

PART 1 - GENERAL

- 1.1 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 National Building Code of Canada (NBC) 2005, the Canadian Highway Bridge Design Code CAN/CSA S6-06, and other indicated Codes, Construction Standards, and/or any other Code or Bylaw of local application.
- .3 Must comply with all applicable local, provincial, and federal laws, rules and regulations.
- .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.
- 1.2 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 the Work.
- .2 Drawings are, in general, diagrammatic and are intended to indicate the scope and general arrangement of the work.
- 1.3 Other Contracts .1 It is recommended that the Bidder visit the site prior to submission of tender to satisfy himself/herself of the nature of the site conditions and the extent of the work required.
- .2 The Contractor shall confirm onsite all dimensions required for fabrication and dimensions shown on the Contract Drawings prior to any fabrication.
- .3 Cooperate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.
- .4 Coordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Departmental Representative, in writing, any defects which may interfere with proper execution of this Work.
- 1.4 Division of Specifications .1 The specifications are subdivided in accordance with the current 6-digit National Master Specifications System.
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- .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.
 - 1.5 Time of Completion .1 Complete the Work by **September 15, 2014**.
 - 1.6 Summary of Work .1 The work should be represented as follows:

Big Beaver Creek Bridge Culvert
Culvert Liner Installation
Alaska Highway km 399.4,
British Columbia
 - .2 Work under this contract consists of:
 - .1 Mobilization & Demobilization,
 - .2 Accommodation of Water,
 - .3 SPCAP – Supply,
 - .4 SPCAP – Liner Install,
 - .5 Concrete,
 - .6 Heavy Rock Riprap (Class 250 kg),
 - .3 Other requirements:
 - .1 A two wire overhead power line and NorthwesTel fibre optics line is situated in the vicinity of the site. It is the Contractor's responsibility to confirm the presence and locations of all utilities through BC One Call.
 - .2 Right-of-Way limits should be confirmed prior to construction.
 - .3 Conduct all survey and measurements necessary to ensure the work is completed in accordance with the drawings. Any changes to the layout shall be discussed and approved by a Departmental Representative.
 - .4 Conduct work such that disturbance to the channel banks and vegetation are minimized.
 - .5 Coordination and communication with other Contractors and agencies involved with Project, if applicable.
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- .6 Management of Environment.
 - .7 Adhere to waste reduction requirement for reuse or recycling of waste materials, thus diverting materials from landfill.
 - .8 Environmental permits and clearances to be supplied by the Department. It is the Contractor's responsibility to confirm that the required permits are in place prior to commencement of Work.
 - .9 The reduced risk-timing window within the Big Beaver Creek for spawning fish is between July 15 and August 15. No in-stream work shall be conducted outside of this period.
 - .10 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.
- 1.7 Contractor's Responsibility
- .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 become 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.
- 1.8 Hours of Work
- .1 Restrictive as follows:
 - .1 Notify Departmental Representative of all after hours work, including weekends and holidays.
- 1.9 Work Schedule
- .1 All works are to be completed by **September 15, 2014**
 - .2 Carry out work as follows:
 - .1 Within 7 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. Indicate the following:
 - .1 Submission of shop drawings, product data, MSDS sheets, and samples.
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- .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.
 - .3 Do not change approved Schedule without notifying Departmental Representative.
 - .4 Interim reviews of work progress based on work schedule will be conducted and schedule updated by Contractor in conjunction with and approval of Departmental Representative.
 - 1.10 Cost Breakdown .1 Before submitting the first progress claim, submit a breakdown of the Contract lump sum prices in detail as directed by the Departmental Representative and aggregate Contract price.
 - 1.11 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 approved work schedule.
 - .5 Change orders.
 - .6 Other modifications to Contract.
 - .7 Field test reports.
 - .8 Reviewed/approved samples.
 - .9 Manufacturers' installation and application instructions.
 - .10 One set of record drawings and specifications for "as-built" purposes.
 - .11 Project Safety Plan / Traffic Control Plan.
 - .12 Environmental Control of Operations (ECO) Plan
 - .13 Copies of Environmental Permits.
 - .14 Copy of approved Work schedule.
 - 1.12 Regulatory Requirements .1 Conduct all work in accordance with applicable environmental approvals and regulations.
 - .2 Obtain and pay for any additional permits required by regulatory municipal, provincial or federal authorities to complete the work.
 - .3 Provide inspection authorities with plans and information required for issue of acceptance certificates.
 - .4 Furnish inspection certificates in evidence that the work installed conforms with the requirements of the authority having jurisdiction.

- 1.13 Contractor's Use of Site .1 Use of site:
- .1 Assume responsibility for assigned premises for performance of this work.
 - .2 Be responsible for coordination of all work activities on site, including the work of other contractors engaged by the Departmental Representative.
- .2 Perform work in accordance with Contract documents. Ensure work is carried out in accordance with indicated phasing.
- .3 Do not unreasonably encumber site with material or equipment
- 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/the subject of subsequent claims.
- 1.15 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 Inform Departmental Representative of impending installation and obtain his approval for actual location.
- .4 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.
- 1.16 Cutting and Patching .1 Cut existing structures only as required to accommodate new work and as directed by the Departmental Representative.
- .2 Remove items so shown or 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/spacings of bolt holes.
- .3 Provide devices needed to lay out and construct work.
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- .4 Supply such devices as templates 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 tradesmen, under supervision of qualified journeyman.
 - .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 Departmental Representative, whose decision is final.
 - 1.19 Works Coordination
 - .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 On coordination drawings, indicate structural elements, services lines, rough-in points, and indicate location of services entrance to site.
 - .3 Facilitate meeting and review coordination drawings. Ensure subcontractors agree and sign off on drawings.
 - .4 Publish 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/lane closures ahead of time.
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- .3 Submit shop drawings and order of prefabricated equipment or rebuilt components only after coordination meeting for such items has taken place.
 - .4 Work cooperation:
 - .1 Ensure cooperation between trades in order to facilitate 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 unnecessary delays, cutting, patching, and removal or replacement of completed work.
 - .3 Ensure disputes between subcontractors are resolved.
 - .5 Departmental Representative is not responsible or accountable for extra costs incurred as a result of Contractor's failure to coordinate Work.
 - .6 Maintain efficient and continuous supervision.
 - 1.20 Approval 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 2 weeks for the following:
 - .1 Review of product data.
 - .2 Review of re-submission.
 - .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 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 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.
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- .2 Inspection and testing performed exclusively for Contractor's convenience.
 - .3 Tests specified to be carried out by Contractor under the Departmental Representative's supervision.
 - .3 Where tests or inspections by 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 in advance of planned testing.
 - .5 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.
 - .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.
 - .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 The Departmental Representative will provide 2 sets of drawings, 2 sets of specifications, and 2 copies of the original AutoCAD files for "as-built" purposes.
 - .2 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.
 - .2 Ensure cleanup of the work areas each day after completion of work.
 - .3 In preparation for inspections:
 - .1 Examine all sight-exposed interior and exterior surfaced and concealed spaces.
 - .2 Remove grease, dust, dirt, stains, labels, fingerprints, and
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PWGSC

Big Beaver Creek Bridge Culvert
Culvert Liner Installation
Alaska Highway km 399.4
British Columbia

01 25 20
MOBILIZATION
& DEMOBILIZATION

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|-----|------------------------|----|---|
| 1.1 | Section Includes | .1 | Mobilization and Demobilization |
| 1.2 | Related Sections | .1 | Construction Facilities – Section 01 52 00 |
| 1.3 | Description | .1 | Consists of preparatory work and operations including, but not limited to, those necessary for the movement of personnel, equipment, camp, buildings, shops, offices, supplies and incidentals to and from the project site. |
| 1.4 | Measurement Procedures | .1 | 50 percent of Lump Sum Contract Price for Mobilization and Demobilization, to be paid when mobilization to site is complete. |
| | | .2 | Remainder of Lump Sum Contract Price for Mobilization and Demobilization to be paid when work is complete and all materials, equipment, camp, buildings, shops, offices, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other agencies having jurisdiction. |
| | | .3 | Payment of only 10% of the total tender price shall be scheduled as outlined above, if the amount bid for mobilization and demobilization is greater than 10%. Payment of the remainder of the amount shall be authorized when the site is cleaned up. |

PART 2 - PRODUCTS

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| 2.1 | Not Used | .1 | Not used. |
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PART 3 - EXECUTION

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| 3.1 | Not Used | .1 | Not used. |
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END OF SECTION

- Section Includes .1 This section provides the descriptions of scope of work for each item included in this tender and outlined on the “Quantities and Costs”, and their methods of measurement and payment. The bidder shall be aware of the conditions and constraints of the site and the price quoted for each bid item shall include all works as described to complete the item of work regardless of the site conditions. All costs associated to complete the project including insurance & bonding, mobilization of equipment, project management, reporting, plans, materials, & labour, any temporary facilities, environmental work, safety and any other regulatory requirements as per the contract shall be incidental to the bid items in the tender and shall not be paid separately.

PART 1 - GENERAL

- 1.1 Mobilization and Demobilization .1 Tendered unit price for “Mobilization and Demobilization” shall be full compensation for the contractor’s forces and the equipment necessary for performing the work required under the contract. Mobilization will not be considered as work in fulfilling the contract requirements for commencement of work.
- .2 Mobilization shall include all activities and costs for transportation of personnel, equipment and supplies/ material to the site, establishment of office if required and other facilities for the contractor’s operations at site.
- .3 Demobilization shall include all activities and costs for transportation of personnel, equipment and supplies/ materials not used in the contract, including the disassembly, removal and site clean up of any offices if constructed or other facilities assembled on the site for the contract.
- .4 Tendered Price shall include temporary barriers and enclosures as described in Section 01 56 00 – Temporary Barriers and Enclosures.

Measurement: In accordance with Section 01 25 20 – Mobilization and Demobilization.

Payment: In accordance with Section 01 25 20 – Mobilization and Demobilization.

PART 2 – BIG BEAVER CREEK BRIDGE CULVERT ON ALASKA HIGHWAY KM 399.4

- 2.1 Accommodation of Water .1 Tendered price for “Accommodation of Water” shall include full compensation for the cost of furnishing all labour, material, equipment, tools and incidentals necessary to complete the work as described in the drawings and specifications.
- .2 Tendered Price shall include any works required to isolate and dewater the site prior to commencing construction, accommodate existing water flow, installation and removal of temporary crossing structures, temporary erosion and sedimentation control measures during construction and other works in accordance with drawings, Section 31 00 00 – Earthworks, Section 31 25 05 – Erosion and Sediment Control and Section 35 42 19 – Preservation of Watercourses and Wetlands.

Measurement: This item is paid on a lump sum basis, no measurements or calculations required.

Payment: Payment will be made at the Lump Sum price bid for “Accommodation of Water” paid 50% upon isolation of the site and 50% upon complete removal of all isolation works and redirection of water through the new culvert liner.

- 2.2 SPCAP – Supply .1 Tendered price for “SPCAP – Supply” shall include full compensation for the cost of furnishing all labour, material, equipment, tools and incidentals necessary to complete the work as described in the drawings and specifications.
- .2 Tendered Price shall include the supply of the culvert barrel in accordance with the drawings, Section 33 42 13 – Pipe Culverts, Section 05 12 33 – Structural Steel for Bridges and Section 05 50 00 – Metal Fabrication.
- .3 Tendered Price shall include all preparation work required for the supply and delivery of culvert material.

Measurement: This item is paid on a lump sum basis, no measurements or calculations required.

Payment: One time Lump Sum payment to be paid upon delivery to site.

- 2.3 SPCAP – Liner Install .1 Tendered price for “SPCAP – Liner Install” shall include full compensation for the cost of furnishing all labour, material, equipment, tools and incidentals necessary to complete the work as described in the drawings and specifications.
- .2 Tendered Price shall include the installation of the culvert liner in accordance with the drawings, Section 05 12 33 – Structural Steel for Bridges, Section 05 50 00 – Metal Fabrication and Section 33 42 13 – Pipe Culverts.
- .3 Tendered Price shall include all preparation work required for the installation of the culvert liner.
- Measurement: This item is paid on a lump sum basis, no measurements or calculations required.
- Payment: One time Lump Sum payment. to be paid upon satisfactory installation of the culvert liner with all associated flanged end couplers and hardware shown on the drawings.
- 2.4 Concrete .1 Tendered price for “Concrete” shall include full compensation for the cost of furnishing all labour, material, equipment, tools and incidentals necessary to complete the work as described in the drawings and specifications.
- .2 Tendered Price shall include the material supply and installation of Concrete in accordance with the Drawings, Section 03 10 00 – Concrete Forming and Accessories and Section 03 30 00 – Cast-in-place Concrete.
- Measurement: This item is paid on a lump sum basis, no measurements or calculations required.
- Payment: One time lump sum payment to be made upon acceptance of the work
- 2.5 Heavy Rock Riprap – Haul and Place (Class 250 kg) .1 Tendered price for “Heavy Rock Riprap – Haul and Place (Class 250 kg)” shall include full compensation for the cost of furnishing all labour, material, equipment, tools and incidentals necessary to complete the work as described in the drawings and specifications.
- .2 Tendered Price shall include the loading, haul and placement of Heavy Rock Riprap in accordance with the instructions of the Departmental Representative, drawings and Section 31 37 00 –
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Rip-Rap. The rock is supplied by the Department and is located at the Adsette Pit at km 366.3 of the Alaska Highway.

- .3 Measurement: Measurements will be made, in cubic metres, of the Heavy Rock Riprap placed.
- .4 Payment: Payment will be made at the unit price bid for "Heavy Rock Riprap – Haul and Place (Class 250 kg)".

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Coordination of Work with others under Departmental Representative administration. |
| | | .2 | Scheduled preconstruction and progress meetings. |
| 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 to regain projected schedule. |
| | | .7 | Revisions to the construction schedule. |
| | | .8 | Progress during succeeding work period. |
| | | .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 | If required, 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 three days after each meeting and transmit to meeting participants, affected parties not in attendance, and Contractor. |
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- 1.4 Construction Organization and Start-up .1 Within 7 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 Appointing official representatives of participants in Work.
 - .3 Schedule of Work, progress scheduling in accordance with Section 01 32 17 - Construction Progress and Reporting.
 - .4 Schedule of submission 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 17 - 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.
- .5 Comply with Departmental Representative's allocation of mobilization areas of sites; for field offices and sheds, construction camp(s) and camp utilities, access, traffic, and parking facilities.
- .6 During construction, coordinate use of sites and facilities with Departmental Representative.
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- .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 17 - Construction Progress and Reporting to Departmental Representative coordinated with Departmental Representative's project schedule.
 - .2 After review, revise and resubmit schedule to comply with revised project schedule.
 - .3 During progress of Work, revise and resubmit schedule as directed by Departmental Representative.
- 1.6 Submittals
 - .1 Submit requests 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 Process substitutions through Departmental Representative.
 - .4 Process change orders through Departmental Representative.
 - .5 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 Procedures.
 - .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.
 - .3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance.
 - .4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Schedule, form, and content. |
| | | .2 | Scheduled revisions. |
| | | .3 | Critical path scheduling. |
| 1.2 | Definitions | .1 | Activity: element of Work performed during course of Project. Activity normally has expected duration, cost and resource requirements. Activities can be subdivided into tasks. |
| | | .2 | Actual Finish Date (AF): time that Work actually ended on activity. |
| | | .3 | Actual Start Date (AS): time that Work actually started on activity. |
| | | .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 Completion and secondly Final Certificate. |
| | | .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). |
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- .12 Data Date (DD): date at which, or up to which, Project's reporting system has provided actual status and accomplishments.
 - .13 Duration (DU): number of work periods (not including holidays or other non-working periods) required to complete activity or other 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 PWGSC 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).
 - .21 Lead: modification of logical relationship that allows acceleration of successor task.
 - .22 Logic Diagram: see Project network diagram.
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- .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 stakeholder communication, 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.
 - .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 involves 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.
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- .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 Project are properly coordinated. It consists of planning, time estimating, scheduling, progress monitoring, and control.
 - .1 It integrates forward thinking with analysis. Implicit assumptions are made in an objective consideration of the future to determine courses of action.
 - .2 Planning and scheduling facilitates accomplishment of objectives and should be considered as a continuous and interactive process involving planning, review, scheduling, analysis, monitoring and reporting.
 - .2 Planning: this is most basic function of management, that of determining presentation of action, and is essential.
 - .3 Ensure that 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 progressive 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
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- 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.
 - .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 approval.
 - .3 Acceptance of Master Plan and Detail Schedule showing scheduled Contract duration shorter than specified Contract duration does not constitute change to 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.
 - .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 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 Submit in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit Project Control System to Departmental Representative for planning, scheduling, monitoring, and reporting of project progress.
 - .3 Submit Project Control System to Departmental Representative for approval; 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 CD 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 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 on action required.
 - .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.

- .1 CD with schedule and cash flow information. Clearly label 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.
 - .2 Within 15 work days of finalizing Agreement, prepare comprehensive construction Master Plan (CPM logic diagram) and dependent Cash Flow Projection to confirm valid or identify alternate 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 CD with schedule and cash flow information. Clearly label 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 work days of Award of Contract date showing interdependencies, activity sequencing 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 Testing
 - .9 Shutdown or closure activity
 - .10 Commissioning and acceptance

 - .6 Detail CPM schedule to cover, in detail, a minimum period of 6 months beginning from the Award of Contract date. Each activity duration should span 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 Procurement/construction activity interdependencies.
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- .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 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 are not justification for extension of contract completion date.
 - 1.14 Process Monitoring and Reporting
 - .1 Detail Schedule on job site must show "Progress to Date" on ongoing basis. 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 Perform Detail Schedule update at least once per Project with status dated (Data Date). Update to reflect activities completed to date, activities in progress, logic and duration changes.
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- .4 Do not automatically update actual start and finish dates by using default mechanisms found in project management software.
 - .5 Submit updated Detail Schedule to Departmental Representative.
 - .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. Show Work to date, comparison to planned Work and current forecasts. Report must summarize progress, define 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 and possible time extensions.
 - .3 Status of Contract completion date and milestones.
 - .4 Current/anticipated problems, delays and corrective measures.
 - .5 Review of progress and status of Critical Path activities.
- 1.15 Progress Photographs
- .1 Provide digital photographs with dates and descriptions on CD disk with progress reports. Relate dates and descriptions to photo file names in a separate text file on disk.
 - .2 Number of photographs: minimum of 20 photos per milestone reached in schedule of work.
 - .3 Viewpoints: determined by Departmental Representative.
 - .4 Frequency: with progress statement, at completion of each construction stage, and as directed by Departmental Representative.

END OF SECTION

PART 1 - GENERAL

- 1.1 Submittals .1 This section includes, but is not limited to, the following:
- .1 Environmental Control of Operations Plan
 - .2 Responsibility Checklist For Authorizations
 - .3 Environmental Protection Plan (EPP) – Checklist
 - .4 Traffic Accommodation Strategy
 - .5 Product data
 - .6 Samples
 - .7 Health and Safety Plan
 - .8 Waste Management Workplan
 - .9 Certificates and transcripts
 - .10 Quality Testing Reports
 - .11 Quality Control Plan
- 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 All submissions, unless otherwise specified, to be made via cloud project software OPROMA unless otherwise specified or requested by Departmental Representative. CDs and copies only to be required for closeout submittals.
- .3 Work affected by submittal shall not proceed until review is complete.
- .4 Present product data, samples, and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 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 to the specific project will be returned without being examined and shall be considered rejected.
- .7 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
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- .8 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.
- .9 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .10 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .11 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, the 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.
- .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.
- .6 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
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- of Work of all sub-trades.
- 1.4 Progress Photographs .1 Submit progress photographs in accordance with Section 01 32 17 - 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 a Quality Control Plan including, but not limited to:
- .1 Quality control processes and procedures.
 - .2 Quality control reporting and frequency.
 - .3 Testing agencies employed to provide materials testing.
 - .4 Frequency and types of testing.
 - .5 Verification of materials and installation procedures, including, but not limited to, reinforcing steel bars, bolts, concrete and aggregate.
 - .6 Dimension checks of pre-fabricated and site-fabricated elements.

END OF SECTION

PART 1 - GENERAL

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|-----|--------------------------------|--|---|
| 1.1 | Section Includes | .1
.2
.3 | Informational and Warning Devices.
Protection and Control of Public Traffic.
Operational Requirements. |
| 1.2 | Basis of Payment | .1 | Work is considered incidental to the Contract and no separate or additional payment will be made. |
| 1.3 | References | .1 | “Traffic Control Manual for Work on Roadways” (most recent edition distributed by Province of British Columbia, Ministry of Transportation and Highways). |
| 1.4 | Traffic Accommodation Strategy | .1

.2

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.3

.4

.5 | The Contractor shall prepare a Traffic Accommodation Strategy detailing his proposed methods for accommodating traffic throughout the work zone.

The Traffic Accommodation Strategy shall consist of drawings detailing the configuration of temporary construction signs and other traffic control devices in the work area.

.1 Specific traffic safely related or situations at the work zone should also be addressed with written confirmation of the methods or procedures being used.

Unless otherwise specified, the Contractor shall submit the Traffic Accommodation Strategy to the Departmental Representative a minimum of 14 days prior to Project pre-construction meeting.

The Contractor shall have no claim resulting from the Department Representative’s failure to accept the Contractor’s Traffic Accommodation Strategy submission, nor any costs incurred by the Contractor to address concerns raised by either the Departmental Representative during the review of the Contractor’s Traffic Accommodation Strategy submission.

Public traffic shall be accommodated, without interruption, on a 24 hour per day basis. The contractor shall designate competent personnel to monitor traffic accommodation on a continuous 24 hour basis when work is affecting traffic. |
| 1.5 | 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 traveled way:
 - .1 Position equipment to present minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together as working conditions permit, preferably on same side of traveled way.
 - .3 Do not leave equipment on traveled way overnight.
 - .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 "Traffic Control Manual for Work on Roadways".
 - .4 Keep traveled way graded, free of pot-holes, and of sufficient width for required number of lanes of traffic.
 - .5 Provide well-graded, signed and maintained detours/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.
 - 1.6 Informational and Warning Devices
 - .1 Provide, erect, and maintain signs, flashing warning lights, and other devices required to alert motorists to construction activities and temporary/ unusual conditions resulting from Project Work specified in "Traffic Control 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 "Traffic Control Manual for Work on Roadways".
 - .3 Place signs and other devices in locations recommended in "Traffic Control Manual for Work on Roadways".
 - .4 Meet with Departmental Representative prior to start of Work to prepare list of signs and other devices required. If situation on site changes, revise list and review with 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 as needed to ensure clarity and reflectance.
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- .2 Removing or covering signs which do not apply to conditions existing from day to day.
- .6 Provide Type D traffic cones as specified in "Traffic Control Manual for Work on Roadways". Provide minimum of 100 cones for use on site.
- .7 Ensure that necessary traffic cones and signs are in place prior to interference with traffic on existing roadways.
- 1.7 Control of Public Traffic
 - .1 Provide traffic control in accordance with "Traffic Control 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 "Traffic Control Manual for Work on Roadways".
 - .3 Flagpersons are required in the following situations:
 - .1 When public traffic is required to pass working vehicles or equipment that block all or part of traveled 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 traveled way over brow of hills, around sharp curves, or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .4 When temporary protection is required while other traffic control devices are 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.
- .4 Maximum delays to public traffic due to Contractor's operators: 15 minutes at any one time.
- .5 Provide temporary lane control system where roadway carrying two-way traffic is to be restricted to one lane for 24 hours per day. Adjust, as necessary, and regularly maintain system during period of restriction. Signal system to meet requirements of "Traffic Control Manual for Work on Roadways".
- .6 Changes to traffic control operation are to be reviewed by Departmental Representative.
- .7 Safely control traffic through unique or varied construction situations.
- 1.8 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 using access roads within the Highway right-of-way.

END OF SECTION

PART 1 - GENERAL

- 1.1 References
- .1 Government of Canada:
 - .1 Canada Labour Code - Part II
 - .2 Canada Occupational Health and Safety Regulations.
 - .2 National Building Code of Canada (NBC):
 - .1 Part 8, Safety Measures at Construction and Demolition Sites.
 - .3 Canadian Standards Association (CSA):
 - .1 CSA Z797-2009, Code of Practice for Access Scaffold.
 - .2 CSA S269.1-1975 (2003), Falsework for Construction Purposes.
 - .3 CSA-S350-M1980(2003), Code of Practice for Safety in Demolition of Structures.
 - .4 Fire Protection Engineering Services, HRSDC:
 - .1 FCC No. 301, Standard for Construction Operations.
 - .2 FCC No. 302, Standard for Welding and Cutting.
 - .5 American National Standards Institute (ANSI):
 - .1 ANSI A10.3, Operations – Safety Requirements for Powder-Actuated Fastening Systems.
 - .6 Province of British Columbia:
 - .1 Workers Compensation Act, Part 3, Occupational Health and Safety.
 - .2 Occupational Health and Safety Regulation.
- 1.2 Related Sections
- .1 Refer to the following current Specification sections as required:
 - .1 Project Management: Section 01 31 19
 - .2 Construction Progress and Reporting: Section 01 32 17
 - .3 Submittal Procedures: Section 01 33 00
 - .4 Special Procedures for Traffic Control: Section 01 35 00
 - .5 Temporary Utilities: Section 01 51 00
 - .6 Construction Facilities: Section 01 52 00
 - .7 Temporary Barriers and Enclosures: Section 01 56 00
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PWGSC

Big Beaver Creek Bridge Culvert
Culvert Liner Installation
Alaska Highway km 399.4
British Columbia

01 35 33

HEALTH AND SAFETY
REQUIREMENTS

Page 2 of 9

- 1.3 WorkSafe BC
 - .1 Comply fully with the Workers' Compensation Act, regulations, coverage 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.
 - 1.4 Compliance with Regulations
 - .1 PWGSC may terminate the Contract without liability to PWGSC where the Contractor, in the opinion of PWGSC, refuses to comply with a requirement of the Workers' Compensation Act or the Occupational Health and Safety Regulations.
 - .2 It is the Contractor's responsibility to ensure that all workers are qualified, competent, and certified to perform the work as required by the Workers' Compensation Act or the Occupational Health and Safety Regulations.
 - 1.5 Submittals
 - .1 Submit to Departmental Representative for review all submittals listed within 10 working days of contract award.
 - .2 Work affected by submittals shall not proceed until review(s) by Departmental representative is/are complete.
 - .3 Submit the following:
 - .1 Site Specific Health and Safety Plan within 7 days after date of Notice to Proceed and prior to commencement of Work.
 - .2 Copies of reports or directions issued by federal and provincial health and safety inspectors.
 - .3 Copies of incident and accident reports.
 - .4 Complete set of Material Safety Data Sheets (MSDS) and all other documentation required by Workplace Hazardous Materials Information System (WHMIS) requirements.
 - .5 On site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
 - .4 The Departmental Representative will review the Contractor's site-specific project Health and Safety Plan and emergency procedures, and provide comments to the Contractor within 7 days after receipt
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- of the plan. Revise the plan as appropriate and resubmit to Departmental Representative for review upon request.
- .5 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.
 - .6 Submission of the Health and Safety Plan, and any revised version, to the Departmental Representative is for information and reference purposes only. It shall not:
 - .1 Be construed to imply approval 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.
- 1.6 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, territorial, and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.
- 1.7 Health and Safety Coordinator
- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. The Health and Safety Coordinator must:
 - .1 Have site-related working experience.
 - .2 Have working knowledge of occupational health and safety regulations.
 - .3 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 perform Work.
- .4 Be responsible for implementing, daily enforcing, and monitoring the site-specific Health and Safety Plan.
 - .5 Be on site during execution of work.
- 1.8 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 Secure Work site before leaving each day as deemed necessary to protect site against entry from non-authorized persons / entry by animals overnight.
 - .3 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.
- 1.9 Project/Site Conditions
- .1 Potential work hazards onsite include: working over water, working in remote locations, highway traffic, bears, and extreme weather.
- 1.10 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.
- 1.11 Work Permits
- .1 Obtain building permit(s) related to project before start of work.
- 1.12 Filing of Notice
- .1 The Contractor is to file Notice of Project with Provincial authorities prior to beginning of Work.
 - .2 Provide copies of all notices to the Department Representative.
- 1.13 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.
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- .2 Prepare and comply with a site-specific project Health and Safety Plan based on hazard assessment, including, but not limited to, the following:
 - .1 Primary requirements:
 - .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project 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 Confined space policy 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.
 - .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.
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- .4 Revise and update Site Specific Health and Safety Plan as required, and re-submit to the Departmental Representative.
 - .5 Departmental Representative's review: the review of Site Specific Health and Safety Plan by PWGSC shall not relieve the Contractor of responsibility for errors or omissions in final Site Specific Health and Safety Plan or of responsibility for meeting all requirements of construction and Contract documents.
- 1.14 Confined Space Entry Program
- .1 Carry out work in confined spaces in accordance with provincial regulations.
 - .2 Prepare and comply with a site-specific Confined Space Entry Program based on the methods and materials contractor will use for the construction and to enter the confined space. The Confined Space Entry Program must include, but is not limited to, the following:
 - .1 An assignment of responsibilities.
 - .2 A list of each confined space or group of similar spaces, and a written hazard assessment of those spaces prepared by a qualified person.
 - .3 Written safe program procedures for entry into and work in each of the confined space. Each procedure must be written specifically for each hazard in each space for each entry.
 - .4 Provide necessary equipment for each entry, including testing devices and personal protective equipment.
 - .5 A signed permit where required.
 - .6 Training of employees.
 - .7 A Rescue Plan.
 - .1 List standard operating procedures and measures to be taken in emergency situations. Include an evacuation plan and emergency contacts (i.e. names/telephone numbers) of:
 - .1 Designated personnel from own company.
 - .2 Regulatory agencies applicable to Work.
 - .3 Local emergency resources.
 - .4 Departmental Representative.
- 1.15 Emergency Procedures
- .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.
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- .4 Notify the fire department or other emergency responders.
 - .5 Notify adjacent workplaces or residences which may be affected if the risk extends beyond the workplace.
 - .6 Notify Departmental Representative.
 - .3 Provide written rescue/evacuation procedures as required for, but not limited to:
 - .1 Work at high angles.
 - .2 Work in confined spaces or where there is a risk of entrapment.
 - .3 Work with hazardous substances.
 - .4 Underground work.
 - .5 Work on, over, under, and adjacent to water.
 - .6 Workplaces where there are persons who require physical assistance to be moved.
 - .4 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.
 - 1.16 Hazardous Products
 - .1 Comply with requirements of WHMIS regarding use, handling, storage, and disposal of hazardous materials, and regarding labelling and provision of MSDSs 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 MSDS and WHMIS documents as per Section 01 33 00 – Submittal Procedures.
 - 1.17 Overloading
 - .1 Ensure no part of work is subjected to a load which will endanger its safety or will cause permanent deformation.
 - 1.18 Falsework
 - .1 Design and construct falsework in accordance with CSA-S269.1.-1975 (2003) false work for construction purposes.
 - 1.29 Scaffolding
 - .1 Design, construct, and maintain scaffolding in a rigid, secure, and safe manner, in accordance with CSA-Z797-2009 Code of Practice for Access Scaffold and the British Columbia Occupational Health and Safety Regulations.
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|------|--------------------------|----|--|
| 1.20 | Blasting | .1 | Blasting or other use of explosives is not permitted. |
| 1.21 | Powder Actuated Devices | .1 | Use powder-actuated devices in accordance with ANSI A10.3 only after receipt of written permission from the Departmental Representative. |
| 1.22 | Fire Safety and Hot Work | .1 | Obtain Departmental Representative's authorization before any welding, cutting, straightening, or any other hot work operations can be carried out onsite. |
| | | .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. |
| 1.23 | Fire Safety Requirements | .1 | Store oily/paint-soaked rags, waste products, empty containers, and materials subject 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. |
| 1.24 | 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. |
| 1.25 | Posted Documents | .1 | Post legible versions of the following documents on site: |
| | | .1 | Health and Safety Plan. |
| | | .2 | Sequence of work. |
| | | .3 | Emergency procedures. |
| | | .4 | Site drawing showing: |
| | | .1 | Project layout, |
| | | .2 | Locations of first-aid stations, |
| | | .3 | Evacuation routes and marshalling stations, and |
| | | .4 | Emergency transportation provisions. |
| | | .5 | Notice of Project |
| | | .6 | 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 |
| | | .7 | WHMIS documents |
| | | .8 | MSDSs |
| | | .9 | List of names of Joint Health and Safety Committee members, or Health and Safety Representative, as applicable. |
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- .2 Post all MSDSs onsite, 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.
- 1.26 Meetings
 - .1 Schedule and administer a Health and Safety meeting with Departmental Representative prior to commencement of Work.
 - .2 Attend the health and safety pre-construction meeting and all subsequent meetings called by the Departmental Representative.
- 1.27 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 with 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".

END OF SECTION

PART 1 - GENERAL

- 1.1 Definitions
- .1 **Environmental Pollution and Damage:** presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade the environment aesthetically, culturally and/or historically.
 - .2 **Environmental Protection:** prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.
 - .3 **Wetted Perimeter:** area of stream where water is currently running or pooled.
 - .4 **In-stream Work:** any work performed below the high water mark, either within or above the Wetted Perimeter of any Fisheries Sensitive Zone.
 - .5 **Fisheries Sensitive Zone:** in-stream aquatic habitats and out of stream habitat features such as side channels, wetlands, and riparian areas.
 - .6 **Invasive plants:** are any alien plant species that have the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive plants have the capacity to establish quickly and easily on both disturbed and un-disturbed sites, and can cause widespread negative economic, social and environmental impacts
 - .7 **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.
www.agf.gov.bc.ca/cropprot/noxious.htm
- 1.2 Measurement Procedures
- .1 Preparation and implementation of the Environmental Protection Plan (EPP) in accordance with this Section 01 35 43 – Environmental Procedures will not be measured separately for payment and will be considered incidental to work.
 - .2 Payment for retaining an Environmental Monitor on site in accordance with Section 01 35 43 – Environmental Procedures, 1.23, will not be measured separately for payment and will be considered incidental to the work.
- 1.3 Regulatory Overview
- .1 Comply with all applicable environmental laws, regulations and requirements of Federal, Provincial, and other regional authorities, and acquire and comply with such permits, approvals and
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- authorizations as may be required.
- .2 Comply with and be subject to those permits and approvals obtained from the Departmental Representative to conduct the Work.
 - .3 Pay specific attention to the provincial BC Land Use Permit, Water License and Quarry Permit.
 - .4 Pay specific attention to the Migratory Birds Convention Act, as amended in 1994.
 - .5 Pay specific attention to the provincial BC guidelines under Peace Region Least Risk Timing Windows: Biological Rational (2009)
 - .6 Pay specific attention to provincial BC MOE guidelines in Standards and Best Practices for Instream Works (2004).
- 1.4 Submittals
- .1 The Contractor is required to prepare an Environmental Protection Plan (EPP) in accordance with Section 01 33 00 – Submittal Procedures. The EPP should include all relevant environmental impacts/issues at the site as indicated by the completion of the EPP Checklist. Review of the PWGSC Environmental Effects Evaluation (EEE) will assist in completing this document. Prior to commencing construction activities or delivery of materials to site, submit the EPP (See Appendix C for Checklist) for review and approval by the Departmental Representative. The EPP will require the Contractor to carefully think through the entire project, including identifying what activities as works will be occurring, both generally and at specific sites, and by what methods. The Environmental Protection Plan shall be completed by a P.Biol or RPBio, or other qualified professional, and shall, at a minimum include the following:
 - .1 The specifics of a detailed monitoring program. This includes details and 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 MOE Approval or Notification for instream work or under MOE guidelines, and all other applicable regulations
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including the requirements of these specifications.

.4 Drawings should show locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of any excess or spoil materials including methods to control runoff and to contain materials on-site.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.

.6 Spill Control Plan: including procedures, instructions, and reports to be used in 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 Outline the avoidance and mitigate measures which the Contractor will undertake and implement to ensure compliance with the environmental regulations applicable to the project (which may include requirements provided in MOE Approval or Notifications for Instream Work, NWPA Approval for Instream Work, DFO Fisheries Act requirements etc.) and these contract specifications.

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

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

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

- 1.5 Environmental Effects Evaluation .1 Execution of the work is subject to the provisions within the Environmental Effects Evaluation (EEE) completed by a PWGSC Environmental Services Representative for the project. See appendices for a copy of the EEE (NOTE: some projects will not require an EEE).
- .2 Pursuant to the expectations of the EEE, EPPs are the next step to achieve the desired results of minimal adverse environmental effect, as the project is constructed.
- .3 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.
- 1.6 Site Access and Parking .1 The Contractor shall review both short and long access requirements with the Departmental Representative, both at the start-up and on an on-going basis. In consultation with the Departmental Representative, the contractor shall formulate an agreement for worker transportation to and from the work site and where workers shall park their private vehicles. Generally, personal vehicles shall be parked at least 10 metres distance from any watercourse.
- .2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.
- 1.7 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.
- 1.8 Erosion Control .1 Erosion control measures that prevent sediment from entering any waterway, water body or wetland in the vicinity of the construction site are a critical element of the project and shall be implemented by the Contractor.
- .2 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating activities associated with the construction activities. The Contractor shall prepare an Erosion Control Plan, to be part of the EPP, to the satisfaction of the Departmental Representative.
- .3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively they are to be repaired. The Departmental Representative will monitor the Contractor's erosion control performance.
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- .4 Erosion control measures must be in compliance with both Federal and Provincial legislation where required. Contractors should be referencing the provincial MOE Standards and Best Practices for Instream Works (2004).
- 1.9 Pollution Control
- .1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres to any surface water.
- .2 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative, and in accordance with all applicable federal and provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement and sand blasting agents.
- .3 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous products shall be stored no closer than 100 metres from any surface water.
- .4 An impervious berm shall be constructed around fuel tanks and 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. 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 and on-site work such as rock drilling and blasting by methods that are approved by the Departmental Representative.
- .6 The Contractor shall provide spill kits, to the satisfaction of the Departmental Representative, at 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.
- .7 Timely and effective actions shall be taken to stop, contain and
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- clean-up all spills as long as the site is safe to enter. The Departmental Representative shall be notified immediately of any spill as well as the provincial authorities. Basic instructions and phone numbers shall be part of the Contractor's EPP.
- .8 In the event of a major spill, the Contractor shall prioritize the clean up and all other work shall be stopped, where appropriate, and personnel devoted to spill containment and clean up.
- .9 The costs involved in a major spill incident (control, clean up, disposal of contaminants, and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the pre-spill condition to the satisfaction of the Departmental Representative.
- 1.10 Equipment Maintenance, Fuelling and Operation
- .1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) outside before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor to the satisfaction of the Departmental Representative. Except for chain saws, any fuelling closer than 100 metres to any surface water (streams, wetlands, water bodies or watercourses) shall require discussion with the Departmental Representative.
- .3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any surface water. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain a presence during refuelling 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 1.9.4 of Pollution Control.
- .5 Equipment use on the project shall be fuelled with E10, and low sulphur diesel fuels where available, and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of the vehicles is avoided.
- .6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations satisfactory to the Departmental Representative. Waste lubrication product (e.g. oil filters, used containers, used oil, etc.) shall be secured in sill-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.
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- .8 Fuel containers and lubricant products shall be stored only in secure locations to the satisfaction of the Departmental Representative. Fuel tanks or other potential deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight. Alternatively, the Contractor may hire a security person employed to prevent vandalism.
- 1.11 Operation of Equipment
- .1 Equipment movements shall be restricted to the “footprint” of the construction area. The work limits shall be identified by stake and ribbon or other methods to the satisfaction of the Departmental Representative. No machinery will enter, work in or cross over streams, rivers, wetlands, waterbodies or watercourse, nor damage aquatic and riparian habitat or trees and plant communities. Where construction activities require working close to surface water, the Contractor is required to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) does not enter any surface water areas.
- .2 The Contractor shall instruct workers to prevent pushing, placement, 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 PWGSC, 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.
- .5 Workers vehicles are to remain within the construction footprint.
- 1.12 Managing Invasive Plant Vegetation
- .1 Keep equipment clean and avoid parking, turning around or staging equipment in known invasive species infested areas, or mow prior to use.
- .2 Wash equipment prior to mobilization to site.
- .3 Minimize unnecessary disturbance of roadside aggregates or soil, and retain desirable roadside vegetation whenever possible.
- .4 Where possible, begin mowing or brushing in “invasive plant free” areas and end in infested areas.
- .5 Where possible, use only clean fill material from an “invasive plant free” source.
- .6 Whenever possible, re-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
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establishment.

- 1.13 Fire Prevention and Control .1 A fire extinguisher shall be carried and available for use on each machine and at locations within the quarry in the event of fire. Basic fire fighting equipment is recommended (e.g. a water truck; minimum 500 imperial gallons with 500 feet of fire hose and a pump capable of producing 45 psi water pressure at the nozzle, three shovels, two Pulaski's, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to all Contractors' staff. Contactor's 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.
- .4 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The Departmental Representative shall be notified of any fire immediately as well as the applicable Provincial Authorities. Basic instruction and phone numbers will be provided on-site by the Contractor and will be discussed in the project start-up meeting.
- .5 Fires or burning of waste materials is not permitted.
- .6 Where fires or burning is permitted, prevent staining or smoke damage to structures, materials or vegetation which is to be preserved. Restore, clean and return to new condition stained or damaged Work.
- .7 Provide supervision, attendance and fire protection measures as directed.
- .8 Obtain all required permits from the province.
- 1.14 Wildlife .1 Avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from bears, cougars, wolves, elk or moose that display aggressive behavior or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.
- .2 Notify the Departmental Representative immediately about dens, litters, nests. Carcasses (road kills), bear activity or encounters on or around the site or crew accommodations. Other wildlife related encounters are to be reported within 24 hours.
- 1.15 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
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- Contractor and workers shall wait for instruction before proceeding with their work.
- .2 All historical or archaeological objects found in the rock quarry are protected under federal and provincial Acts and regulations. The Contractor and workers shall protect any articles found and request direction from the Departmental Representative.
- .3 Human remains must be reported immediately to the local RCMP.
- 1.16 Waste Materials Storage and Removal
- .1 The Contractor and workers shall dispose of hazardous wastes in conformance with the applicable federal and provincial regulations and should be part of the EPP.
- .2 All wastes originating from construction, trade, hazardous and domestic sources, shall not be mixed, but will be kept separate.
- .3 Construction, trade, hazardous waste and domestic waste materials shall not be burned, buried, or discarded at the construction site. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers, and disposed of at an appropriate waste landfill site located outside the work area.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials where possible.
- .5 Sanitary facilities, such as portable container toilets, shall be provided by the Contractor and maintained in a clean condition.
- 1.17 Wastewater Discharge Criteria
- .1 Wash water, meltwater collection, rinse water resulting from the cleaning of fuel tanks and pipelines, contaminated groundwater, and/or any other liquid effluent stream will be released onto the ground at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters, and will conform to the discharge requirements set out in the provincial Water Act Permit:
- .2 Contractor must obtain approval from the provincial Water Act Officer prior to discharging any treated wastewater.
- 1.18 Camp Wastewater Discharge Criteria
- .1 Camp wastewater will be released onto the ground at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters and conform to the discharge requirements set out in the provincial Water Act Permit.
- .2 If unable to meet the discharge criteria, provide additional storage and/or treatment necessary to meet criteria prior to discharge.
- .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.
- 1.19 Drainage
- .1 Provide temporary drainage and pumping as necessary to keep
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- excavations and site free from water. Drainage should be part of the EPP.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
 - .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements such as the provincial Water Act.
 - .4 Provide an erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .5 Submit 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 Details of grading Work to prevent surface drainage into or out of Work areas.
 - .2 Details of erosion control works and materials to be used, including the deployment of silt fencing, floating silt curtains and containment booms during construction and excavation activities.
 - .3 Work Schedule including the sequence and duration of all related Work activities.
 - .4 The treatment of site runoff to prevent siltation of watercourses.
 - .5 Dewatering procedures for excavated materials including silt removal procedures prior to discharge.
 - .6 Stabilizing procedures during excavation.
 - .7 Maintenance of filters and sedimentation traps.
 - .6 Any dewatering activities will be released onto the ground at a location that is a minimum of 30 metres from natural drainage courses and 100 metres from fish bearing waters.
 - .7 Have on hand sufficient pumping equipment, machinery, and tankage in good working condition for ordinary emergencies, including power outage, and competent workers for operation of pumping equipment.
- 1.20 Site Clearing, Plant Protection, and Nesting Bird Protection
- .1 Any clearing done during nesting season must have a bird survey completed first and approved by the Departmental Representative. Information on nesting seasons can be found in the Peace Region Least Risk Timing Windows: Biological Rational (2009) produced by the BC provincial government.
 - .2 Protect trees and plants on site and adjacent properties where
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- indicated.
- .3 Wrap in burlap, trees and shrubs adjacent to construction Work, storage areas and trucking lanes, and encase with protective wood framework from grade level to height of [2] m.
 - .4 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
 - .5 Minimize stripping of topsoil and vegetation.
 - .6 Restrict tree removal to areas indicated or designated by Departmental Representative
- 1.21 Environment 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 metres or more and as required of 200 mm diameter hydrophobic, sorbent booms. This will be used as necessary to prevent the migration of hydrocarbons.
 - 4 Supply, transport, install and maintain erosion, sediment and drainage controls necessary to complete the Work in accordance with the requirements of Departmental Representative.
 - .5 At the completion of construction, dispose of used silt fence off-site as non-Hazardous Waste. Dispose of used absorbent boom in accordance with Section 02 61 33 - Hazardous Waste Material.
 - .6 Unused Erosion, Sediment and Drainage Control supplies will remain the property of Departmental Representative until the completion of the Contract.
 - .7 Provide inventory of environmental protection supplies prior to mobilization.
- 1.22 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.
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- 1.23 Environmental Monitoring .1 The Contractor shall have an Environmental Monitor on site during all activities within the watercourse. Once the Contractor has acceptably isolated the worksite from the watercourse, the presence of the Monitor may be reduced to daily site inspections. 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.
- .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.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | 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, within 10 days of project award. |
| 1.2 | 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. |
| 1.3 | Inspection | .1 | Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress. |
| | | .2 | Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work. |
| | | .3 | If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work. |
| | | .4 | Departmental Representative may order any part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement. |
| 1.4 | Independent Inspection Agencies | .1 | Appoint and pay for services of third-party Independent Quality Assurance testing laboratory and field staff including as follows:

.1 Where specified in the text of these specifications,

.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 Tests specified to be carried out by Contractor under the supervision of Departmental Representative. |
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- .5 Additional tests specified in the following paragraph.
 - .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 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 re-inspection.
- 1.5 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.
- 1.6 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.
- 1.7 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.
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- .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.
- 1.8 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 of report for tested / inspected Work to Subcontractor and copies for tested / inspected material to manufacturer or fabricator.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Temporary utilities. |
| 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 | Temporary Heating and Ventilation of Work | .1 | Provide temporary heating required during construction period, including attendance, maintenance, and fuel. |
| | | .2 | Construction heaters used inside buildings 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 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. |
| | | .4 | Ventilation:

.1 Prevent accumulations of dust, fumes, mists, vapours, or gases in areas occupied during construction. |
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- .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 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 required by governing codes, regulations and bylaws during performance of Work.
- .2 Burning rubbish and construction waste is not permitted onsite.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Installation and Removal | .1 | Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress, staging areas, lay down areas, and other site details. Plan to be submitted to Department Representative for review within 10 working days of contract award. |
| | | .2 | Indicate use of supplemental or other staging areas. |
| | | .3 | Provide construction facilities to execute work expeditiously. |
| | | .4 | Remove from site all such work after use. |
| 1.2 | Scaffolding | .1 | Provide and maintain scaffolding, ramps, ladders, swing staging, platforms, and temporary stairs as necessary to carry out Work. |
| 1.3 | Hoisting | .1 | Provide, operate, and maintain hoists and cranes required for moving of workers, materials, and equipment. Make financial arrangements with Subcontractors for use thereof. |
| | | .2 | Hoists and cranes shall be operated by qualified operators. |
| 1.4 | Site Storage/Loading | .1 | Confine Work and operations of employees to only that which is required by the Contract Documents. |
| | | .2 | Do not unreasonably encumber premises with materials. |
| | | .3 | Do not load or permit to load any part of Work with a weight or force that will endanger the Work. |
| 1.5 | Construction Parking | .1 | Parking will be permitted onsite provided it does not disrupt performance of Work. |
| | | .2 | Provide and maintain adequate access to project site. |
| | | .3 | 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. |
| 1.6 | 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 |
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PWGSC

Big Beaver Creek Bridge Culvert
Culvert Liner Installation
Alaska Highway km 399.4
British Columbia

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CONSTRUCTION
FACILITIES

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authorities. Keep area and premises in sanitary condition.

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| 1.7 | 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 – Special Procedures for Traffic Control, of these Specifications for more information. |
| | | .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. |
| 1.8 | Protection and Maintenance of Traffic | .1 | Provide accesses and detours as necessary to maintain traffic. |
| | | .2 | Maintain and protect traffic on affected roads during construction period unless specifically directed by Departmental Representative. |
| | | .3 | Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs. |
| | | .4 | Protect travelling public from damage to person and property. |
| | | .5 | Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic. |
| | | .6 | Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations. |
| | | .7 | Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic. |
| 1.9 | Clean-up | .1 | Remove construction debris and waste from work site daily. |
| | | .2 | Clean dirt or mud tracked onto paved or surfaced roadways. |
| | | .3 | Store salvageable materials resulting from demolition activities. |
| | | .4 | Stack stored new or salvaged material not in construction facilities. |

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Barriers |
| | | .2 | Environmental Controls |
| | | .3 | Traffic Controls |
| 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 | Access to Site | .1 | Provide and maintain access roads as may be required for Work. |
| 1.6 | 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. |
| 1.7 | Fire Routes | .1 | Maintain access to property for use by emergency response vehicles. |
| 1.8 | Protection for Off-Site Private and Public Property | .1 | Protect surrounding property from damage during performance of Work. |
| | | .2 | Be responsible for damage incurred. |
| 1.9 | 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/improper protection. |
| 1.10 | Protection of Utilities | .1 | Provide visible and physical barriers around utilities to be protected. This includes gas lines, power poles, overhead lines, underground lines, and any other existing facilities. |

END OF SECTION

PWGSC

Big Beaver Creek Bridge Culvert
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Alaska Highway km 399.4
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CONSTRUCTION
CAMP

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PART 1 - EXECUTION

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|-----|-------------------------------|----|--|
| 1.1 | Preliminary Requirements | .1 | Camp and service area locations and layout plans to be submitted to Departmental Representative for review within 10 working days of contract award. |
| | | .2 | Temporary construction camps to be established and operated in accordance with local regulations. |
| | | .3 | Obtain necessary licenses and approvals required by Authorities having Jurisdiction. |
| 1.2 | Environment | .1 | Comply with all environmental regulations. |
| 1.3 | Camp Installation and Removal | .1 | Mobilize equipment, camps, personnel, and materials. |
| | | .2 | Establish approved temporary buildings, shops, offices and facilities required. |
| | | .3 | Remove construction camps, clean up, and leave sites in condition satisfactory to Departmental Representative. |
| 1.4 | Maintenance | .1 | Maintain construction camps in tidy and sanitary condition. |

END OF SECTION

PART 1 - GENERAL

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| 1.1 | 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 infrastructure at own expense and to satisfaction of Departmental Representative. |
| | | .5 | Notify Departmental Representative in writing of any conflict between specifications and manufacturer's instructions. Departmental Representative will designate which document is to be followed. |
| | | .6 | Metal fastenings: <ul style="list-style-type: none">.1 Prevent electrolytic action between dissimilar metals..2 Use non-corrosive fasteners, anchors, and spacers for securing exterior work. |
| | | .7 | 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. |
| | | .8 | Prevent damage, adulteration, and soiling of products during delivery, handling, and storage. Immediately remove rejected products from site. |
| | | .9 | Store products in accordance with suppliers' instructions. |
| | | .10 | Store products subject to damage from weather in weatherproof enclosures. |
| | | .10 | Remove and replace damaged products during installation at own expense and to satisfaction of Departmental Representative. |
| 1.2 | 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. |
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- .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.
 - 1.3 Manufacturer's Instructions
 - .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.
 - 1.4 Contractor's Options for Selection of Products for Tendering
 - .1 Products are specified by "Prescriptive" specifications: select any product meeting or exceeding specifications.
 - .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.
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- .4 Products specified to meet particular design requirements or to match existing materials: use only products specified. 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.
- 1.5 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 may be considered by the Departmental Representative if:
 - .1 Specified products selected by tenderer 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.
 - .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.
- 1.6 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.
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- .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 Final decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative
- 1.7 Coordination
 - .1 Ensure cooperation of workers during Work. Maintain efficient and continuous supervision.
- 1.8 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, and in a manner to neither damage nor put at risk any portion of 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. To be submitted minimum of 5 days prior to construction startup.
 - .2 Use best quality products.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Progressive cleaning |
| | | .2 | Final cleaning |
| 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. |
| | | .4 | Provide at least one (1) bear proof container on site for collection of waste materials and debris. |
| | | .5 | Remove waste material and debris from site at end of each working day |
| | | .6 | Dispose of waste materials and debris off site. |
| | | .7 | Store volatile waste in covered metal containers, and remove from premises at end of each working day. |
| | | .8 | Provide adequate ventilation during use of volatile or noxious substances. |
| | | .9 | Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer. |
| 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. |
| | | .4 | Prior to final review, remove surplus products, tools, construction machinery and equipment. |
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- .5 Inspect finishes and ensure specified workmanship.
- .6 Remove dirt and other disfiguration from exterior surfaces.
- .7 Sweep and wash clean paved areas.
- .8 Clean drainage systems.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Section Includes | .1 | Waste Management Workplan (WMW), including Waste Audit and Waste Reduction Workplan. |
| 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. |
| | | .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 one copy of WMW on site at all times. |
| 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 minimizing material damage. |
| 1.5 | Submittal | .1 | In accordance with Section 01 33 00 – Submittal Procedures. |
| | | .2 | Prepare and submit three copies of completed WMW within 10 working days of Contract Award. |
| | | .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. |
| | | .3 | Identify opportunities for reduction, reuse and recycling of materials. |
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| | .4 | Post workplan or summary where workers at site are able to review its content. |
| 1.7 Processing Sites | .1 | Within 14 days of Contract Award, provide list of waste processing sites within British Columbia to Departmental Representative |
| 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 accepted by Departmental Representative. |
| | .2 | Materials for removal are Contractor's property unless otherwise specified. |
| 1.10 Scheduling | .1 | Coordinate work with other activities at site to ensure timely and orderly progress of the Work. |

PART 2 – EXECUTION

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| 2.1 Application | .1 | Do work in compliance with the WMW. |
| | .2 | Implement MSSP for waste generated on Project in compliance with approved methods and 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. |
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- 2.2 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 sorting areas.
- 2.3 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 Administrative procedures preceding preliminary and final reviews of Work.
- 1.2 Inspection and Declaration .1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
- .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
- .2 Request Departmental Representative's Inspection.
- .2 Departmental Representative's 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 indicating:
- .1 Work has been completed and inspected for compliance with Contract Documents.
- .2 Defects and deficiencies have been corrected.
- .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.
- .5 Commencement of Warranty Periods: date of Departmental Representative's acceptance of submitted declaration of Substantial Performance shall be date of commencement for warranty period.
- .6 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.

END OF SECTION

PART 1 - GENERAL

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| 1.1 | Related Requirements | .1 | Section 01 13 00 – Submittal Procedures |
| | | .2 | Section 01 77 00 – Closeout Procedures |
| 1.2 | Environmental Requirements | .1 | Canadian Environmental Protection Act (CEPA) |
| | | .1 | SOR/2008-197, Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations. |
| 1.3 | Administrative Requirements | .1 | Pre-warranty Meeting: |
| | | .1 | Convene meeting one week prior to contract completion with Contractor’s Representative and Departmental Representative to verify project requirements and review manufacturer’s specifications and warranty requirements. |
| | | .2 | Departmental Representative to establish communication procedures for: |
| | | .1 | Notification regarding construction warranty defects, |
| | | .2 | Prioritization of defect types, and |
| | | .3 | Determination of reasonable response times |
| | | .3 | Provide contact information for authorized, bonded and licensed company for warranty work action, which includes but is not limited to the following: |
| | | .1 | Name, |
| | | .2 | Telephone number, and |
| | | .3 | Address. |
| | | .4 | Ensure said company is located within local service area of warranted construction, is continuously available and is responsive to inquiries for warranty work action. |
| 1.4 | Action and Informational Submittals | .1 | Submit in accordance with Section 01 33 00 - Submittal Procedures. |
| | | .2 | Two weeks prior to Date of Substantial Performance, submit to the Departmental Representative four copies of Project Record Documents. |
| | | .3 | Provide evidence for type, source and quality of products supplied if requested. |

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- 1.5 Format
 - .1 Binders: Vinyl, hard cover, 3 'D' ring, loose leaf, 219 x 279 mm with spine and face pockets.
 - .2 When multiple binders are used, correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
 - .3 Cover: Identify each cover with typed or printed title 'Project Record Documents'. List title of project and identify subject matter of contents.
 - .4 Arrange content under Section numbers and sequence of Table of Contents.
 - .5 Provide tabbed fly leaf for each separate product and system with typed description of product and major component parts of equipment.
 - .6 Text: Manufacturer's printed data or typewritten data.
 - .7 Drawings: Provided with reinforced, punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
 - .8 Provide 1:1 scaled CAD files to dwg format on CD.

 - 1.6 Contents – Project Record Documents
 - .1 Provide the following in the Table of Contents for each volume:
 - .1 Title of Project,
 - .2 Date of submission,
 - .3 Contact information for Consultant with name of responsible party,
 - .4 Contact information for Contractor with name of responsible party, and
 - .5 Schedule of products and systems, indexed to content of volume.
 - .2 For each product or system, list contact information of subcontractors and suppliers including local source of supplies and replacement parts.

Product data: Mark each sheet to identify specific products, component parts and data applicable to installation. Delete inapplicable information.

Drawings: Mark each sheet to identify specific products,

component parts and data applicable to installation. Delete inapplicable information.

Typewritten text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 – Quality Control.

1.7 As-built Documents and Samples

.1 Maintain on site one copy of:

- .1 Contract drawings,
- .2 Specifications,
- .3 Addenda,
- .4 Change orders and other modifications to Contract,
- .5 Reviewed shop drawings, product data and samples,
- .6 Field test records,
- .7 Inspection certificates, and
- .8 Manufacturer's certificates.

.2 Store record documents and samples in field office apart from documents used for construction.

.1 Provide files, racks and secure storage.

.3 Label record documents and file in accordance in Section number listings in List of Contents in Project Manual.

.1 Label each document "PROJECT RECORD" in large, neat, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Departmental Representative.

.6 Copies of as-built documents and samples to be maintained in the PWGSC Fort Nelson Field Office and copies to be provided to the PWGSC office in Vancouver.

1.8 Recording Information on Project Record Documents

.1 Record information on set of opaque drawings and in copy of Project Manual as provided by Departmental Representative.

.2 Use felt tip marking pens for recording information. Maintain separate colours for each major system.

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- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
 - .4 Contract Drawings and shop drawings: Mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to streambed datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
 - .5 Specifications: Mark each item to record actual construction, including:
 - .1 Manufacturer, trade name and catalogue number of each product actually installed, particularly optional and substitute items.
 - .2 Changes made by Addenda and change orders.
 - .6 Other documents: Maintain manufacturer's certifications, inspection certifications, field test records and other documents required by individual specification sections.
 - .7 Provide digital photos for site records if requested.
 - 1.9 Final Survey
 - .1 Submit final site survey certificate showing that elevations and locations of completed Work are in conformance or non-conformance with Contract Documents.
 - 1.10 Warranties and Bonds
 - .1 Develop warranty management plan to contain information relevant to Warranties.
 - .2 Submit warranty management plan 30 days before planned pre-

warranty conference to Departmental Representative for approval.

- .3 Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which the Department is entitled.
- .4 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .6 Conduct joint warranty inspection 24 months from time of acceptance by Departmental Representative.
- . Respond in timely manner to oral or written notification of required construction warranty repair work.

Written verification to follow oral instructions.

- .1 Failure to respond shall be cause for the Departmental Representative to proceed with action against Contractor.

END OF SECTION