie Beam Guide Rail Shop Drawings. For details regarding these submissions refer to Section 34 71 13.25 – Vehicle Thrie Beam Guide Rail, Clause 1.5.

PART 2 – PRODUCTS

2.1 .1 Not used.

PART 3 – EXECUTION

3.1 .1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Basis of Payment.

.2 References.

.3 Protection of Public Traffic.

.4 Informational and Warning Devices.

.5 Control of Public Traffic.

.6 Operational Requirements.

.7 Measurement and Payment.

1.2 Basis of Payment

.1 No separate payment will be made for traffic control.

1.3 References

.1 "2020 Traffic Management Manual for Work on Roadways" (distributed by Province of British Columbia, Ministry of Transportation and Highways).

1.4 Protection of Public Traffic

.1 Comply with current requirements of Acts, Regulations, and By-Laws for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.

.2 When working on travelled way:
.1 Position equipment to present minimum of interference and hazard to travelling public.
.2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
.3 Do not leave equipment on travelled way overnight.

1.4 Protection of Public Traffic (Cont'd)

.3 Do not close any lanes of road or highway without consulting Departmental Representative. Before re-routing traffic erect suitable signs and devices in accordance with instructions contained in "2020 Traffic Management Manual for Work on Roadways".

.4 Keep travelled way graded, free of potholes, and of sufficient width for required number of lanes of traffic.

.5 Provide well-graded, signed, and maintained detours or temporary roads to facilitate passage of traffic around restricted construction areas.

.6 Provide and maintain reasonable access to property in vicinity of Work and in other areas as indicated.

1.5 Informational and Warning Devices

.1 Provide, erect, and maintain signs, flashing warning lights, and other devices required to indicate construction activities and other temporary and unusual conditions resulting from Project Work that requires road user response as specified in "2020 Traffic Management Manual for Work on Roadways".

.2 Supply signs, delineators, barricades, traffic cones, and miscellaneous warning devices, except those shown on plans as supplied by others, as specified in "2020 Traffic Management Manual for Work on Roadways".

.3 Place signs and other devices in locations recommended in "2020 Traffic Management Manual for Work on Roadways".

.4 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list and review with Departmental Representative.

.5 Continually maintain traffic control devices in use by:

1.5 Informational and Warning Devices (Cont'd)

.5 (Cont'd)
.1 Checking signs daily for legibility, damage, suitability, and location. Clean, repair, or replace to ensure clarity and reflectance.
.2 Removing or covering signs which do not apply to conditions existing from day to day.

.6 Provide traffic cones as specified in "2020 Traffic Management Manual for Work on Roadways".

.7 Ensure that necessary traffic cones and signs are in place prior to interference with traffic on existing roadways.

1.6 Control of Public Traffic

.1 Provide traffic control in accordance with "2020 Traffic Management Manual for Work on Roadways". Ensure that current copy of manual is available on site at all times.

.2 Flagpersons:
.1 Provide trained, competent flagpersons with proof of certification from recognized training program on traffic control procedures through construction zones.
.2 Provide flagpersons with proper equipment and clothing as specified in "2020 Traffic Management Manual for Work on Roadways".
.3 Flagpersons are required in the following (but not limited to) situations:
.1 When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
.2 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high, and traffic signal system is not in use.
.3 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves, or at other locations where oncoming traffic would not otherwise have adequate warning.

1.6 Control of Public Traffic (Cont'd)

.2 (Cont'd)

.3 (Cont'd)

.4 When temporary protection is required while other traffic control devices are being erected or taken down.

.5 For emergency protection when other traffic control devices are not readily available.

.6 In situations where complete protection for workers, working equipment, and public traffic is not provided by other traffic control devices.

.7 At each end of restricted sections where pilot cars are required.

.8 When construction traffic is crossing a roadway.

.3 Changes to traffic control operation are to be reviewed by Departmental Representative.

.4 Safely control traffic through unique or varied construction situations.

.5 The Traffic Control Plan shall be stamped by a Proffesional Engineer registered in the Province of British Columbia.

.6 The Traffic Control Plan shall include temporary concrete barriers to seperate traffic from the workzone in both stages of construction.

1.7 Operational Requirements

.1 Maintain existing conditions for traffic throughout period of contract except when required for construction under contract and when measures have been taken as specified herein and reviewed by Departmental Representative to protect and control public traffic.

.2 Maintain existing conditions for traffic crossing right-of-way.

1.8 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1

.1 Not used.

PART 3 – EXECUTION

3.1

.1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 PWGSC Update on Asbestos Use.

.2 COVID-19.

.3 References.

.4 Related Sections.

.5 Workers.

.6 Compliance with Regulations.

.7 Submittals.

.8 Responsibility.

.9 Health and Safety Coordinator.

.10 General Conditions.

.11 Project/Site Conditions.

.12 Utility Clearances.

.13 Regulatory Requirements.

.14 Work Permits.

.15 Filing of Notice.

.16 Site Specific Health and Safety Plan.

.17 Emergency Procedures.

.18 Hazardous Products.

.19 Asbestos Hazard.

.20 PCB Removals.

.21 Removal of Lead-Containing Paint.

.22 Electrical Safety Requirements.

.23 Electrical Lookout.

1.1 Section Includes (Cont'd)

.24 Overloading.

.25 Falsework.

.26 Scaffolding.

.27 Confined Spaces.

.28 Powder-Actuated Devices.

.29 Fire Safety and Hot Work.

.30 Fire Safety Requirements.

.31 Fire Protection and Alarm System.

.32 Unforeseen Hazards.

.33 Posted Documents.

.34 Meetings.

.35 Correction of Non-Compliance.

.36 Measurement and Payment.

1.2 PWGSC Update on Asbestos Use

.1 Effective April 1, 2016, all Public Works and Government Services of Canada (PWGSC) contracts for new construction and major rehabilitation will prohibit use of asbestos-containing materials.

1.3 COVID-19

.1 All contractors shall follow Canadian Construction Association COVID-19-Standardized Protocols for All Canadian Construction Sites, Provincial Regulations and Federal Site Specific Guidelines.

1.4 References

.1 Government of Canada.
.1 Canada Labour Code - Part II (as amended)
.2 Canada Occupational Health and Safety Regulations. (as amended)

1.4 References (Cont'd)

.2 National Building Code of Canada (NBC): (as amended)
.1 Part 8, Safety Measures at Construction and Demolition Sites.

.3 The Canadian Electrical Code (as amended)

.4 Canadian Standards Association (CSA) as amended:
.1 CSA S269.2-2016 Access Scaffolding for Construction.
.2 CSA S269.1-2016 Falsework for Construction Purposes.
.3 CSA S350-M1980 (R2003) Code of Practice for Safety in Demolition of Structures.
.4 CSA Z1006-16 Management of Work in Confined Spaces.
.5 CSA Z462-18 Workplace Electrical Safety Standard
.6 CSA Z797-18 Code of Practice for Access Scaffold

.5 National Fire Code of Canada 2015 (as amended)
.1 Part 5 - Hazardous Processes and Operations and Division B as applicable and required.

.6 American National Standards Institute (ANSI): (as amended)
.1 ANSI/ASSP A10.3-2020, Construction and Demolition Operations Safety Requirements for Powder-Actuated Fastening Systems

.7 Province of British Columbia:
.1 Workers Compensation Act Part 3-Occupational Health and Safety. (as amended)
.2 Occupational Health and Safety Regulation (as amended)

1.5 Related Sections

.1 Refer to the following current NMS sections as required:
.1 Section 01 11 55 - General Instructions

1.6 Workers

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

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

1.7 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.

1.8 Submittals

.1 Work affected by submittal shall not proceed until review is complete.

.2 Submit the following:

.1 Organizations Health and Safety Plan.

.2 Site Specific Safety Plan or Health and Safety Plan (SSSP or HASP)

.3 Copies of reports or directions issued by Federal and Provincial health and safety inspectors.

.4 Copies of incident and accident reports.

.5 Complete set of Material Safety Data Sheets (SDS), and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.

.6 Emergency Response Procedures.

1.8 Submittals (Cont'd)

.3 The Departmental Representative will review the Contractor's Site-Specific Safety Plan or Health and Safety Plan (SSSP/HASP) and emergency response procedures and provide comments to the Contractor within 5 days after receipt of the plan. Revise the plan as appropriate and resubmit to Departmental Representative.

.4 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.

.5 Submission of the Site-Specific Safety Plan or 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 by 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.

1.9 Responsibility

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

.2 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.3 Comply with and enforce compliance by employees with safety requirements of Contract documents, applicable Federal, Provincial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.10 Health and Safety Coordinator

.1 Assign a competent and qualified Health and Safety Coordinator who shall:
.1 Be responsible for completing all health and safety training and ensuring that personnel that do not successfully complete the required training are not permitted to enter the site to preform work.
.2 Be responsible for implementing, daily enforcing, and monitoring the Site-Specific Safety Plan (SSSP) or Health and Safety Plan (HASP).
.3 Be on site during execution of work.
.4 Have minimum two (2) years of site-related working experience.
.5 Have working knowledge of the applicable occupational safety and health regulations.

1.11 General Conditions

.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 nighttime or provide security guard as deemed necessary to protect site against entry.

1.12 Project/Site Conditions

.1 Work at site will involve contact with:
.1 Multi-employer work site.

.2 Federal employees and general public.

.3 Energized electrical services.

.4 Working from heights.

.5 Hazards – PWGSC Preliminary Hazard Assessment included as an Appendix to Specifications.

1.13 Utility Clearances

.1 The Contractor is solely responsible for all the utility detection and clearances prior to starting work.

.2 The Contractor will not rely solely upon the Reference Drawings or other information provided for Utility locations.

1.14 Regulatory Requirements

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

.2 In 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.

1.15 Work Permits

.1 Obtain specialty permit(s) related to project before start of work.

1.16 Filing of Notice

.1 The General Contractor is to file Notice of Projects with Provincial authorities prior to commencement of work. (All construction projects require a Notice of Work)

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

1.17 Site Specific 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 the Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP) based on the required hazard assessment, including, but not limited to, the following:

1.17 Site Specific Health and Safety Plan (Cont'd)

.2 (Cont'd)

.1 Primary requirements:

.1 Contractor's safety policy.

.2 Identification of applicable compliance obligations.

.3 Definition of responsibilities for project safety/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 Occupational Health and Safety Committee/Representative procedures.

.9 Occupational Health and Safety meetings.

.10 Occupational Health and Safety communications and record keeping procedures.

.11 COVID-19 Protocols and 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 work. SDS required for all products.

.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 personnel and alternates responsible for site safety and health.

.7 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 the Site-Specific Safety Plan (SSSP) and/or Health and Safety Plan (HASP) as required and re-submit to the Departmental Representative.

1.17 Site Specific Health and Safety Plan (Cont'd)

.5 Departmental Representative's review: the review of Site Specific Safety Plan and/or Health and Safety Plan by Public Works and Government Services Canada (PWGSC) shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Safety Plan and/or Health and Safety Plan of responsibility for meeting all requirements of construction and Contract documents and legislated requirements.

1.18 Emergency Procedures

.1 List standard operating procedures and measures to be taken in emergency situations. Include an emergency response and emergency evacuation plan and emergency contacts (ie. names/telephone numbers) of:
.1 Designated personnel from own company.
.2 Regulatory agencies applicable to work and as per legislated regulations.
.3 Local emergency resources.
.4 Departmental Representative.
.5 A route map with written directions to the nearest hospital or medical clinic.

.2 Include the following provisions in the emergency procedures:
.1 Notify workers and the 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.

1.18 Emergency Procedures (Cont'd)

.3 (Cont'd)

.5 Work on, over, under or adjacent to water.

.6 Workplaces where there are persons who require physical assistance to be moved.

.4 Design and mark emergency exit routes to provide quick and unimpeded exit.

.5 Revise and update emergency procedures as required and re-submit to the Departmental Representative.

.6 Contractors must not rely solely upon 911 for emergency rescue in a confined space, working at heights, etc.

1.19 Hazardous Products

.1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS 2015) regarding use, handling, storage and disposal of hazardous materials, and regarding labelling and provision of Safety Data Sheets (SDS) acceptable to the Departmental Representative and in accordance with the Canada Labour Code.

.2 Where use of hazardous and toxic products cannot be avoided:

.1 Advise Departmental Representative beforehand of the product(s) intended for use. Submit applicable SDS and WHMIS 2015 documents as per Section 01 11 55.

.2 In conjunction with Departmental Representative schedule to carry out work during "off hours".

.3 Provide adequate means of ventilation in accordance with Section 01 51 00.

.4 The contractor shall ensure that the product is applied as per the manufacturer's recommendations.

.5 The contractor shall ensure that only pre-approved products are brought onto the work site in an adequate quantity to complete the work.

1.20 Asbestos Hazard

.1 Carry out any activities involving asbestos in accordance with current applicable Federal and Provincial Regulations.

.2 Removal and handling of asbestos will be in accordance with current applicable Provincial/Federal Regulations.

1.21 PCB Removals

.1 Mercury-containing fluorescent tubes and ballasts which contain polychlorinated biphenyls (PCBs) are classified as hazardous waste.

.2 Remove, handle, transport and dispose of as indicated in Division 2 specifications.

1.22 Removal of Lead-Containing Paint

.1 All paint containing TCLP lead concentrations above 5 ppm are classified as hazardous.

.2 Carry out demolition and/or remediation activities involving lead-containing paints in accordance with current applicable Provincial/Territorial Regulations.

.3 Work with lead-containing paint shall be completed as per Provincial and Federal Regulations.

.4 Dry scraping/sanding of any materials containing lead is strictly prohibited.

.5 The use of Methylene Chloride based paint removal products is strictly prohibited.

.6 The existing bridge shall be assumed to contain lead paint.

1.23 Electrical Safety Requirements

.1 Comply with authorities and ensure that, when installing new facilities or modifying existing facilities, all electrical personnel are completely familiar with existing and new electrical circuits and equipment and their operation.

1.23 Electrical Safety Requirements (Cont'd)

.1 (Cont'd)

.1 Before undertaking any work, coordinate arc flash protection, required energizing and de-energizing of new and existing circuits with Departmental Representative.

.2 Maintain electrical safety procedures and take necessary precautions to ensure safety of all personnel working under this Contract, as well as safety of other personnel on site.

1.24 Electrical Lockout

.1 Develop, implement and enforce use of established procedures to provide electrical lockout and to ensure the health and safety of workers for every event where work must be done on any electrical circuit or facility.

.2 Prepare the lockout procedures in writing, listening step-by-step processes to be followed by workers, including how to prepare and issue the request/authorization form. Have procedures available for review upon request by the Departmental Representative.

.3 Keep the documents and lockout tags at the site and list in a logbook for the full duration of the Contract. Upon request, make such data available for viewing by Departmental Representative or by any authorized safety representative.

1.25 Overloading

.1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.

.2 The existing bridge is posted with maximum vehicle weight of 9,100 kg.

1.26 Falsework

.1 Design and construct falsework in accordance with CSA S269.1.

1.27 Scaffolding

.1 Design, construct and maintain scaffolding in a rigid, secure and safe manner, in accordance with CSA S269.2, CSA Z797 and B.C Occupational Health and Safety Regulations (as amended).

1.28 Confined Spaces

.1 Carry out work in compliance with current Provincial/Territorial regulations.

1.29 Powder-Actuated Devices

.1 Use powder-actuated devices in accordance with ANSI A10.3 (as amended) only after receipt of written permission from the Departmental Representative.

1.30 Fire Safety and Hot Work

.1 Obtain Departmental Representative's authorization before any welding, cutting or any other hot work operations can be carried out on site.

.2 Hot work includes cutting/melting with use of torch, flame heating roofing kettles, or other open flame devices and grinding with equipment which produces sparks.

.3 Hot work permits are a mandatory requirement for any hot work activities.

1.31 Fire Safety Requirements

.1 Store oily/paint-soaked waste products, empty containers and materials subjected to spontaneous combustion in ULC approved, sealed containers and remove from site on a daily basis.

.2 Handle, store, use and dispose of flammable and combustible materials in accordance with the National Fire Code of Canada (as amended).

.3 Portable gas and diesel fuel tanks are not permitted on most federal work sites. Approval from Departmental Representative is required prior to any gas or diesel tank being brought onto the work site.

1.32 Fire Protection and Alarm System

.1 Fire protection and alarm systems shall not be:
.1 Obstructed.
.2 Shut off.
.3 Left inactive at the end of a working day or shift.

.2 Do not use fire hydrants, standpipes or hose systems for purposes other than firefighting.

.3 Be responsible/liable for costs incurred from the fire department, the building owner and the tenants, resulting from false alarms.

1.33 Unforeseen Hazards

.1 Should any unforeseen or peculiar safety-related factor, hazard or condition become evident during performance of the work, immediately stop work and advise the Departmental Representative verbally and in writing.

1.34 Posted Documents

.1 Post legible versions of the following documents on site:
.1 Site Specific Safety Plan (SSSP) or Health and Safety Plan (HASP).
.2 Sequence of work.
.3 Emergency procedures.
.4 Site drawings showing project layout, locations of the first-aid station, evacuation route and marshalling station, and the emergency transportation provisions.
.5 Notice of Project.
.6 Floor plans or site plans. Must be posted in a non-inmate access area and locked up when not being used.
.7 Notice as to where a copy of the Workers' Compensation Act and Regulations are available on the work site for review by employees and workers.
.8 Workplace Hazardous Materials Information System (WHMIS 2015) documents.
.9 Material Safety Data Sheets (SDS).
.10 List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable.

1.34 Posted Documents (Cont'd)

.1 (Cont'd)
.11 All Hazardous Material and Substance Reports including Lab Analysis.

.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 this Contract includes construction activities adjacent to occupied areas.

.3 Postings should be protected from the weather, and visible from the street or the exterior of the principal construction site shelter provided for workers and equipment, or as approved by the Departmental Representative.

1.35 Meetings

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

1.36 Correction of Non-Compliance

.1 Immediately address health and safety non-compliance issues identified by the Departmental Representative.

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

.3 The Departmental Representative may issue a "stop work order" if non-compliance of health and safety regulations is not corrected immediately or within posted time. The General Contractor/Subcontractors will be responsible for any costs arising from such a "stop work order".

1.37 Measurement and Payment

.1 There will be no measurement for the work in this Section.

1.37 Measurement and Payment (Cont'd)

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the 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 Section Includes

.1 Related Sections.

.2 References.

.3 Definition.

.4 Measurement Procedures.

.5 Regulatory Overview.

.6 Submittals.

.7 Environmental Effects Evaluation.

.8 Site Access and Parking.

.9 Protection of Work Limits.

.10 Erosion Control.

.11 Pollution Control.

.12 Equipment Maintenance, Fueling and Operation.

.13 Operation of Equipment.

.14 Managing Invasive Plant Vegetation.

.15 Fire Prevention and Control.

.16 Wildlife.

.17 Relics and Antiquities.

.18 Waste Materials Storage.

.19 Wastewater Discharge Criteria.

.20 Camp Wastewater Discharge Criteria.

.21 Drainage.

.22 Site Cleaning and Plant Protection.

.23 Blasting.

1.1 Section Includes (Cont'd)

.24 Environmental Protection Supplies.

.25 Notification.

.26 Environmental Monitoring.

.27 Concrete Materials Use and Site Work.

.28 Measurement and Payment.

1.2 Related Sections

.1 Section 01 33 00 – Submittal Procedures

.2 Section 02 81 00 – Hazardous Materials

1.3 References

.1 British Columbia Ministry of Water, Land and Air Protection Ecosystem Standards and Planning Biodiversity Branch:
.1 Standards and Best Practices for Instream Works (March 2004).

1.4 Definition

.1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavorably 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.

1.4 Definition (Cont'd)

.3 Environmental Protection Plan: is prepared by Contractor and describes in writing all the environmental protection and mitigation measures that will be applied throughout the life of the Project by the Contractor to avoid or minimize the potential effects on the environment associated with the Project.

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

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

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

.7 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.

.8 Noxious weeds: are invasive plants that have been designated under the BC Weed Control Act. This legislation imposes a duty on all land occupiers to control a set list of identified invasive plants. See www.agf.gov.bc.ca/cropprot/noxious.html.

.9 Riparian area – for a stream, the 30m strip on both sides of the stream, measured from the high water mark, (b) for a ravine less than 60 m wide, a strip on both sides of the steam measured from the high water mark to a point that is 30 m beyond the top of the ravine bank, and for a ravine 60 m wide or greater, a strip on both sides of the stream measured from the high water mark to a point that is 10 m beyond the top of the ravine bank (Riparian Areas Regulation).

1.4 Definition (Cont'd)

.10 Species at risk: a species that has been defined as at risk of extirpation by either the federal or provincial government.

.11 Timing windows: periods when human activities are least likely to cause damage to species and ecosystems.

.12 Culturally Modified Trees (CMTs): a CMT is a tree that has been altered by aboriginal people as part of their traditional use of the forest. For more information please see the Handbook for the Identification and Recording of Culturally Modified Trees prepared by the Archaeology Branch B.C. Ministry of Business, Tourism and Culture.

.1 Qualified Environmental Professional (QEP): Individuals that may act as QEPs under the Riparian Areas Protection Regulation are defined under Section 21 of the regulation. The QEP must be acting under their professional associations code of ethics and subject to the organizations disciplinary action. QEPs may hold the following designations: Agrologist, Applied technologist or technician, Professional biologist, Professional engineer, Professional forester, Professional geoscientist or Registered forest technologist. QEPs can conduct assessments as individuals or together with other qualified environmental professionals. They must have an area of expertise that is recognized in the regulation as one that is acceptable for the purpose of providing all or part of an assessment report for the particular development proposal that is being assessed. They will only be considered a QEP for that portion of the assessment that is within their area of expertise, as identified in the regulation.

1.5 Measurement Procedures

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

1.6 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 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 most current version of the Migratory Birds Convention Act and BMPs surrounding species at risk within project limits.

.5 Pay specific attention to the most current version of the provincial BC guidelines under Northeast Region: Terms and Conditions and Timing Windows.

.6 Pay specific attention to most current version of the provincial BC ENV guidelines in Standards and Best Practices for the protection of Caribou, birds and bats.

.7 Pay specific attention to most current version of the ENV Develop with Care Northeast Region.

.8 Where works are anticipated in proximity to watercourses, pay specific attention to the most current version of the BC Water Quality Guidelines.

1.7 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 the EPP (See Appendices 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 rational 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 provided including monitoring and reporting requirements to assure that control measures are in compliance with the requirements of the applicable ENV Approval or Notification for instream work or under ENV 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.

1.7 Submittals (Cont'd)

.1 (Cont'd)

.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 event 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 details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.

.9 Invasive Plants Management Plan that limits the introduction of invasive plant via seed or runners, provides early detection and eradication of small patches of invasive plants, maintains desired plant communities through good management, the revegetating disturbed sites with desired plants and, Evaluates the effectiveness of prevention efforts and adapting plans for the following year.

.10 Outline the avoidance, mitigate measures and Best Management Practices which the Contractor will undertake and implement to ensure compliance with the environmental regulations applicable to the project.

.11 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.

.12 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.

1.8 Environmental Effects Evaluation

.1 N/A.

1.9 Site Access and Parking

.1 The Contractor shall review both short and long-term 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 15 meters 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.

1.10 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.

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

1.11 Erosion Control (Cont'd)

.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 replaced. The Departmental Representative will monitor the Contractors erosion control performance.

.4 Erosion control measures must be in compliance with both Federal and Provincial legislation. Contractors should be referencing the provincial ENV Standards and Best Practices for the protection of Caribou, birds and bats.

1.12 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 meters 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.

1.12 Pollution Control (Cont'd)

.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 meters from any surface water.

.4 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berms shall be capable of holding 110% of tank storage volumes and shall be to the satisfaction of the Departmental Representative. If fuel tanks larger than 250L are present within a berm, the contained area should have a holding capacity equal to 125% of the capacity of the largest tank. Measures such as collection/drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double lined fuel tanks can prevent spills into the environment.

.5 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads, bridge decks and on-site work such as rock drilling and blasting by methods that are approved by the Departmental Representative. The contractor will install a catchment system so debris from barrier removal and replacement is captured before entering the watercourse.

.6 The Contractor shall provide spill kits, to the satisfaction of the Departmental Representative, at re-fuelling, 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 be trained in its use.

1.12 Pollution Control (Cont'd)

.7 Storage and maintenance facilities should have Medical Safety Data Sheets (MSDS) for any hazardous substances, emergency contact list and emergency response and spill-reporting procedures.

.8 Timely and effective actions shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative and environmental monitor shall be notified immediately of any spill as well as the Provincial Emergency Program (1-800-663-3456) and any other provincial authorities. Basic instructions and phone numbers shall be part of the Contractors EPP.

.9 In the event of a major spill, the Contractor shall prioritize the cleanup and all other work shall be stopped, where appropriate, and personnel devoted to spill containment and clean up as quick as possible.

.10 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 and all relevant inspection agencies (ENV/DFO authorities).

1.13 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, wheel wash etc.) before delivery to the work site.

.2 Equipment fuelling sites will be identified by the Contractor to the satisfaction of the Departmental Representative. Any fuelling closer than 100 meters to any surface water (streams, wetlands, water bodies or watercourses) including above waterbodies shall require discussion and prior agreement with the Departmental Representative.

1.13 Equipment Maintenance, Fueling and Operation (Cont'd)

.3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 30 meters 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 at 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 1.11.4 of Pollution Control.

.5 Equipment use on the project shall be fuelled with E10, and low sulphur diesel fuels at only approved areas, and shall conform to local emission requirements. Equipment should also only use biodegradable hydraulic fluid; 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. Any equipment that develops a leak should be immediately removed and not allowed to work within or above any watercourses. Before commencing work, all equipment should be steam-cleaned to remove oil, grease and other substances deleterious to aquatic life.

.8 Equipment left on-Site overnight should be equipped with a drip tray.

1.13 Equipment Maintenance, Fueling and Operation (Cont'd)

.9 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 tamperproof and cannot be drained by vandals when left overnight. Alternatively, the Contractor may hire a security person employed to prevent vandalism.

1.14 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, water bodies 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, raveling, storage or stockpiling of any materials (e.g. slash, rock, fill or top soils) in the trees bordering the right-of-way or into surface water.

.3 When, in the opinion of PSPC, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at his 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.

1.14 Operation of Equipment (Cont'd)

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

1.15 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 that will require addressing in an invasive plant management plan provided by the contractor and approved by the QEP.

.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-seed 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.

.7 Evaluate the effectiveness of prevention efforts and adapting plans for the following year.

1.16 Fire Prevention and Control

.1 A fire extinguisher shall be carried and available for use on each machine and at locations within the project footprint in the event of fire. Basic firefighting equipment recommended (e.g. a water truck; minimum 2276 litres with 150m of fire hose and a pump capable of producing 172.3 kPa water pressure at the nozzle, three shovels, two Pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to all Contractors staff. Contactors staff shall receive basic training in early response to wildfire events during the environmental briefing.

.2 Construction equipment shall be operated in 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. An area, sufficiently away from any flammable materials, shall be designated as the smoking area.

.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.

1.17 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, buffalo 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.

.3 Due to Project location and bridge structures, there is potential for various bird species to visit the site and use the bridge or surrounding area as a nesting site. Provincial Wildlife Act and all amendments need to be followed and reviewed. By default, protection of nests includes the protection of the trees and the bridge (or structure) itself containing the nest. The Provincial Wildlife Act protects all active nests during the breeding season which can begin in February through to August 15. The breeding bird window for the project area is referred to nesting zone B6 starting late April to mid-August and should be confirmed with local regulators before scheduling Project activities.

.4 For the protection of birds and bats, prior to Project activities commencing, a Qualified Environmental Professional (QEP) should determine as to whether or not the bridge is occupied by either bats or birds. If confirmed by a QEP, active nests should have a buffer zone applied by the QEP with a corresponding management plan.

1.17 Wildlife (Cont'd)

.5 A Caribou Protection Plan (CPP) should be available during construction to avoid or mitigate any adverse effects on caribou for the duration of the Project. This should include critical risk periods during which the species is especially vulnerable, strategies, best management practices and key roles in implementing the CPP.

.6 Within the EPP there should guidance documents, BMPs guidelines and mitigation measures to avoid death of fish or the harmful alteration, disruption or destruction of fish habitat (HADD).

1.18 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 on the Project site 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.

1.19 Waste Materials Storage

.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.

1.19 Waste Materials Storage (Cont'd)

.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. Debris piles at a minimum should be 30 m away from the edge of the Prochniak Creek and Kledo River and referenced in the EPP.

.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.

1.20 Wastewater Discharge Criteria

.1 Any waste water discharged to the ground will conform to the discharge requirements set out in the provincial Water Act, or per any Permit obtained for this Project. Any suspect contaminated wastewater or groundwater should be contained and tested for potential contaminants to determine appropriate measures of discharge or removal.

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

1.21 Camp Wastewater Discharge Criteria

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

.2 If unable to meet the discharge criteria, provide additional storage and/or treatment necessary to meet criteria prior to discharge.

1.21 Camp Wastewater Discharge Criteria (Cont'd)

.3 Treat all camp wastewater to conform to the discharge requirements set out in the Water Act Permit.

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

.5 Contractor must obtain approval from the Water Act Officer prior to discharging treated wastewater.

1.22 Drainage

.1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water. Management of 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 Where required, water quality should be tested for potential contaminants (turbidity) and the results compared to the BC Water quality Guidelines for aquatic life.

.5 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.

.6 Submit an 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:

1.22 Drainage (Cont'd)

.6 (Cont'd)

.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, potential bridge netting and other relevant ESC 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.

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

.8 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.

1.23 Site Clearing and Plant Protection

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

.2 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 m.

.3 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.

.4 Minimize stripping of topsoil and vegetation.

1.23 Site Clearing and Plant Protection (Cont'd)

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

.6 Vegetation clearing should be conducted outside of the least-risk timing window for nesting birds , as per federal Nesting Zone B6.

.7 The Contractor should be aware that BC has culturally modified trees (CMTs) that are protected under the Heritage Act. If a CMT is encountered, stop work immediately and contact the Departmental Representative.

1.24 Blasting

.1 The Departmental Representative will identify a magazine location for explosives should a factory site or `ready to use` explosive site be required.

.2 The sweep of the blast area shall include looking for wildlife that may be in the area. If any are found, they shall be hazed out of the area by the Environmental Monitoring personnel.

.3 The Contractor shall ensure that all work activities meet or exceed the standards outlined in DFO`s Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters; Canadian Technical Report of Fisheries and Aquatic Sciences 2107, 1998.

.4 The Contractor shall, whenever explosives are used, use the Provincial and Workers Compensation Laws and Regulations, and all respective Agencies Having Jurisdiction over them, such as DFO.

.5 Steps shall be taken to minimize fly-rock and dust. Vegetation outside of the designated area shall not be damaged or destroyed.

1.24 Blasting (Cont'd)

.6 In order to stabilize slopes of the cut, these shall be scaled of all loose material. Ditches shall be formed and cleaned upon the completion of the blasting, and the natural drainage shall be restored as specified by the Contract or as directed by the Departmental Representative.

.7 The Contractor shall describe the proposed type and quantities of explosives to be used on the project, to the satisfaction of the Departmental Representative. Some blasting products – such as those very high in nitrogen, may have some limitations imposed for environmental protection purposes.

1.25 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 (typical height of 0.9 m) and the necessary stakes for installation. This will be used as necessary to prevent sediment transport into water bodies.

.3 Provide a minimum of 50 lineal meters 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 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 81 00 – Hazardous Materials.

1.25 Environmental Protection Supplies (Cont'd)

.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.

1.26 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 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.

1.27 Environmental Monitoring

.1 At a minimum the environmental monitoring shall be completed by P.Biol, RPBio, or Qualified Environmental Professional (QEP). If a QEP completes the monitoring, the QEP must work under the direction of the P.Biol or RPBio who completes the Environmental Protection Plan.

1.27 Environmental Monitoring (Cont'd)

.2 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.

.3 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.

1.28 Concrete Materials Use and Site Work

.1 As concrete leachate is alkaline and highly toxic to fish and other aquatic life, ensure that all works involving the us of concrete, cement, mortars, and other Portland cement or lime-containing construction materials (concrete) will not deposit, directly or indirectly, sediments, debris, concrete, concrete fines, wash or contact water into or about any watercourse. Concrete materials cast in place must remain inside formed structures.

.2 Implement means and methods in order to comply with the Standards and Best Practices For Instream Works (March 2004) published by the British Columbia Ministry of Water, Land and Air Protection Ecosystem Standards and Planning Biodiversity Branch.

1.29 Measurement and Payment

.1 There will be no measurement for the work in this Section.

1.29 Measurement and Payment (Cont'd)

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Quality Control Plan.

.2 Basis of Payment.

.3 Inspection.

.4 Independent Inspection Agencies.

.5 Access to Work.

.6 Procedures.

.7 Rejected Work.

.8 Reports.

.9 Test Certificates.

.10 Measurement and Payment.

1.2 Quality Control Plan

.1 Prepare and submit to Departmental Representative for review and approval a Quality Control Plan in accordance with Section 01 33 00 - Submittal Procedures, prior to project startup.

1.3 Basis of Payment

.1 No separate payment will be made for quality assurance and testing. Include quality assurance and testing in all work as part of total contract amount.

1.4 Inspection

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

1.4 Inspection (Cont'd)

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

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

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

1.5 Independent Inspection Agencies

.1 Appoint and pay for services of third-party Independent Quality Control and Quality Assurance testing laboratory and field staff including as follows:

.1 Where specified in the text of these specifications, including but not limited to:

.1 Onsite and laboratory testing.

.2 Inspection and testing required by laws, ordinances, rules, regulations, or orders of public authorities.

.3 Inspection and testing performed exclusively for Contractor's convenience.

.4 Mill tests and certificates of compliance.

.5 Tests specified to be carried out by Contractor under the supervision of Departmental Representative.

.6 Additional tests specified in the following paragraph.

1.5 Independent Inspection Agencies (Cont'd)

.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 access as required for executing inspection and testing by appointed agencies.

.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. Pay costs for retesting and reinspection.

.6 The Contractor is required to obtain and pay for the services of an independent Concrete Testing firm that is certified to the requirements of the Canadian Council of Independent Laboratories (CCIL) for concrete testing. For each concrete placement the independent Concrete Testing firm shall measure slump, entrained air, and compressive strength. The frequency of tests shall be one test per each concrete placement but in no event shall there be less than one test per barrier (4 total). The Contractor shall forward the test results including the 28 day compressive strength to the Departmental Representative for review.

1.6 Access to Work

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

.2 Cooperate to provide reasonable facilities for such access.

1.7 Procedures

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

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

.3 Provide labour and facilities to obtain and handle samples and materials onsite. Provide sufficient space to store test samples.

1.8 Rejected Work

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

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

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

1.9 Reports

.1 Submit 4 copies of inspection and test reports to Departmental Representative with all progress reports or, generally, as reports become available.

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

1.10 Test Certificates

.1 Submit all test certificates as required of specification Sections.

1.11 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Products

1. Not used.

PART 3 – EXECUTION

3.1 Execution

1. Not used.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Installation and Removal.

.2 Water Supply.

.3 Sanitary Facilities.

.4 Heating and Ventilation of Work Area and Enclosures.

.5 Temporary Power and Light.

.6 Temporary Communication Facilities.

.7 Fire Protection.

.8 Measurement and Payment.

1.2 Installation and Removal

.1 Provide temporary utilities in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.3 Water Supply

.1 Provide continuous temporary supply of potable water for construction use, if applicable.

.2 Remove or decommission temporary water supply facilities upon completion of project.

1.4 Sanitary Facilities

.1 Provide sanitary facilities for construction use.

.2 Remove or decommission temporary sanitary facilities upon completion of project.

1.5 Heating and Ventilation of Work Area and Enclosures

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

1.5 Heating and Ventilation of Work Area and Enclosures (Cont'd)

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

.3 Provide temporary heat and ventilation in enclosed areas as required to:
.1 Facilitate progress of Work.
.2 Protect Work and products against dampness and cold.
.3 Prevent moisture condensation on prepared surfaces.
.4 Provide ambient temperatures and humidity levels for storage and installation of materials.
.5 Provide adequate ventilation to meet health regulations for safe working environments.
.6 Provide ambient temperatures and humidity levels for all stages of work.

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

.5 Payment:
.1 Heating and ventilation of work area and enclosures is incidental to the Work and no separate payment will be made.

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

1.6 Temporary Power and Light

.1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools and for construction use.

.2 Arrange for connection with appropriate utility company. Pay all costs for installation maintenance and removal.

.3 Provide and maintain temporary lighting throughout project, if applicable.

1.7 Temporary Communication Facilities

.1 Provide and pay for temporary telephone necessary for own use.

1.8 Fire Protection

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

.2 Burning rubbish and construction waste materials is not permitted onsite.

1.9 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 – GENERAL

1.1 Section Includes

.1 Installation and Removal.

.2 Scaffolding.

.3 Hoisting.

.4 Site Storage/Loading.

.5 Construction Access and Parking.

.6 Sanitary Facilities.

.7 Construction Signage.

.8 Measurement and Payment.

1.2 Installation and Removal

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

.2 Remove from all sites all such facilities after use.

1.3 Scaffolding

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

1.4 Hoisting

.1 Provide, operate, and maintain hoists and cranes required for moving of workers, materials, and equipment.

.2 Hoists and cranes shall be operated by qualified operators.

1.5 Site Storage/Loading

.1 Confine Work and operations of employees to only that which is required by the Contract Documents.

1.5 Site Storage/Loading (Cont'd)

.2 Do not unreasonably encumber premises with products.

.3 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.6 Construction Access and Parking

.1 Parking will be permitted onsite provided it does not impede public traffic.

.2 Provide and maintain adequate access to project site.

.3 Build and maintain temporary roads as required to complete the work.

.4 If authorized to use existing roads for access to project sites, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads. Provide snow removal within the project limits during period of Work.

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.

1.8 Construction Signage

.1 Direct requests for approval to erect a Consultant/Contractor signboard to Departmental Representative. Wording shall be in both official languages.

.2 Signs and notices for health, safety, traffic control, instruction, etc. shall be in both official languages. See Sections 01 35 33 – Health and Safety, and 01 35 00 – Traffic Control, of these Specifications for more information.

1.8 Construction Signage (Cont'd)

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

1.9 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 - PRODUCTS

2.1 Products

.1 Not used.

PART 3 - EXECUTION

3.1 Execution

.1 Not used.

END OF SECTION

PART 1 – GENERAL

1.1 Section Includes

.1 References.

.2 General.

.3 Submittals.

.4 Temporary Access Roads.

.5 Temporary Staging Area.

.6 Traffic Control.

.7 Measurement and Payment.

1.2 References

.1 BC Ministry of Transportation and Infrastructure:
.1 2020 Standard Specifications for Highway Construction.
.2 2020 Traffic Management Manual for Work on Roadways.

1.3 General

.1 Section 01 55 00 addresses general requirements for temporary vehicle movement, site access, staging area and parking not incorporated into the final or permanent work, as well as traffic control during construction. This section must be referenced to and interpreted simultaneously with all other sections pertinent to the works described herein.

.2 During progress of the Work, make adequate provision to accommodate normal traffic along onsite roads immediately adjacent to or crossing the Works so as to minimize inconvenience to site operations.

1.3 General (Cont'd)

.3 Give minimum 48 hours notice or as otherwise required by Departmental Representative to local police, fire departments, emergency services, and site operations staff prior to beginning construction on roadways and comply in all respects with their requirements.

.4 Inform Departmental Representative where access is affected at least 24 hours in advance of proposed road closures.

1.4 Submittals

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

.2 Contractor to submit a Traffic Control Plan and a Construction Staging Plan to the Departmental Representative for review and approval prior to construction. Both shall conform to the specifications listed in Section 194 of BC MoT's Standard Specifications for Highway Construction.

1.5 Temporary Access Roads

.1 Not required.

1.6 Temporary Staging Area

.1 Parking is permitted within the contractor's work area.

.2 Parking for off-hour vehicles area allowed within the temporary staging area providing that any height restrictions are obeyed and followed for airport operations.

1.7 Traffic Control

.1 Comply with requirements of the "Traffic Control Manual for Work on Roadways", published by the British Columbia Ministry of Transportation, for regulation of vehicle and pedestrian traffic or use of roadways upon or over which it is necessary to carry out work or haul materials or equipment.

1.7 Traffic Control (Cont'd)

.2 Regulate traffic in general accordance with requirements for uninterrupted access to all parts of this site except where specified otherwise and in compliance with specific requirements stipulated herein.

.3 Provide and maintain access to corridors specified on Contract Drawings or required by Departmental Representative.

.4 One-way alternating traffic will be permitted. Do not close any lanes of road without prior approval of the Departmental Representative. Before re-routing traffic erect suitable signs and devices as approved by the Departmental Representative. Ensure a smooth riding surface during work.

.5 Keep travelled way well graded, free of potholes and of sufficient width that required number of lanes of traffic may pass.

.6 When directed by Departmental Representative, provide well graded, graveled detours or temporary roads to facilitate passage of traffic around restricted construction area. Provide and maintain signs and lights and maintain roadway.

.7 When working on travelled way:
.1 Place equipment in such position as to present a minimum of interference and hazard to the travelling public.
.2 Keep equipment units as close together as working conditions will permit and preferably on same side of travelled way.
.3 Do not leave equipment on travelled way overnight.

.8 Traffic Control Informational and Warning Devices:
.1 Meet with Departmental Representative prior to commencement of work to prepare list of signs and other devices required for project.

1.7 Traffic Control (Cont'd)

.8 (Cont'd)

.2 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from project work which may require road user response.

.3 Supply and erect signs, delineators, barricades and other miscellaneous warning devices in accordance with Departmental Representative requirements.

.4 Place signs and other devices in additional locations as appropriate or as directed by the Departmental Representative.

.5 Continually maintain traffic control devices in use by:

.1 Checking signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.

.2 Removing or covering signs which do not apply to conditions existing from day to day.

.9 Control of Traffic Using Flaggers:

.1 Provide flag persons, trained and properly equipped for the following situations:

.1 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic signal system is not in use.

.2 When workers or equipment are employed on travelled way.

.3 Where temporary protection is required while other traffic control devices are being erected or taken down.

.4 For emergency protection when other traffic control devices are not readily available.

.5 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

.10 Provide and maintain suitable detours or temporary access routes for pedestrian traffic, complete with suitable warning and advisory signs.

1.7 Traffic Control (Cont'd)

.11 Maintain existing conditions for traffic throughout period of contract expect that, when required for construction under contract and when measures have been taken as specified herein and approved by Departmental Representative to protect and control public traffic, existing conditions for traffic may be restricted.

.12 The Traffic Control Plan shall be stamped by a Proffesional Engineer registered in the province of British Columbia.

.13 The Traffic Control Plan shall include temporary concrete barriers to seperate traffic from the workzone in both stages of construction.

.14 All traffic management for work zones shall conform to "Section 194 – Traffic Management for Work Zones" as specified in BC MoT's Standard Specifications for Highway Construction.

1.8 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Products

.1 Not used.

PART 3 – EXECUTION

3.1 Execution

.1 Not used.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Installation and Removal.

.2 Protection for Trees.

.3 Guard Rails and Barricades.

.4 Dust Tight Screens.

.5 Access to Site.

.6 Public Traffic Flow.

.7 Fire Routes.

.8 Protection for Off Site and Public Property.

.9 Protection of Structure Finishes.

.10 Measurement and Payment.

1.2 Installation and Removal

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from all sites all such work after use.

1.3 Protection for Trees

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

.2 Replace any trees designated for saving in kind that are damaged during construction.

1.4 Guard Rails and Barricades

.1 Provide as required by governing authorities.

1.5 Dust Tight Screens

.1 Provide dust tight screens partitions to localize dust generating activities, and for protection of workers, finished areas of Work, and public.

.2 Maintain and relocate protection until such work is complete.

1.6 Access to Site

.1 Provide and maintain access roads as may be required for access to Work.

1.7 Public Traffic Flow

.1 Provide and maintain competent signal flag operators, traffic signals, barricades and flares, lights, or lanterns as required to perform Work and protect the public.

1.8 Fire Routes

.1 Maintain access to property for use by emergency response vehicles.

1.9 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.

1.10 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 3 days prior to installation.

.4 Be responsible for damage incurred due to lack of or improper protection.

1.11 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Products/Material and Equipment.

.2 Quality of Products.

.3 Availability of Products.

.4 Manufacturer.

.5 Contractor.

.6 Substitution After Contract Award.

.7 Transportation.

.8 Quality of Work.

.9 Coordination.

.10 Remedial Work.

.11 Measurement and Payment.

.12 Acceptable Products.

1.2 Products/Material and Equipment

.1 Use NEW products/material and equipment unless otherwise specified.

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

.3 Unless otherwise specified, comply with manufacturer's latest printed instructions for materials and installation methods.

.4 Remove and replace damage caused to any existing product or part of infrastructure at own expense and to satisfaction of Departmental Representative.

1.2 Products/Material and Equipment (Cont'd)

.5 Notify Departmental Representative in writing of any conflict between these specifications and manufacturer's instructions. Departmental Representative will designate which document is to be followed.

.6 Metal fastenings:
.1 Prevent electrolytic action between dissimilar metals.
.2 Use non-corrosive fasteners, anchors, and spacers for securing exterior work.

.7 Fastenings which cause spalling or cracking are not acceptable.

.8 Bolts may not project more than 1 diameter beyond nuts.

.9 Deliver, store and maintain packaged material and equipment with manufacturer's seals and labels intact. Do not remove from packaging or bundling until required in Work.

.10 Prevent damage, adulteration, and soiling of products during delivery, handling, and storage. Immediately remove rejected products from site.

.11 Store products in accordance with suppliers' instructions.

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

.13 Touch-up damaged finished surfaces to Departmental Representative's satisfaction.

.14 Remove and replace damaged products during installation at own expense and to satisfaction of Departmental Representative.

1.3 Quality of Products

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

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

.3 Retain purchase orders, invoices, and other documents to prove that all products utilized in this Contract meet the requirements of the specifications. Produce documents when requested by the Departmental Representative.

.4 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

.5 Unless otherwise indicated in the Specifications, maintain uniformity of manufacture for any particular or like item throughout the site.

1.4 Availability of Products

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

1.4 Availability of Products (Cont'd)

.2 If delays in supply of products are foreseeable, notify Departmental Representative of such in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of the work.

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

1.5 Manufacturer

.1 Unless otherwise indicated in Specifications, install or erect products in accordance with manufacturer's instructions.
.1 Do not rely on labels or enclosures provided with products.
.2 Obtain written instructions directly from manufacturers.

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

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

1.6 Contractor

.1 Products are specified by "Prescriptive" specifications: select any product meeting or exceeding specifications.

1.6 Contractor (Cont'd)

.2 Products specified under "Acceptable Products": select any one of the indicated manufacturers, or any other manufacturer meeting or exceeding the Prescriptive specifications and indicated Products.

.3 Products specified by performance and referenced standard: select any product meeting or exceeding the referenced standard.

.4 Products specified to meet particular design requirements or to match existing materials: use only material specified Approved Products. Alternative products may be considered provided full technical data is received in writing by Departmental Representative.

.5 When products are specified by a referenced standard or by Performance specifications, upon request of Departmental Representative obtain from manufacturer an independent laboratory report showing that the product meets or exceeds the specified requirements.

1.7 Substitution After Contract Award

.1 No substitutions are permitted without prior written approval of the Departmental Representative.

.2 Proposals for substitution may only be submitted after Contract award. Such request must include statements of respective costs of items originally specified and the proposed substitution.

.3 Proposals will be considered by the Departmental Representative if:
.1 products selected by tenderer from those specified are not available;
.2 delivery date of products selected from those specified would unduly delay completion of Contract, or
.3 alternative product to that specified, which is brought to the attention of and considered by Departmental Representative as equivalent to the product specified, and will result in a credit to the Contract amount.

1.7 Substitution After Contract Award (Cont'd)

.4 Should the proposed substitution be accepted either in part or in whole, assume full responsibility and costs when substitution affects other work on the Project. Pay for design or drawing changes required as result of substitution.

.5 Amounts of all credits arising from approval of the substitutions will be determined by the Departmental Representative, and the Contract price will be reduced accordingly.

1.8 Transportation

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

1.9 Quality of Work

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

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

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

1.10 Coordination

.1 Ensure cooperation of workers during Work. Maintain efficient and continuous supervision.

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

1.11 Remedial Work

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Acceptable Products

.1 Submit product data sheets for all manufactured products used in the Work to Departmental Representative for review in accordance with Section 01 33 00 – Submittal Procedures.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Project Cleanliness.

.2 Final Cleaning.

.3 Measurement and Payment.

1.2 Project Cleanliness

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.2 Remove waste materials from sites at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials onsite.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

1.3 Final Cleaning

.1 When Work is Substantially Performed, remove surplus products, tools, construction machinery, and equipment not required for performance of remaining Work.

.2 Remove all waste products and debris.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

1.4 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Products 1. Not used.

PART 3 – EXECUTION

3.1 Execution 1. Not used.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Definitions.

.2 Documents.

.3 Use of Site and Facilities.

.4 Submittals.

.5 Waste Management Workplan.

.6 Waste Processing Sites.

.7 Disposal of Wastes.

.8 Storage and Handling.

.9 Scheduling.

.10 Measurement and Payment.

.11 Application.

.12 Cleaning.

.13 Diversion of Materials.

1.2 Definitions

.1 Waste Management Coordinator (WMC): Designate individual who is in attendance onsite full-time. Designate, or have designated individuals from each Subcontractor to be responsible for waste management related to their trade and for coordinating activities with WMC.

.2 Waste Audit (WA): Relates to projected waste generation. Involves measuring and estimating quantity and composition of waste, reasons for waste generation, and operational factors that contribute to waste.

.3 Waste Reduction Workplan (WRW): Written report that addresses opportunities for reduction, reuse, or recycling of materials.

1.2 Definitions (Cont'd)

.4 Materials Source Separation Program (MSSP): consists of a series of ongoing activities to separate reusable and recyclable waste materials into material categories from other types of waste at point of generation.

1.3 Documents

.1 Maintain at the job site one copy of following documents:
.1 Waste Management Workplan.

1.4 Use of Site and Facilities

.1 Locate waste, refuse, recycling, etc. containers in locations to facilitate deposit of materials without hindering daily operations.

.2 Locate separated materials in areas which minimize material damage.

1.5 Submittals

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

.2 Prepare and submit the following submittals within 14 days of the Award of Contract:
.1 Submit 3 copies of completed Waste Management Workplan (WMW).

.3 Provide Departmental Representative with receipts indicating quantity of material delivered to landfill.

.4 Provide Departmental Representative with receipts indicating quantity and type of materials sent for recycling.

1.6 Waste Management Workplan

.1 Structure WMW to prioritize actions and follow 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.

.2 Describe management of waste.

1.6 Waste Management Workplan (Cont'd)

.3 Identify opportunities for reduction, reuse, and/or recycling (3Rs) of materials.

.4 Post workplan or summary where workers at site are able to review its content.

1.7 Waste Processing Sites

.1 Provide waste processing sites as applicable within the Province of British Columbia to Departmental Representative within 14 days of the Award of Contract.

1.8 Disposal of Wastes

.1 Burying of rubbish and waste materials is prohibited unless approved by Departmental Representative at off-site locations obtained by the Contractor.

.2 Burning of rubbish and waste materials is prohibited unless permitted by British Columbia Ministry of Forests. Permit to be obtained by the Contractor.

.3 Disposal of waste volatile materials, mineral spirits, oil, paint thinner, etc. into waterways or by dumping onsite is prohibited.

1.9 Storage and Handling

.1 Store, materials to be reused, recycled, and salvaged in locations obtained by the Contractor and accepted by Departmental Representative.

.2 Unless specified otherwise, materials for removal become Contractor's property.

1.10 Scheduling

.1 Coordinate work with other activities at site to ensure timely and orderly progress of the Work.

1.11 Measurement and Payment

.1 There will be no measurement for the work in this Section.

1.11 Measurement and Payment (Cont'd)

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 3 - EXECUTION

3.1 Application

.1 Do work in compliance with the WMW.

.2 Implement MSSP for waste generated on Project in compliance with approved methods and as approved by Departmental Representative.

.3 Materials must be immediately separated into required categories for reuse or recycling.

.4 Materials in separated condition: collect, handle, store onsite, and transport off-site to an approved and authorized recycling facility.

.5 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 Cleaning

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

.2 Cleanup work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

3.3 Diversion of Materials

.1 Create a list of materials to be separated from the general waste stream and stockpiled in separate containers, to the approval of the Departmental Representative and consistent with applicable fire regulations.
.1 Mark containers.
.2 Provide instruction on disposal practices.

.2 Onsite sale of salvaged, recovered, reusable, recyclable, etc. materials is not permitted.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Inspection and Declaration.

.2 Measurement and Payment.

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 Review: Departmental Representative and Contractor will perform review of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

.3 Completion: submit written certificate that the following have been performed:
.1 Work has been completed and inspected for compliance with Contract Documents.
.2 Defects have been corrected and deficiencies have been completed.
.3 Work is complete and ready for Final Review.

.4 Final Review: when items noted above are completed, request final review of Work by Departmental Representative. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request another review.

1.2 Inspection and Declaration (Cont'd)

.5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Warranty Periods: date of Departmental Representative's acceptance of submitted declaration of Substantial Performance shall be date of commencement for warranty period.

.7 Final Payment: When Departmental Representative considers final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, make application for final payment. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request final review.

.8 Payment of Holdback: After issuance of certificate of Substantial Performance of Work, submit an application for payment of holdback amount in accordance with General Conditions.

1.3 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Related Sections.

.2 References.

.3 Action and Information Submittals.

.4 Delivery, Storage and Handling.

.5 Measurement and Payment.

.6 Examination.

.7 Preparation.

.8 Removal of Hazardous Wastes.

.9 Demolition/Removal.

.10 Stockpiling.

.11 Restoration and Cleaning.

1.2 Related Sections

.1 Section 01 35 33 - Health and Safety Requirements.

.2 Section 01 35 43 - Environmental Procedures.

.3 Section 02 81 00 - Hazardous Materials.

1.3 References

.1 CSA International
.1 CSA S350-M1980 (R2003), Code of Practice for Safety in Demolition of Structures.

.2 U.S. Environmental Protection Agency (EPA)/Office of Water
.1 EPA 832/R-92-005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.
.2 Canadian Environmental Protection Act (CEPA), 1999, C.33.

1.4 Action and Information Submittals

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

.2 Hazardous Materials:
.1 Provide description of Hazardous Materials and Notification of Filing with proper authorities prior to beginning of Work as required.

1.5 Delivery, Storage and Handling

.1 Store and manage hazardous materials in accordance with Section 01 35 43 – Environmental Procedures and Section 02 81 00 – Hazardous Materials.

.2 Storage and Protection.
.1 Protect in accordance with Section 31 23 33.01 – Excavating, Trenching and Backfilling.
.2 Protect existing items designated to remain and items designated for salvage. In event of damage to such items, immediately replace or make repairs to approval of Departmental Representative and at no cost.
.3 Remove and store materials to be salvaged, in manner to prevent damage.
.4 Store and protect in accordance with requirements for maximum preservation of material.
.5 Handle salvaged materials as new materials.

1.6 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Bridge Demolition items and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Products

.1 Not Used.

PART 3 - EXECUTION

3.1 Examination

.1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.

.2 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.3 Notify and obtain approval of utility companies before starting demolition.

3.2 Preparation

.1 Locate and protect utilities. Preserve active utilities traversing site in operating condition.

.2 Temporary Erosion and Sedimentation Control:
.1 Provide temporary erosion and sedimentation control measures if required to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: requirements of authorities having jurisdiction.
.2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.
.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.

.3 Protection of In-Place Conditions:
.1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features and parts of building to remain in place. Provide bracing and shoring required.
.2 Keep noise, dust, and inconvenience to occupants to minimum.
.3 Protect building and bridge systems, services and equipment.

3.2 Preparation (Cont'd)

.3 (Cont'd)

.4 Provide temporary shoring/underpinning of buildings/structures affected by proposed work.

.5 Provide temporary dust screens, covers, railings, supports and other protection as required.

.6 Do Work in accordance with Section 01 35 33 – Health and Safety Requirements.

3.3 Removal of Hazardous Wastes

.1 Remove contaminated or dangerous materials in accordance to Section 01 35 33 – Health and Safety Requirements, Section 01 35 43 – Environmental Procedures, and Section 02 81 00 – Hazardous Materials.

3.4 Demolition/Removal

.1 Remove existing bridge components as indicated on the drawings and all other items as required to complete the work under this Contract.

.2 Disconnect, cap, plug or divert, as required, existing utilities within the property where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.

.1 Coordinate any service disruptions with Departmental Representative for hours of work, duration of shutdown, and emergency procedures in case of prolonged outage.

.2 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.

.3 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.4 Demolition/Removal (Cont'd)

.3 Excavate at least 200mm below pipe invert, when removing pipes under existing or future pavement area.

.4 Removal of Pavements, Concrete Slabs, Curbs and Gutters:

.1 Square up adjacent surfaces to remain in place by saw cutting or other method approved by Departmental Representative.

.2 Protect adjacent joints and load transfer devices.

.3 Protect underlying and adjacent granular materials.

.4 Use cold milling, planning or grinding equipment with automatic grade controls capable of operating from stringline, and capable of removing part of pavement surface to depths or grades indicated.

.5 Trim edges of partially demolished building elements to tolerances as defined by Departmental Representative to suit future use.

.6 Expose, cut, remove, and dispose of any asbestos cement pipe in accordance with all applicable WorkSafeBC guidelines and regulations.

.7 The Contractor shall submit a site specific Demolition Plan that covers each bridge under this Contract and the Demolition Plan shall be stamped by a Proffesional Engineer registered in the Province of British Columbia. The Demolition Plan shall identify the means and methods that will be used for demolition of all items identified for removal including temporary support and access/staging. The Demolition Plan shall also include a note that the means and methods for removal will not result in damage to the permanent structure.

3.5 Stockpiling

.1 Proper stockpiling will help maintain the value of salvaged materials.

.2 Label stockpiles, indicating material type and quantity.

3.5 Stockpiling (Cont'd)

.3 Designate appropriate security resources/measures to prevent vandalism, damage and theft.

.4 Locate stockpiled materials convenient for use in new construction to eliminate double handling wherever possible.

.5 Stockpile in locations as directed by Departmental Representative.
.1 Stockpile height not to exceed 2 m and should be protected from erosion.

.6 Stockpile materials designated for alternate disposal in location which facilitates removal from site and examination by potential end markets, and which does not impede disassembly, processing, or hauling procedures.

3.6 Restoration and Cleaning

.1 Restore areas and existing works outside areas of demolition to match condition of adjacent, undisturbed areas or to conditions that existed prior to beginning of Work.

.2 Progress Cleaning: clean in accordance with Section 01 35 43 - Environmental Procedures.
.1 Leave Work areas clean at end of each day.

.3 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 35 43 - Environmental Procedures.

.4 Refer to demolition drawings and specifications for items to be salvaged for reuse.

.5 Waste Management: separate waste materials for reuse recycling in accordance with Section 01 35 43 - Environmental Procedures.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Related Sections.

.2 References.

.3 Definition.

.4 Submittals.

.5 Storage and Handling.

.6 Transportation.

.7 Measurement and Payment.

.8 Materials.

.9 Disposal.

1.2 Related Sections

.1 Section 01 33 00 – Submittal Procedures

.2 Section 01 35 43 – Environmental Procedures

1.3 References

.1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92637.

.2 National Fire Code of Canada 2015.

.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).

1.4 Definition

.1 Dangerous Goods: Product, substance, or organism that specifically listed or meets the hazard criteria established in Transportation of Dangerous Goods Regulation.

1.4 Definition (Cont'd)

.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.

1.5 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.

1.6 Storage and Handling

.1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labeling and storage of materials and wastes.

1.6 Storage and Handling (Cont'd)

.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 form 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.

1.6 Storage and Handling (Cont'd)

.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.

1.7 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.

1.8 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amount for the Mobilization, Demobilization and General Conditions of Contract item and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 – PRODUCTS

2.1 Materials

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

.2 Maintain MSDSs 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 Section Includes

.1 Measurement Procedures.

.2 References.

.3 Waste Management and Disposal.

.4 Materials.

.5 Fabrication and Erection.

1.2 Measurement Procedures

.1 All work under this Section is considered incidental and there will be no separate measurement or payment.

.2 Payment will be under the Lump Sum Amounts for the Concrete items and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

1.3 References

.1 Canadian Standards Association (CSA)
.1 CAN/ CSA-A23.1/A23.2-2019, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
.2 CAN/ CSA-O86.1-2019, Engineering Design in Wood.
.3 CSA-0121-2017, Douglas Fir Plywood.
.4 CSA-0151-2017, Canadian Softwood Plywood.
.5 CSA 0153, Poplar Plywood
.6 CAN3-0188.0, Standards Test Methods for Mat Formed Wood Particleboard and Waferboard.
.7 CSA-0437 Series -93 (R2011), Standards for OSB and Waferboard.
.8 CSA-S269.1-2016, Falsework and Formwork.

.2 Council of Forest Industries of British Columbia (COFI)
.1 COFI Exterior Plywood for Concrete Formwork.

1.4 Waste Management and Disposal

.1 Separate and recycle waste materials.

.2 Place material defined as hazardous or toxic waste in designated containers.

.3 Ensure emptied containers are sealed and stored safely for disposal away from children.

.4 Use sealers, form release and stripping agents that are nontoxic, biodegradable and have zero or low VOC's.

PART 2 - PRODUCTS

2.1 Materials

.1 Formwork materials: to CAN/CSA-A23.1

.2 Form ties:
.1 Use snap ties complete with plastic cones and light grey concrete plugs or cement mortar fill in surface to be left smooth, even and uniform in colour.

.3 Form liner:
.1 Plywood: high density overlay Douglas Fir to CSA O121 exterior grade, square edge, 19 mm thick.

.4 Form release agent low VOC.

.5 Form stripping agent colorless mineral oil, low VOC, free of kerosene with viscosity between 70 and 110s Saybolt Universal 15 to 24 mm^2/s at 40°C, flashpoint minimum 150°C, open cup.

.6 Falsework materials: to CSA-S269.1.

PART 3 - EXECUTION

3.1 Fabrication and Erection

.1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.

3.1 Fabrication and Erection (Cont'd)

.2 Obtain Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.

.3 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.

.4 Fabricate and erect falsework in accordance with CSA S269.1 and COFI Exterior Plywood for Concrete Formwork.

.5 Refer to architectural drawings for concrete members requiring architectural exposed finishes.

.6 Fabricate and erect formwork in accordance with CAN/CSA-S269.1 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CAN/CSA-A23.1.

.7 Align form joints and make watertight. Keep form joints to minimum.

.8 Use 20 mm chamfer strips on external corners and/or 20 mm fillets at interior corners, joints, unless specified otherwise.

.9 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.

.10 Construct forms for architectural concrete, and place ties as indicated and/or as directed. Joint pattern not necessarily based on using standard size panels or maximum permissible spacing of ties.

.11 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections. Assure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

.12 Clean formwork in accordance with CAN/CSA-A23.1, before placing concrete.

3.1 Fabrication and Erection (Cont'd)

.13 The Contractor shall submit drawings stamped by a Proffesional Engineer registered in the Province of British Columbia for all formwork, falsework, and temporary access. The deck cantilever formwork shall be designed for both strength and servicability to ensure that the final concrete grades are provided as per the Contract drawings. The drawings shall include allowances for dead load, superimposed dead load, and construction live load that matches the Contractor means and methods utilized at each of the bridge sites.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Related Sections.

.2 References and Standards.

.3 Submittals.

.4 Inspection.

.5 Delivery, Storage and Cleaning.

.6 Measurement and Payment.

.7 Materials.

.8 Fabrication.

.9 Source Quality Control.

.10 Placing.

.11 Welding.

1.2 Related Sections

.1 Concrete Forming and Accessories 03 10 00

.2 Cast in Place Concrete 03 30 00

1.3 References and Standards

.1 CAN/ CSA-A23.1-19/A23.2-19 - Concrete Materials and Methods of Concrete Construction/Test Methods and Standards Practices for Concrete.

.2 CAN/ CSA-A23.3-19 - Design of Concrete Structures.

.3 CAN/CSA-G30.18-09 (R2014) - Carbon Steel Bars for Concrete Reinforcement.

.4 CAN/CSA-W186-M1990 (R2012) - Welding of Reinforcing Bars in Reinforced Concrete Construction.

1.3 References and Standards (Cont'd)

.5 American Concrete Institute (ACI) Detailing Manual 2004-(SP-66).

.6 Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice, 28th Edition.

1.4 Submittals

.1 Prepare and submit shop drawings, consisting of bending, cutting and placing drawings for all reinforcing steel

.1 Generally, placing to be in accordance with the ACI Manual of Standard Practice for Detailing Reinforcing Concrete Structures and the CRSI Manual of Standard Practice for Placing of Reinforcing Bars.

.2 Structural drawings take precedence over placement drawings and bar schedules.

1.5 Inspection

.1 The Departmental Representative's general review are undertaken to inform the Owner of the Contractor's performance, and in no way shall augment the Contractor's quality control procedure or relieve him or his contractual responsibilities.

.2 Advise the Departmental Representative a minimum of 48 hours prior to placement of concrete. Failure to give adequate notice may cause Departmental Representative to classify the work as defective.

.3 Concrete shall not be placed until the reinforcement and its placement has been reviewed by the Departmental Representative.

.4 Correct defects and irregularities to the satisfaction of the Departmental Representative, at no cost to the Owner.

1.6 Delivery, Storage and Cleaning

.1 Reinforcing steel, welded wire fabric, and accessories shall be delivered, handled and stored as required to prevent contamination and damage.

1.6 Delivery, Storage and Cleaning (Cont'd)

.2 All steel reinforcement, before being placed, shall be cleaned of loose scaly rust, dirt, oil, paint and other coatings that may be detrimental.

1.7 Measurement and Payment

.1 There will be no measurement for the work in this Section.

.2 Payment will be under the Lump Sum Amounts for the Reinforcing items and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 - PRODUCTS

2.1 Materials

.1 Reinforcing bars: Low alloy steel deformed bars, Grade 400W/400MPa (60 ksi) yield strength, conforming to CAN/CSA-G30.18.

.2 Welded steel wire fabric: sizes and gauges are to be as shown on the structural drawings, flat sheets only.

.3 Supports: wire chairs, bolsters, hanger bars, spirals, stirrups and plastic spacers of size and strength to adequately support reinforcing in required position.

.4 Tie wire: annealed wire, 1.5mm (16ga) or heavier. annealed wire, 1.5mm (16ga) or heavier.

2.2 Fabrication

.1 Fabricate reinforcing to CAN/CSA-A23.1/A23.2.

.2 Reinforcing bars shall be cold bent. Reinforcing bars shall not be straightened or re-bent without written approval of the Departmental Representative.

.3 The location of reinforcement splices not shown on the drawings shall be approved by the Departmental Representative.

2.3 Source Quality Control

.1 Provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 4 weeks prior to beginning reinforcing work.

.2 Upon request, inform Departmental Representative of proposed source of material to be supplied.

PART 3 - EXECUTION

3.1 Placing

.1 Place reinforcing steel in accordance with CSA A23.1/A23.2 and CSA A23.4.

.2 Rebar to oxidize for 6 weeks after Chromation and before casting.

.3 Place reinforcement within a tolerance of 6 mm (1/4") for slab steel and 12 mm (1/2") for other steel.

.4 Provide minimum concrete cover to reinforcing steel in accordance with CAN/CSA-A23.1 and as indicated on drawings.

3.2 Welding

.1 Any welding of reinforcing steel shall be in accordance with CAN/CSA-W186.

.2 No welding of reinforcing steel shall occur without approval of the Departmental Representative.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Outline of the Work.

.2 Related Requirements.

.3 References.

.4 Abbreviations and Acronyms.

.5 Definitions.

.6 Action and Informational Submittals.

.7 Quality Assurance.

.8 Delivery, Storage and Handling.

.9 Measurement and Payment.

.10 Design Criteria.

.11 Performance Criteria.

.12 Materials.

.13 Mixes.

.14 Preparation.

.15 Installation and Application.

.16 Placement and Curing.

.17 Surface Tolerance.

.18 Field Quality Control.

.19 Cleaning.

1.2 Outline of the Work

.1 Supply and placement of concrete for the new reinforced concrete bridge deck overhangs and approach barrier walls. All work as indicated in the Contact Documents.

1.3 Related Requirements

.1 Section 03 10 00 - Concrete Forming and Accessories.

.2 Section 03 20 00 - Concrete Reinforcing.

1.4 References

.1 All concrete supply and placement shall conform to CSA A23.1-19/A23.2-19, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.

.2 Canadian Standard Association (CSA) International:

.1 CSA A283-19, Qualification Code for Concrete Testing Laboratories.

.2 CSA A3000-18, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

.3 CSA A23.1-19/A23.2-19, Concrete Materials and Methods of Concrete Construction / Test Methods and Standard Practices for Concrete.

.3 ASTM International:

.1 ASTM C260/C260M-10a(2016), Standard Specification for Air-Entraining Admixtures for Concrete.

.2 ASTM C309-19, Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

.3 ASTM C494/C494M-19, Standard Specification for Chemical Admixtures for Concrete.

.4 ASTM C1017/C1017M-13e1, Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.

.5 ASTM D412-16e1, Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.

.6 ASTM D624-00(2020), Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomer.

.7 ASTM D1751-18, Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

1.4 References (Cont'd)

.3 (Cont'd)

.8 ASTM D 1752-18, Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction.

.4 BC Ministry of Transportation and Infrastructure:

.1 Recognized Products List (June 1, 2021 Edition).

1.5 Abbreviations and Acronyms

.1 Portland Cement: hydraulic cement, blended hydraulic cement (XXb - b denotes blended) and Portland-limestone cement.

.1 Type GU, GUb and GUL - General use cement.

.2 Type MS and MSb - Moderate sulphate-resistant cement.

.3 Type MH, MHb and MHL - Moderate heat of hydration cement.

.4 Type HE, HEb and HEL - High early-strength cement.

.5 Type LH, LHb and LHL - Low heat of hydration cement.

.6 Type HS and HSb - High sulphate-resistant cement.

.2 Fly ash:

.1 Type F - with CaO content less than 15%.

.2 Type CI - with CaO content ranging from 15 to 20%.

.3 Type CH - with CaO greater than 20%.

.3 GGBFS - Ground, granulated blast-furnace slag.

1.6 Definitions

.1 Cold Weather: means those conditions when the air temperature is at or below 10°C. It is also considered to exist when the air temperature is at or is likely to fall below 10°C within 96 hours after concrete placement. Temperature refers to shade temperature.

1.7 Action and Informational Submittals

.1 Provide submittals in accordance with Section 01 33 00.

.2 At least three (3) weeks prior to beginning Work, provide Departmental Representative of proposed source of aggregates and access for sampling.

.3 Provide testing results for Contractor proposed mix design for review by Departmental Representative. Do not proceed without written approval when deviations from mix design or parameters are found.

.4 Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described below in PART 3 - FIELD QUALITY CONTROL.

.5 Concrete hauling time: Provide for review by the Departmental Representative deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching.

.6 Provide two (2) copies of WHMIS MSDS in accordance with Section 01 35 33 - Health and Safety.

.7 The Contractor shall submit five (5) sets of layout drawings to the Departmental Representative at least three (3) weeks prior to commencement of work for the concrete end barrier wall. The drawing shall include field measurements to verify site conditions and detail how the existing handrail will tie into the recess of the end wall. The depth of the recess shall be verified on-site to ensure that the handrails do not extend beyond.

1.8 Quality Assurance

.1 Quality Assurance: in accordance with Section 01 45 00.

1.8 Quality Assurance (Cont'd)

.2 Provide Departmental Representative, minimum three (3) weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete.
.1 Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.

.3 Minimum three (3) weeks prior to starting concrete work, provide proposed quality control procedures for review by Departmental Representative on following items:
.1 Falsework erection.
.2 Hot weather concrete.
.3 Cold weather concrete.
.4 Curing.
.5 Finishes.
.6 Formwork removal.
.7 Joints.

.4 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.

1.9 Delivery, Storage and Handling

.1 Delivery and Acceptance Requirements:
.1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum 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 Departmental Representative.
.2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

1.10 Measurement and Payment

.1 There will be no measurement for the work in this Section.

1.10 Measurement and Payment (Cont'd)

.2 Payment will be under the Lump Sum Amounts for the Concrete items and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 - PRODUCTS

2.1 Design Criteria

.1 Alternative 1 - Performance: to CSA A23.1-19/A23.2-19, and as described.

2.2 Performance Criteria

.1 Quality Control Plan: ensure concrete supplier meets performance criteria of concrete as established by Departmental Representative and provide verification of compliance as described.

2.3 Materials

.1 Portland Cement: to CSA A3001, Type GU.

.2 Supplementary cementing materials: to CSA A23.1-19.

.3 Water: to CSA A23.1-19.

.4 Aggregates: to CSA A23.1-19/A23.2-19.

.5 Admixtures:
.1 Air entraining admixture: to ASTM C260/C260M.
.2 Chemical admixture: to C494/C494M-16.
Departmental Representative to approve accelerating or set retarding admixtures during cold and hot weather placing.

.6 Concrete Crack Sealer: All sealer used to treat concrete cracks shall conform to the materials listed in BC MoT's Recognized Product List (June 1, 2021 Edition) specified in section "Prefabricated Crack Sealers (Membranes)".

2.4 Mixes

.1 Alternative 1 - Performance Method for specifying concrete: to meet Departmental Representative performance criteria to CSA A23.1-19/A23.2-19.

.1 Ensure concrete supplier meets performance criteria as established below and provide verification of compliance as in Quality Control Plan, to meet Class C-1 in accordance with CSA A23.1-19. Air Content shall be Category 1 in accordance with Table 4 in CSA A23.1-19.

.2 All concrete shall have 28 day compressive strength of 35 MPa, exposure class C-1 to CSA A23.1-19.

PART 3 - EXECUTION

3.1 Preparation

.1 Obtain Departmental Representative's written approval before placing concrete.

.1 Provide 24 hours minimum notice prior to placing of concrete.

.2 Place concrete reinforcing in accordance with Section 03 20 00.

.3 During concreting operations:

.1 Development of cold joints is not allowed.

.2 Ensure concrete delivery and handling facilities placing with minimum of re-handling, and without damage to existing structure or Work.

.4 Pumping of concrete is permitted only after approval of equipment and mix. The mix supplier and mix designer must certify that the mix can be pumped using proposed equipment and not affect the concrete properties.

.5 Ensure reinforcement and inserts are not disturbed during concrete placement.

3.1 Preparation (Cont'd)

.6 Prior to placing of concrete obtain Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse / cold weather.

.7 Protect previous Work from staining.

.8 Clean and remove stains prior to application for concrete finishes.

.9 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

.10 Do not connect the steel beam guide rail and channel to the new concrete until authorized by Departmental Representative.

3.2 Installation and Application

.1 Do cast-in-place concrete work to CSA A23.1-19/A23.2-19.

.2 Finishing and curing:
.1 Finish concrete to CSA A23.1-19/A23.2-19.
.2 Use procedures as reviewed by Departmental Representative or those noted in CSA A23.1-19/A23.2-19 to remove excess bleed water. Ensure surface is not damaged.
.3 Chamfer and rub exposed sharp edges of concrete or patching with carborundum to produce 3 mm radius edges unless otherwise indicated.

3.3 Placement and Curing

.1 Install wet burlap and white plastic over the newly placed concrete after it has initially set and so the placement of the burlap and plastic will not damage the surface. Install cold weather protection. Maintain moist curing on the concrete for a minimum of five (5) days.

3.4 Surface Tolerance

.1 Unless noted otherwise, concrete tolerance shall be in accordance with CSA A23.1-19 straight edge method.

3.5 Field Quality Control

.1 Site tests: Contractor to conduct tests as follows in accordance with Section 01 45 00 and submit report as described above in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.
.1 Concrete pours.
.2 Slump.
.3 Air content (plastic concrete).
.4 Compressive strength at 7 and 28 days.
.5 Air and Concrete temperature.

.2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory to CSA A23.1/A23.2.
.1 Ensure testing laboratory is certified to CSA A283-19.

.3 Payment for testing shall be paid for by the Contractor.

.4 Departmental Representative will take additional test cylinders during cold weather concreting if required. Cure cylinders on job site under same conditions as concrete which they represent.

.5 Inspection or testing by Consultant will not augment or replace Contractor quality control nor relieve Contractor of their contractual responsibility.

3.6 Cleaning

.1 Clean in accordance with Section 01 74 00.

.2 Waste Management: separate waste materials for reuse and recycling in accordance with Section 01 74 19.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Basis of Payment.

.2 References.

.3 Shop Drawings.

.4 Qualifications.

.5 Delivery, Storage and Handling.

.6 Record Drawings.

.7 Measurement and Payment.

.8 General.

.9 Materials.

.10 Source Quality Control.

.11 Erection.

.12 Installation.

1.2 Basis of Payment

.1 Payment of 50% of the amount for the Supply, Fabrication and Erection of Miscellaneous Steelwork items will be made after delivery of all steel has been made to the site. The remaining 50% will be made once erection/installation of the miscellaneous steel is complete.

1.3 References

.1 American Association for State Highway and Transportation Officials (AASHTO).
.1 AASHTO Standard Specifications for Highway Bridges.

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

1.3 References (Cont'd)

.2 (Cont'd)

.1 ASTM F3125/F3125M-19e2, Standared Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength.

.2 ASTM F 959M-17a, Standard Specifications for Compressible-Washer-Type Direct Tension Indicators (DTI) for Use with Structural Fasteners.

.3 ASTM A 370-20, Standard Methods and Definitions for Mechanical Testing of Steel Products.

.4 ASTM A 123/A 123 M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.5 ASTM A 153/A 153-16a, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.6 ASTM A 193/A 193 M-20, Standard Specification for Alloy-Steel and Stainless Steel Bolting for High Temperature or High Pressure Service and Other Special Purpose Applications.

.7 ASTM A 108-18, Standard Specification forSteel Bar, Carbon and Alloy, Cold-Finished.

.8 ASTM F 2329/F 2329-15, Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners.

.3 Canadian Standards Association (CSA).

.1 CAN/CSA-G40.20, General Requirements for Rolled or Welded Structural Quality Steel.

.2 CAN/CSA-G40.21, Structural Quality Steels.

.3 CAN/CSA S6-19, Canadian Highway Bridge Design Code.

.4 CAN/CSA-S16-19, Limit States Design of Steel Structures.

.5 CSA S269.1, Falsework for Construction Purposes.

.6 CSA W48, Series, Various Dates, Electrodes.

.7 CSA W59, Welded Steel Construction (Metal Arc Welding).

1.3 References (Cont'd)

.3 (Cont'd)

.8 CSA W47.1, Certification of Companies for Fusion Welding of Steel Structures.

1.4 Shop Drawings

.1 Prepare and submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate shop and erection details including but not limited to shop splices, cuts, copes, connections, holes, bearing plates, threaded fasteners, rivets, and welds. Indicate welds by CSA W59 welding symbols.

.3 Proposed welding procedures to be in accordance with Canadian Welding Bureau standards.

.4 Prepare and submit all drawings and documents necessary to describe the following:

.1 Access to work.

.2 Type and capacity of equipment to be used.

.3 Sequence of operation: position of cranes, snooper vehicles, and trucks with members.

.4 Position of cranes and snooper vehicles with details of load distribution of wheels and outriggers.

.5 Lifting devices and lifting points.

.6 Details of temporary works: complete falsework and/or shoring plans where required including proposed methods to be used to ensure the required connections and structure shape are maintained prior to bolt torqueing, method of providing temporary supports for stability.

.7 Details of temporary works: method of providing temporary supports for stability.

.8 Bolt torqueing sequence and method.

.9 Details of release of falsework and/or shoring.

.10 Details of all welds.

.11 All necessary specifications for the materials to be used.

.12 Identification of fracture-critical and primary tension members and component parts.

1.4 Shop Drawings (Cont'd)

.5 Shop Drawings showing partial details or details of some elements but not all will not be reviewed until all details have been submitted to the Departmental Representative.

.6 Review of the Erection Proposal submission shall not relieve the Contractor of responsibility for providing proper methods, equipment, workmanship, and safety precautions.

1.5 Qualifications

.1 Notify the Departmental Representative of all Subcontractors and be responsible for all Subcontractors. All terms of the Contract shall apply to the Subcontractor(s) as well.

.2 The Fabricator shall operate a recognized steel fabricating shop approved by the Departmental Representative.

.3 The Fabricator shall be fully approved by the Canadian Welding Bureau (CWB) as per CSA Standard W47.1.

.4 Only welders, welding operators, and tackers approved by the CWB in their particular category shall be permitted to perform weldments. Their qualifications shall be current and available for examination by the Departmental Representative.

1.6 Delivery, Storage and Handling

.1 Deliver, store, and handle products in accordance with Section 01 61 10 - Product Requirements.

.2 Provide protective blocking for lifting, transportation, and storing. Exercise care during fabrication, transportation, and erection so as not to damage steel members. Do not notch edges of members. Do not cause excessive stresses.

.3 Protect threads of bolts and nuts during use, storage and after installation.

1.6 Delivery, Storage and Handling (Cont'd)

.4 Mark mass on members weighing more than 3 tonnes.

.5 Ensure that no portion of steel comes into contact with the ground. Support all material on wood blocking and keep all bolts, nuts, and washers in containers protected from moisture.

.6 Provide Departmental Representative with delivery schedules a minimum of 7 days prior to shipping. Submit site delivery and storage plan as part of the erection plan. Show truck and crane locations including swings and obstructions such as hydro poles and lines.

1.7 Record Drawings

.1 The Contractor shall modify the shop drawings to complete As-Built Drawings for the structure based on all changes that occur. It is anticipated that the Shop Drawings will form the basis for the As-Built Drawings for the steel work, marked with changes that occurred during fabrication and the field.

1.8 Measurement and Payment

.1 Refer to Section 34 71 13.25 for measurement and payment of Thrie Beam Guide Rail.

.2 Measurement for deck drains are per each drain.

.3 Payment will be under the Unit Price Amount for the Supply, Fabrication and Erection and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

PART 2 - PRODUCTS

2.1 General

.1 Conform to applicable ASTM standards in the absence of applicable CSA or CGSB standards.

2.1 General (Cont'd)

.2 Integrate in the Works only new permanent materials, except when authorized in writing by the Departmental Representative.

.3 Do not modify materials or construction details without previous written approval by the Departmental Representative, even if these modifications are deemed necessary or desirable by the Contractor.

2.2 Materials

.1 All structural steel shall conform to CAN/CSA-G40.21. Structural steel member labeled "Fracture Critical" shall be Grades 350AT, Category 3. All other structural steel shall be 350A.

.2 High strength bolts, nuts, and washers: to ASTM F 3125-19e2 grade A325M, Type 3.

.3 Welding electrodes: to CSA W48 series.

.4 Bolts shall be tightened using the turn of the nut method in accordance with the requirements and definitions of CAN/CSA S6-19.

.5 Miscellaneous Steel:
.1 W-beam and thrie beam guardrail shall have a minimum yield strength of 345 MPa.
.2 All steelwork shall be hot-dip galvanizedin accordance with ASTM A123 and ASTM F2329.

.6 Bolts and Studs:
.1 All anchor bolts to conform to ASTM A193 Grade B7 with Fy-725 MPa and Fu-860 MPa. All nuts and washers shall conform to ASTM F3125.
.2 All other bolts shall be high-strength structural bolts conforming to ASTM F3125 grade A325, type-3. Bolts shall be 22mm diameter with threads excluded from the shear plane unless noted otherwise.
.3 Shear connectors shall conform to the chemical requirements of ASTM A108 Grades 1020 with a minimum tensile strength of 413 MPa.

2.3 Source Quality Control

.1 Provide Departmental Representative prior to fabrication, with four copies of steel producer certificates, in accordance with CAN/CSA G40.20. Include in certificates all mill test reports related to chemical analysis and physical tests for each heat from which elements have been fabricated.

.2 Make available for inspection all mill samples used for physical tests.

.3 When steel elements are obtained from stock, prove quality of materials by providing Departmental Representative with fabricator stamps and certificates stating that steel conforms to prescribed requirements.

.4 When steel elements are obtained from stock, Departmental Representative reserves the right to select elements and pieces to test.

.5 Provide suitable facilities and cooperate with inspection organization and Departmental Representative in carrying out inspections and tests required.

.1 Inspection of the bolted connections will be carried out by the Departmental Representative. Supply power, scaffolding, weather protection, and access as required. Pay for all costs, including the cost of re-inspection, associated with the correction or repair of rejected defects.

.2 Give the Departmental Representative not less than seven (7) working days prior to steel being ready for inspection.

PART 3 - EXECUTION

3.1 Erection

.1 Do not commence steel erection until review of the Erection Proposal has been obtained from the Departmental Representative.

.2 If staining or defacing occurs, clean steel surfaces to Departmental Representative's approval.

3.1 Erection (Cont'd)

.3 Do not disturb riverbanks or embankments without prior written permission of Departmental Representative.

.4 Restrict drifting during assembly to minimum required to bring parts into position without enlarging or distorting holes, and without distorting, kinking, or sharply bending metal of any unit. Enlarge holes if necessary, by reaming only after written permission is obtained from Departmental Representative. Reamed holes not to exceed size of bolt used by more than 2 mm.

.5 Check exact position, diameter, and number of existing bolt holes when these have to be used for connecting new members or elements. Immediately report any discrepancies to Departmental Representative.

.6 Straightening onsite of existing bent steel members/elements which are not specified on the Contract drawings to be replaced to be done by cold straightening. Any steel members/elements that are cracked due to cold straightening shall be replaced at the Contractor's expense.

.7 The Contractor shall confirm onsite all dimensions required for fabrication and dimensions shown on the Contract Drawings prior to any fabrication.

3.2 Installation

.1 Unless otherwise noted, carry out fabrication and erection of structural steel in accordance with CAN/CSA S6-19, Canadian Highway Bridge Design Code.

.2 Allowable tolerances for elements:
.1 Conform to Clause 29.3 of CAN/CSA S16.19 standard.
.2 Conform to prescriptions of CAN/CSA G40.20 standard.
.3 Conform to prescriptions of CAN/CSA W59 standard.

3.2 Installation (Cont'd)

.3 Falsework shall be in accordance with CSA S269.1, except where specified otherwise.

.4 Welding: do welding in accordance with CSA W59, except where specified otherwise.
.1 For CAN/CSA G40.21, grade 300W steel, deposited weld metal to have Charpy V-Notch value not lower than that of steel.
.2 Unless indicated otherwise on the drawings, no welding, of whatever nature and extent, is allowed without the written authorization of the Departmental Representative, and then, only in such a way and at locations designated in their authorization.
.3 Minimal fillet weld size: conform to the requirements prescribed in CAN/CSA S6-19 standard. Detail these in shop drawings.
.4 Appoint and pay for the services of an independent welding inspector certified to visually inspect all completed welds as per CSA W59-M standard.

.5 High strength bolting: install bolts in accordance with CAN/CSA S6-19 and CAN/CSA S16-19 standards. Tighten using turn of the nut method.

.6 Finish: members true to line, free from twists, bends, open joints, sharp corners, sharp edges, etc.

.7 Allowable tolerance for bolt holes:
.1 Matching holes for bolts to line up so that dowel 2 mm less in diameter than hole passes freely through assembled members at right angles to such members.
.2 Finish holes not more than 2 mm in diameter larger than diameter of bolt unless otherwise specified by Departmental Representative.
.3 Centre-to-centre distance between any two holes of group to vary by not more than 1 mm from dimensioned distance between such holes.
.4 Centre-to-centre distance between any two groups of holes to vary not more than following:

3.2 Installation (Cont'd)

.7 (Cont'd)

Center-to-Center Distance (m)	Tolerance Plus or Minus (mm)
Less than 10	1
10 to 20	2
20 to 30	3

.5 Correct mispunched or misdrilled members only as directed by Departmental Representative.

.8 Span length tolerances in accordance with CAN/CSA S6-19 and CAN/CSA S16-19 standards.

.9 Shop splices:

.1 Use complete joint penetration groove welds finished flush. Details of butt joints to CSA W59. Use only as approved by Departmental Representative.

.10 Field splices: to approval of Departmental Representative. For bottom flange splice plate, install bolts with nuts up.

.11 Mark members in accordance with CAN/CSA G40.20. Do not use die stamping.

.12 Match marking: shop mark bearing assemblies and splices.

.13 Ensure that all participants in construction works comply with the requirements of CAN/CSA-Z94.4 standard regarding the use of respiratory apparatuses when working with paint or as required.

END OF SECTION

PART 1 - GENERAL

1.1 Section Includes

.1 Related Requirements.

.2 Measurement and Payment.

.3 Reference Sections.

.4 Action and Informational Submittals.

.5 Quality Assurance.

.6 Delivery, Storage and Handling.

.7 Materials.

.8 Examination.

.9 Preparation.

.10 Erection.

.11 Painting Touch Up.

.12 Cleaning.

.13 Protection.

1.2 Related Requirements

.1 Section 01 33 00 - Submittal Procedures.

1.3 Measurement and Payment

.1 Measure supply and erection of steel Thrie-beam guide rail including posts, mounting plates, and all necessary hardware in metres of guide rail installed and measured from outer tips of steel Thrie-beam guide rail, including guide rail used in anchorages and terminal sections.

.2 Payment will be as per the unit price table and such payment shall be full compensation for all labour, equipment and materials necessary to complete the Work.

1.4 Reference Sections

.1 American Association of State Highway and Transportation Officials (AASHTO).

.1 AASHTO M180-18, Standard Specification for Corrugated Sheet Steel Beams for Highway Guardrails.

.2 AASHTO-ARTBA-AGC Joint Committee "A Guide to Standardized Highway Barrier Hardware, 2nd Edition" Task Force 13.

.3 AASHTO M120-08, Standard Specification for Zinc.

.4 AASHTO T65M/T65-19, Standard Method of Test for Mass of Coating on Iron and Steel Atricles with Zinc or Zinc-Alloy Coatings.

.5 AASHTO M30-15 (R2019), Standard Specification for Zinc-Coated Steel Wire Rope and Fittings for Highway Guardrail.

.2 ASTM International.

.1 ASTM A 123/A 123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

.2 ASTM A 307-14e1, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.

.3 ASTM B 6-18, Standard Specification for Zinc.

.4 ASTM A 90/A 90M-13 (R2018), Standard Test Method for Weight of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.

.5 ASTM E 376-19, Standard Practice for Measuring Coating Thickness by Magnetic-Field or Eddy Current Testing Methods.

.6 ASTM A 563-15, Standard Specification for Carbon and Alloy Steel Nuts.

.7 ASTM A 153/A 153M-16a, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

.8 ASTM A 36/A 36M-19, Standard Specification for Carbon Structural Steel.

.9 ASTM A 53/A 53M-20, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

.3 CSA Group (CSA).

.1 CAN/CSA O80 Series-08 (R2012), Wood Preservation.

.2 CAN/CSA G164-18, Hot-Dip Galvanizing of Irregularly Shaped Articles.

1.4 Reference Sections (Cont'd)

.3 (Cont'd)
.3 CAN/CSA G40.20-13/G40.21-13 (R2018), General Requirements for Rolled or Welded Structural Quality Steel.
.4 CAN/CSA W47.1-19, Certification of Companies for Fusion Welding of Steel.

.4 British Columbia Standard Specifications for Highway Construction 2020.

1.5 Action and Informational Submittals

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

.2 Product Data:
.1 Submit manufacturer's instructions, printed product literature and data sheets for guide rail, wood, and coatings and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:
.1 Submit drawings stamped and signed by professional engineer registered or licensed in British Columbia, Canada.

.4 Sustainable Design Submittals: Not Required

1.6 Quality Assurance

.1 Sustainable Standards Certification.
.1 Certified Wood: submit listing of wood products and materials used in accordance with CSA O80.

1.7 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:

1.7 Delivery, Storage and Handling (Cont'd)

.3 (Cont'd)

.1 Store materials in a dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect guide rails from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

PART 2 - PRODUCTS

2.1 Materials

.1 Steel Thrie-beam guide rail as indicated and as follows:

.1 Steel rail and terminal sections: to AASHTO M180, class A Type 2 zinc coated. The zinc coating shall have an average of 1220 g/m2 and 1100 g/m2 for individual minimum.

.2 Shape shall be SGM09 installation accurately formed to profile, dimensions and tolerances of AASHTO M-180 with overall cross sections of 508 mm x 85 mm respectively.

.3 Length - Normally 3.81m, nominal length beams 4.19m, +0mm/-75mm overall will be required.

.4 Punchings - Designed as 7.82m, 3.81m, or 1.9m.

.5 Metal: Yield point minimum 345 MPa, Tensile Strength minimum 483 MPa, Elongation minimum in 50mm: 12%, and End and Buffer sections shall have a minimum yield point of 227 MPa and a minimum tensile strength of 310 Mpa.

.6 Sheet Thickness: Class A base metal thickness shall be 2.8mm nominal (2.82mm minimum) with tolerance of minus 0.23 mm.

.7 Sheet Widths - Min 749mm for Thrie-Beams with a permissible tolerance of minus 3.2mm.

.2 Galvanized acid etching: to MPI #25.

.3 Guardrail Accessories

.1 Bolts, nuts and washers: to ASTM A 307, ASTM A 536 Grade A, ASTM A 36 and galvanized to ASTM A 153.

2.1 Materials (Cont'd)

.3 (Cont'd)

.2 Post Sleeve: 150mm length of 60mm outside diameter galvanized pipe confirming to ASTM A 53.

.3 Square timber posts and offset blocks:

.1 Species: Douglas Fir/Hemlock "No. 1, Structural Posts and Timber", graded in conformity with the requirements of NGLA "Standard Grading Rules for Canadian Lumber".

.2 Type: pressure treated in accordance with CAN/CSA-O80 Series.

.3 Wanes on any face shall not exceed the following width, being the minimum permissible post width less the portion entirely free of wane: above grade (including blocks) - 25mm, below grade - 60mm.

.4 Dimensions: Posts and blocks shall be supplied in the exact lengths ordered or specified and unless otherwise required on the Purchase Order, Work Order, drawing or specification the scantling shall be nominal 200 mm x 200 mm, and pair of 200 mm x 150 mm for each BCT installation, with dressed on four sides minimum dimension of 189 mm x 189 mm and 189 mm x 138 mm respectively and a tolerance of plus 3 mm.

PART 3 - EXECUTION

3.1 Examination

.1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for guide rail installation in accordance with manufacturer's written instructions.

.1 Visually inspect substrate in presence of Departmental Representative.

.2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.

.3 Proceed with installation only after unacceptable conditions have been remedied and receipt of written approval to proceed from Departmental Representative.

3.2 Preparation

.1 Temporary Erosion and Sedimentation Control:
.1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil- bearing water runoff or airborne dust to adjacent properties and walkways, according to sediment and erosion control plan, specific to site, that complies with requirements of authorities having jurisdiction, whichever is more stringent.
.2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
.3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 Erection

.1 Set posts by instrument for alignment, and locations as indicated and as directed by Departmental Representative.

.2 Excavate post holes to depths as indicated and to diameter of 360 mm plus or minus 20 mm.
.1 Compact bottom to provide firm foundation.
.2 Set post plumb and square in hole.
.3 Backfill around posts using excavated material and compact in uniform layers not exceeding 150 mm compacted thickness.
.4 Cut off tops of posts as indicated, with tops parallel to grade of pavement edge.
.5 Construct anchorages to details as indicated.
.1 Place and compact backfill for anchors as directed by Departmental Representative.
.6 Erect steel Thrie-beam components to details as indicated. Lap joints in direction of traffic.
.1 Tighten nuts to 100 N.m torque.
.1 Maximum protrusion of bolt 12 mm beyond nut.

3.4 Painting Touch Up

.1 Galvanized steel-touch up:
.1 Clean damaged surfaces with wire brush removing loose and cracked coatings.
.1 Apply 2 coats of organic zinc-rich paint to damaged areas.
.1 Pre-treat damaged surfaces in accordance with manufacturer's written recommendations for zinc-rich paint.
.2 Painted steel:
.1 Apply 1 coat of primer and 2 coats of finish paint to exposed surface.
.3 Painted posts and offset blocks:
.1 Apply 2 coats of paint to exposed surfaces of posts and offset blocks.

3.5 Cleaning

.1 Progress Cleaning:
.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment.

.3 Waste Management: separate waste materials for reuse and recycling.
.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

3.6 Protection

.1 Protect installed products and components from damage during construction.

.2 Repair damage to adjacent materials caused by guide rail installation.

END OF SECTION

APPENDIX A:

PRELIMINARY HAZARD ASSESSMENT FORM

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

PRELIMINARY HAZARD ASSESSMENT FORM

Project Number:	
Location:	
Date:	
Name of Departmental Representative:	
Name of Client:	
Name of Client Project Co-ordinator	PH: ( )- -

Site Specific Orientation Provided at Project Location **Yes** ☐ **No** ☐

Notice of Project Required **Yes** ☐ **No** ☐

NOTE:
PWGSC REQUIRES A Notice of Project FOR ALL CONSTRUCTION WORK RELATED ACTIVITIES

NOTE:
OHS law is made up of many municipal, provincial, and federal acts, regulations, bylaws and codes. There are also many other pieces of legislation in British Columbia that impose OHS obligations.

Important Notice: This hazard assessment has been prepared by PWGSC for its own project planning process, and to inform the service provider of actual and potential hazards that may be encountered in performance of the work. PWGSC does not warrant the completeness or adequacy of this hazard assessment for the project and the paramount responsibility for project hazard assessment rests with the service provider.

TYPES OF HAZARDS TO CONSIDER	Potential Risk for:				COMMENTS
Examples: Chemical, Biological, Natural, Physical, and Ergonomic Listed below are common construction related hazards. Your project may include pre-existing hazards that are not listed. Contact the Regional Construction Safety Coordinator for assistance should this issue arise.	**PWGSC, OGD's, or tenants**		**General Public or other contractors**		Note: When thinking about this pre-construction hazard assessment, remember a **hazard** is anything that may cause harm, such as chemicals, electricity, working from heights, etc; the **risk** is the chance, high or low, that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be.
	Yes	**No**	**Yes**	**No**	
Typical Construction Hazards					
Concealed/Buried Services (electrical, gas, water, sewer etc)					
Slip Hazards or Unsound Footing					
Working at Heights					
Working Over or Around Water					
Heavy overhead lifting operations, mobile cranes etc.					
Marine and/or Vehicular Traffic (site					

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vehicles, public vehicles, etc.					
Fire and Explosion Hazards					
High Noise Levels					
Excavations					
Blasting					
Construction Equipment					
Pedestrian Traffic (site personnel, tenants, visitors, public)					
Multiple Employer Worksite					Example: Contractor working in an occupied Federal Employee space.

Electrical Hazards					**Comments**
Contact With Overhead Wires					
Live Electrical Systems or Equipment					
Other:					
Physical Hazards					
Equipment Slippage Due To Slopes/Ground Conditions					
Earthquake					
Tsunami					
Avalanche					
Forest Fires					
Fire and Explosion Hazards					
Working in Isolation					
Working Alone					
Violence in the Workplace					
High Noise Levels					
Inclement weather					
High Pressure Systems					
Other:					
Hazardous Work Environments					
Confined Spaces / Restricted Spaces					Review and provide confined space assessment(s) from PWGSC or client confined space inventories. Refer to PWGSC Standard on Entry into Confined Spaces. Contact the Regional Construction Safety Coordinator.
Suspended / Mobile Work Platforms					
Other:					
Biological Hazards					
Mould Proliferations					
Accumulation of Bird or Bat Guano					
Bacteria / Legionella in Cooling Towers / Process Water					
Rodent / Insect Infestation					
Poisonous Plants					
Sharp or Potentially Infectious Objects in Wastes					

Wildlife					
Chemical Hazards					
Asbestos Materials on Site					If "yes" a pre-project asbestos survey report is required. Provide Contractor with DP – 057 ELF Form 16 "Contractor Notification and Acknowledgement"
Designated Substance Present					If "yes" a pre-project designated substance survey report is required.
Chemicals Used in work					
Lead in paint					If "yes" a pre-project lead survey report is required.
Mercury in Thermostats or Switches					If "yes" a pre-project mercury survey report is required.
Application of Chemicals or Pesticides					
PCB Liquids in Electrical Equipment					
Radioactive Materials in Equipment					
Other:					
Contaminated Sites Hazards					
Hazardous Waste					
Hydrocarbons					
Metals					
Other:					

Security Hazards					**Comments**
Risk of Assault					
Other:					
Other Hazards					

Other Compliance and Permit Requirements[1]	**YES**	**NO**	**Notes / Comments[2]**
Is a Building Permit required?			
Is an Electrical permit required?			
Is a Plumbing Permit required?			
Is a Sewage Permit required?			
Is a Dumping Permit required?			
Is a Hot Work Permit required?			
Is a Permit to Work required?			Mandatory for ALL AFD managed work sites.
Is a Confined Space Entry Permit required?			Mandatory
Is a Confined Space Entry Log required			Mandatory for all Confined Spaces
Discharge Approval for treated water required			

Notes:

(1) Does not relieve Service Provider from complying with all applicable federal, provincial, and municipal laws and regulations.

(2) TBD means To Be Determined by Service Provider.

Service Provider Acknowledgement: We confirm receipt and review of this Pre-Project Hazard Assessment and acknowledge our responsibility for conducting our own assessment of project hazards, and taking all necessary protective measures (which may exceed those cited herein) for performance of the work.			
Service Provider Name			
Signatory for Service Provider		**Date Signed**	
RETURN EXECUTED DOCUMENT TO PWGSC DEPARTMENTAL REPRESENTATIVE PRIOR TO ANY WORK COMMENCING			

APPENDIX B:

PRIME CONTRACTORS MAIN RESPONSIBILITIES

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

Confirmation of Prime Contractor's Main Responsibilities Under the Worksafe B.C. Occupational Health and Safety Regulations and *Worker's Compensation Act*

Name of Project:

Owner: Crown Owned

Contractor:

Consulting Engineer:	YES	NO
1.The Contractor acknowledges appointment as Prime Contractor on the construction project noted below	☐	☐
2.The name of the Prime Contractor's Qualified Coordinator of occupational health and safety activities for this project has been submitted to the Owner and is as shown below.	☐	☐
3. The Prime Contractor understands that in any conflict of directions, WCB OH&S Regulations and/or the Worker's Compensation Act shall prevail.	☐	☐
4. The Prime Contractor understands and will direct that all supervisors/coordinators must immediately report any apparent conflict as described above.	☐	☐
5. The Prime Contractor agrees that their supervisor shall immediately notify the consulting Engineer's representative of any reported conflict.	☐	☐
6. The Prime Contractor has requested and received information from the Owner regarding any known hazards to the health and safety of persons pre-existing at the workplace.	☐	☐
7. The Prime Contractor has conducted an inspection of the workplace to verify the presence of any hazards.	☐	☐
8. The Prime Contractor will communicate hazards information to any persons who may be affected and ensure that appropriate measures are taken to effectively control or eliminate the hazards.	☐	☐
9. The Prime Contractor accepts that written documentation such as notes, records, inspections, meeting minutes, etc., on all health and safety issues must be available upon request to the PWGSC departmental representatives and/or to a WCB officer at the workplace.	☐	☐
10. The Prime Contractor will confirm that all workers are suitably trained and competent to perform the duties for which they have been assigned.	☐	☐
11. The Prime Contractor confirms that safety orientation of all new workers will be conducted.	☐	☐
12. The Prime Contractor's written Safety Program has been provided to the Owner's representative.	☐	☐
13. The Prime Contractor confirms that meetings to exchange information on any safety issues, concerns, hazards or safety directives will be conducted weekly or more often if required.	☐	☐
14. The Prime Contractor confirms that before the commencement of work, crews will attend a daily crew safety meeting.	☐	☐
15. The Prime Contractor confirms that their supervisor has assessed and will coordinate the workplace first-aid requirements	☐	☐
16. The Prime Contractor confirms that the procedure to transport injured workers is established	☐	☐

Prime Contractor Representative's

Name:_____

Title:_____ Signature:_____

Date:_____

Prime Contractor's OH&S Coordinator

Name:_____

Title:_____ Signature:_____

Date:_____

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APPENDIX C:

ENVIRONMENTAL CHECKLIST

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 Effects Evaluation (EEE) and/or the Fish and Fish Habitat Report as supporting documents in the completion of the site Environmental Protection Plan (EPP). Applicable provincial and federal guidelines and regulations should be reviewed prior to submission of the 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 Effects Evaluation, Environmental Assessments; Fish and Fish Habitat and Compensation Reports, Aquatics Effects Evaluations 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 and potentially upstream and downstream of proposed works. 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 water body as part of construction activities is part of the Contractor's responsibility. Scientific Collection Permits such as licences for Fish Salvage Permits are also the responsibility of the Contractor and are obtained by the Contractor's **environmental monitor/consultant*** who will be completing the salvage.			

Mitigation Strategies	Procedures, controls or best management practices (BMPs) to prevent or reduce adverse impacts on the environment are provided. For example, all work in BC must adhere to the BC MOE "Standards and Best Practices for Instream Works" for those works that are completed below the high water mark. DFO mitigation techniques under the Fisheries Act must also be followed. One useful document that contains information on Ministry of Environment's ecosystems, guidelines and mitigation techniques is from the MOE Ecosystems Branch – Develop With Care 2014 – Environmental Guidelines for Urban and Rural Land Development in BC.			
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 30m 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.			

***Environmental Monitor/Qualified Professional as recognized by the province:** an applied scientist or technologist specializing in a relevant applied science or technology including, but not necessarily limited to, agrology, forestry, biology, engineering, geomorphology, geology, hydrology, hydrogeology or landscape architecture, and who is registered in British Columbia with their appropriate professional organization, and acting under that association's Code of Ethics and subject to disciplinary action by that association, and who, through demonstrated suitable education, experience, accreditation and knowledge relevant to the particular matter, may be reasonably relied on to provide advice within their area of expertise.