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Drawings :

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1	000	Cover
2	001	Location Plan, Location Plan & Index
3	101	Plan & Profile
4	201	Plan & Cross Section - Existing Weir
5	202	Plan & Cross Section - Creek Bed Reshaping
6	203	Plan & Cross Section - Proposed Intake
7	301	Water Intake Details
8	302	Standpipe Details
9	901	Construction Staging

Reference Documents:

1. Connaught Creek Weir Removal and Passive Water System, MRG2016-32
2. Parks Canada National Best Management Practices – Roadway, Highway, Parkway and Related Infrastructure - May 2015
3. MRG BMP 1.01 Vegetation Removal35
4. Direction for Permitted Users conducting water-related activities in BNP

01 11 00 SUMMARY OF WORK**Part 1 General****1.1 PRECEDENCE**

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

1.2 DEFINITIONS

- .1 British Columbia Ministry of Transportation and Infrastructure is referred to as "MoTI".
 - .1 BC MoTI specifications specified for the work can be found at the following website address:
<http://www2.gov.bc.ca/gov/content/transportation/transportation-infrastructure/engineering-standards-guidelines/standard-specifications-for-highway-construction>
- .2 Changes in Definition, - The following changes in definitions have been made to the "BC MoTI Specifications":
 - .1 Ministry Representative – The word "Ministry Representative" shall mean Parks Canada Departmental Representative or their duly appointed representative.
 - .2 Ministry – The word "Ministry" shall mean Parks Canada Agency.
- .3 Changes in Definition, - The following changes in definitions have been made to the "AT Specifications":
 - .1 Consultant – The word "Consultant" shall mean Departmental Representative or their duly appointed representative.
 - .2 Department – The word "Department" shall mean Parks Canada Agency.
- .4 Glacier National Park of Canada is referred to as "GNP".
- .5 TCH means Trans-Canada Highway
- .6 Parks Canada Agency is referred to as "PCA".
- .7 Canadian Pacific Railway is referred to as "CP Rail".
- .8 Environmental Surveillance Officer is referred to as "ESO".
- .9 Site means the areas on or within the limits of Construction as referenced on the Drawings and/or described in the Contract Documents.
- .10 Work means the provision of all labour, services, material, and equipment as necessary, for the Contractor to complete and perform its obligations in accordance with the Contract.

1.3 PROJECT LOCATION

- .1 The project is located in Glacier National Park, British Columbia. Construction work is in the vicinity of the Rogers Pass Discovery Area and Connaught Creek. The following are key locations relative to the project:
 - .1 TCH km 00.000 – GNP East Gate
 - .2 TCH km 22.400 – Connaught Creek road crossing
 - .3 TCH km 22.740 – Rogers Pass Compound

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- .1 The project work consists of removal of the existing Connaught Creek weir, re-instatement of fish connectivity from the Connaught Creek weir past the passive water intake down to the new channel upstream of the TCH Box Culvert, evaluation and reporting on the fish connectivity, and the supply and installation of a new passive water system intake, and replacement of existing standpipes.
- .2 All requirements noted within the Contract Documents shall be completed by the Contractor unless specifically stated otherwise.
- .3 Without limiting the scope of work, the work of this Contract generally comprises the following, as directed by the Departmental Representative:
 - .1 Removal and partial demolition of Connaught Creek Weir in accordance with Section 02 41 16.09 – Structure Demolition.
 - .2 Supply and installation of rip-rap in accordance with Section 31 37 00 – Riprap.
 - .3 Supply and installation of a modified manhole structure as per the Contract Documents and as directed by the Departmental Representative in accordance with Section 33 05 15 – Manholes and Catch Basin Structures.
 - .4 Connect new water intake structure to existing passive water system and water distribution network and make operational.
 - .5 Supply and installation standpipes and associated service infrastructure in accordance with Section 33 14 16 – Site Water Utility Distribution Piping.
 - .6 Instream re-channelization and Connaught Creek in accordance with Section 35 01 40.51 – Waterway Maintenance Dredging. Included in this is an evaluation of the channel downstream of the Passive Water Intake to report on fish connectivity in the creek.
 - .7 Miscellaneous Additional Work as directed by the Departmental Representative.
- .4 Water is available for the works from a PCA hydrant within the Rogers Pass Discovery Area on approval from the Departmental Representative. The Contractor is responsible for sourcing water required for the Works and may be required to obtain it from outside of the National Parks. Accessing local water sources in nearby pits or from other Parks facilities can be coordinated through the Departmental Representative and the ESO but will require the Contractor to obtain a Restricted Activity Permit and to adhere to all conditions contained therein.
- .5 In preparation for and during construction of this project, an “Environmental Protection Plan” (EPP) is to be prepared by the Contractor to meet the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. The Contractor’s EPP must be approved by Parks Canada Agency prior to the commencement of construction. The Departmental Representative and Parks Canada’s Environmental Surveillance Officer (ESO) will refer to the approved EPP in determining compliance with the Plan and Contract Documents. The EPP will form part of the Contract.

1.5 CONTRACT METHOD

- .1 Construct Work under combined price Contract.

1.6 WORK BY OTHERS

- .1 The Contractor is advised that the following Work and anticipated completion in the vicinity has been or will be contracted by Parks Canada:
 - .1 East Gate Landslide Hauling Km 3.0 – 4.1
 - .2 Beaver Valley Vehicle Ponding, Km 5.5 – 7.1
 - .3 Culvert installations Km 5.5 and Km 8.1
 - .4 Beaver Hill Rock Scaling Km 12 – 15
 - .5 Snowshed Drainage Works, Km 16.5 – 20.0
 - .6 Snowshed Lighting and Column Repairs, Km 17.2 – 19.0
 - .7 Avalanche Mitigation Mounds, Km 19.8 – 20.1
 - .8 Trans-Canada Highway Widening, Km 20 – 26
 - .9 Parks Canada Operations Compound Stormwater Works, Rogers Pass Site Restoration of former Glacier Park Lodge Site and Groundwater Well Maintenance, Rogers Pass
 - .10 Cougar Creek Corner Catchment Cleaning, Km 31.7 – 33.4
 - .11 Line painting, various locations
 - .12 Other projects and maintenance work may occur along the TCH in 2019 and 2020.
- .2 Where it is necessary that work is to proceed in areas of this project common to both the Contractor and forces of others, the Contractor shall cooperate with the other Contractors and the PCA Departmental Representative in reviewing their construction schedules and sharing their work space, and shall coordinate their operations with the other Contractors, including traffic management and construction staging.
- .3 The Contractors shall coordinate all work on this project with other Contractors including Site Safety and Traffic Control.

1.7 WORK SEQUENCE

- .1 Schedule work progress to allow Owner / Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 Maintain fire and emergency access on the roadways at all times.
- .3 Co-ordinate Work with other Contractors / Departmental Representatives doing maintenance, survey / testing work.
- .4 The Contractor shall prepare a meaningful bar chart or network diagram showing the proposed schedules of major work, which shall be submitted to the Departmental Representative in accordance with 01 32 16 Construction Progress Schedules.
- .5 The Contractor shall:
 - .1 Complete instream works within the Least Risk Window of June 1 to August 31 (Kootenay Region, Delayed Instream Work Area)
 - .2 **Obtain the Interim Certificate (Substantial Performance) by October 26, 2019.**
 - .3 **Complete all of the Work by November 1, 2019 (Contract Completion Date).**

1.8 CONTRACTOR USE OF PREMISES

- .1 Contractor has unrestricted use of site subject to Section 01 14 00 –Work Restrictions and Section 01 29 01 – Site Occupancy, until Contract Completion date. The Contractor’s use of the site is not exclusive of other contractors or work zones within the limits of this Contract.
- .2 Contractor shall limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Work by other Contractors.
- .3 Coordinate use of premises under direction of the Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 The Contractor and any subcontractors shall obtain a business license and vehicle work passes in accordance with Section 01 35 43 - Environmental Procedures.

1.9 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Cooperate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.
- .3 Contractor must allow access to the Work Site for other Contractors and PCA. It is up to the Contractor to plan their work accordingly.

1.10 OWNER FURNISHED ITEMS

- .1 None.

1.11 CONSTRUCTION SIGNAGE

- .1 Signage shall be coordinated with other Contractors.
- .2 No signs or advertisements, other than warning signs, are permitted on site.

1.12 SETTING OUT OF WORK

- .1 Departmental Representative will establish control points and provide:
 - .1 Complete set of construction Drawings.
 - .2 Provide a list of control monuments including coordinates and elevations on request.
- .2 Contractor shall:
 - .1 Not permanently mark any infrastructure or feature during their setting out of the work. They shall fully remove any set out marks, markers, or other identifiers that they installed, prior to demobilizing from the Work Sites.
 - .2 Set additional control points as necessary.
 - .3 Set all work stakes necessary to complete work.
 - .4 Allow sufficient time for Departmental Representative to take measurements for payment.

- .5 Not damage geodetic benchmarks or control monuments unless authorized by Departmental Representative.
- .6 Measurements for Payment (Quantity Surveys).
- .3 All survey work is considered incidental to the work and will not be compensated separately.

Part 2 Products

- .1 To be supplied in accordance with Drawings and Specifications.

Part 3 Execution

- .1 To be supplied in accordance with Drawings and Specifications.

END OF SECTION

01 14 00 WORK RESTRICTIONS**Part 1 General****1.1 ACCESS AND EGRESS**

- .1 The Contractor shall secure the work site from all public access other than by PCA staff in the undertaking of their duties whether related to the Works or not.
- .2 Construction operations shall be conducted to cause minimal inconvenience to the public and to owners of adjoining property. Existing access to property shall be maintained as far as possible and if new access must be provided, every effort shall be taken to provide the new access before the existing access is removed. Contractor will be responsible for repairing any damage incurred, at the Contractor's cost.
- .3 The Contractor is responsible for the development and supply of construction access to the Work as approved by the Departmental Representative.

1.2 USE OF THE SITE AND FACILITIES

- .1 The Work Sites specified in the Contract shall only be used for the purposes of the Work.
- .2 The Work Site (limits shown on the Drawings) will be specified by Parks Canada and shall only be used for the purposes of the Work. The Work Site will be made available by Parks Canada to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.
- .3 The Contractor will not be permitted to set up a camp in the National Parks. PCA regulations prohibit anyone working within the Park from using public campground facilities.
- .4 Office-tool trailer may also be set up within the proximity of the Works subject to review and approval by the Departmental Representative provided no otherwise undisturbed areas are impacted. See Section 01 35 43 – Environmental Procedures.
- .5 Contractor shall maintain adequate drainage at the Work Site.
- .6 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary and at their cost for the performance and inspection of the Work.
- .7 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and Section 01 35 43 - Environmental Procedures. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .8 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at their expense.
- .9 Pets shall not be brought to or maintained at the construction site.

1.3 WORKING TIMES

- .1 Work in GNP is permitted during daylight hours from 07:00 to 19:00, Monday to Saturday unless stipulated otherwise in the Contract documents.
- .2 Work may be permitted on Sundays upon written approval by the Departmental Representative

- .3 The Contractor will not be permitted to work during the period of any Alberta or British Columbia statutory holiday long weekend, including one day prior to and one day following. The Contractor will not be permitted to work during the following Civic Holidays or long weekends unless prior written approval is granted by the Departmental Representative:
- .1 Statutory and Civic Holidays (2019)
 - .1 Family Day weekend: From 19:00 Thursday February 14, 2019 to 07:00, Tuesday February 19, 2019.
 - .2 Good Friday weekend: From 19:00 Thursday, April 18, 2019 to 07:00 Tuesday, April 23, 2019.
 - .3 Victoria Day Weekend: From 19:00 Thursday May 17, 2019 to 07:00 Tuesday, May 21, 2019.
 - .4 Canada Day weekend: From 19:00 Thursday June 27, 2019 to 07:00 Tuesday, July 2, 2019.
 - .5 Heritage Day weekend: From 19:00 Thursday August 1, 2019 to 07:00 Tuesday August 6, 2019.
 - .6 Labour Day long weekend: From 19:00 Thursday, August 29, 2019 to 07:00 Tuesday, September 3, 2019.
 - .7 Thanksgiving Day weekend: From 19:00 Thursday, October 10, 2019 to 07:00 Tuesday, October 15, 2019.
 - .8 Remembrance Day Weekend: From 19:00 Thursday, November 7, 2019 to 07:00 Monday, November 12, 2019.
 - .4 Variance of the Working Times and any others are provided on the strict condition of satisfactory performance in all requirements as determined at the Departmental Representative's discretion and may be revoked at any time for any reason. It is provided on the presumption that no additional costs or any delay will be attributed to Parks Canada in relation to conducting Works in accordance with the Variance and if that is not the case, the Contractor shall not commence work under the Variance. No claims for additional costs, delays, schedule impacts, loss of productivity or other extra Works resulting from a Variance will be entertained.

1.4 WORK CONDUCTED OVER OR ADJACENT TO WATERWAYS

- .1 All components of the Work shall be conducted in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, or streams without Departmental Approval of mitigations.
- .3 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the project.

1.5 UTILITIES

- .1 The Contractor shall become familiar with all utilities and services adjacent to the Work and shall be responsible for cost of repair of any damage resulting from their operations.

- .2 It is noted that there is likely to be historic utilities within the area that are not identified on available records.
- .3 The Contractor shall establish and maintain direct and continuous contact with the owners or operators of any Utilities which may interfere with the Work. The Contractor shall cooperate with them at all times and in all places of Work. The Contractor shall keep the Departmental Representative informed of all communications with the Utility companies and authorities.
- .4 The Drawings include indicative utility details from within the area for reference however the Contractor remains fully responsible for determining the full and accurate extent of utilities within the area of their Works.
- .5 The Contractor shall notify the Departmental Representative and the Utility companies at least seven (7) days in advance of any activities which may interfere with the operation of such Utilities.
- .6 Whenever working in the vicinity of Utilities, the Contractor shall locate such Utilities and expose those that may be affected by the Work, using hand labour as required.
- .7 The Contractor shall assess the possible impact of its operations on all Utilities that may be affected by its operations, and shall, in consultation with Utility owner(s), protect, divert, temporarily support or relocate, or otherwise appropriately treat such Utilities to ensure that they are preserved.
- .8 The Contractor shall immediately report any damage to Utilities to the Departmental Representative and to the Utility company or authority affected, and shall promptly undertake such remedial measures as are necessary at no additional cost to the Owner.

1.6 SURVEY OF EXISTING CONDITIONS

- .1 Submission of tender is deemed to be confirmation that the Contractor has inspected the Site and is conversant with all conditions affecting execution and completion of work.
- .2 The Contractor shall regularly monitor the condition of the Work Site and of property on and adjoining the Work Site throughout the construction period, and shall immediately notify the Owner if any deterioration in condition is detected. Such monitoring shall cover all pertinent features and property including, but not limited to, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.
- .3 The Departmental Representative may, but shall not be obligated to, survey and record the condition of the Work Site and of property on or adjoining the Work Site prior to the commencement of construction by the Contractor. If requested and available, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.
- .4 Whenever supplied with survey records, the Contractor shall satisfy itself as to the accuracy and completeness of the survey records provided by the Departmental Representative for any area before commencing construction in that area.
- .5 Commencement of construction in any area shall be interpreted to signify that the Contractor has accepted such survey records as being a true record of the existing conditions prior to construction.
- .6 The provision of the records of a survey of existing conditions by the Departmental Representative shall in no way limit or restrict the Contractor's responsibility to exercise

proper care to prevent damage to all property within or adjacent to the Work Site, whether all such property is covered by the survey or not.

1.7 ARCHAEOLOGICAL RESOURCES

- .1 Archaeological Resources and Cultural Resource Management have been considered within the Environmental Impact Assessment (BIA) and the incorporated mitigations that the Contractor shall adhere to.

1.8 FISH HABITAT ASSESSMENTS

- .1 Contractor shall adhere to recommendations for measures and standards to mitigate serious harm to fish as identified in the BIA.
- .2 The period of least risk for instream works is June 1 to August 31.

1.9 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall comply with all applicable safety regulations of WorkSafe BC and the Workers Compensation Act of British Columbia and Alberta including, but not limited to, Occupational Health and Safety Regulations and General Safety Regulations. Within the Site, the Contractor has all the responsibilities of an “employer” under the *Workers Compensation Act* and the *Occupational Health and Safety Regulation* and is designated as the “Prime Contractor”.
- .2 Prime Contractor must comply with Workers Compensation Act and Occupational Health and Safety Regulation Section 20.3 Coordination of multiple employer workplaces.
- .3 Comply with all applicable safety regulations of the Workers’ Compensation Board of British Columbia (WCB) including, but not limited to, WCB’s Industrial Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations, when working in that province.
- .4 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .5 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.
- .6 The Contractor shall promptly take such measures as are required to repair, replace or compensate for any loss or damage caused by the Contractor to any property or, if Parks Canada so directs, shall promptly reimburse to Parks Canada the costs resulting from such loss or damage.

1.10 USE OF PUBLIC AREAS

- .1 Off-road construction equipment will not be allowed on the existing highway
- .2 Steel tracked equipment with cleats will not be allowed on pavement designated for future use. If or when crossing asphalt, rubber mats must be used under the tracks to protect the asphalt.
- .3 Flag persons shall be provided when vehicles are entering or exiting Work Site access points and when vehicles are entering or exiting staging areas in the park. Staging area access gates must remain closed at all times or have a gate person monitoring the opening for wildlife.

- .4 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Site and entering public roadways shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Site and transporting materials shall be loaded in a manner that will prevent dropping of materials or debris on the roadways and, where contents may otherwise be blown off during transit, such loads shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas shall be removed or cleaned immediately by the Contractor at no cost to the Owner. All activities shall be in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .5 Construction areas and construction crossings shall be flood-lit for night operations.

1.11 USE OF PITS, QUARRIES, AND DISPOSAL SITES, OUTSIDE OF THE NATIONAL PARKS

- .1 When the Contractor is supplying material from a pit or quarry outside of the National Parks the Contractor is responsible for all permits and approvals. Pit or quarry development and reclamation must be in accordance with local and Provincial regulatory agency requirements.
- .2 When the Contractor is disposing of; stripping, unsuitable, or surplus material in a pit or other disposal sites outside of the National Parks the Contractor is responsible for all permits and approvals. Disposal site or pit development and reclamation must be in accordance with local and Provincial regulatory agency requirements.
- .3 The Contractor shall bear and pay all costs, fees, and royalties for pits, quarries, or disposal sites, outside of the National Parks.
- .4 Material supplied from pits and quarries outside of the National Parks must be clean of all, seeds, organics, top soil, or contaminants. No additional payment will be made for cleaning or washing material supplied from pits and quarries outside of the National Parks.
- .5 Material supplied from pits and quarries outside of the National Parks must meet requirements in the Contract Documents.

1.12 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 – Submittal Procedures.

1.13 SUPERVISORY PERSONNEL

- .1 When requesting a Preconstruction Meeting, in accordance with Section 01 31 00 - Project Management and Coordination, the Contractor shall submit to the Departmental Representative confirmation of the names of the supervisory personnel and other key staff designated for assignment on the Contract.
- .2 At a minimum, the following roles shall be included in the list:
 - .1 Contractor Manager
 - .2 Project Superintendent;
 - .3 Safety Representative;
 - .4 Quality Control Manager;
 - .5 Environmental Representative;

- .3 More than one of the above roles may be fulfilled by a single individual.
- .4 The duties of the above roles are as follows:
 - .1 Contractor Manager with full authority, as agent of the Contractor, to act on behalf of and legally bind the Contractor in connection with the Work and the Contract. The Contractor may, at its discretion, appoint one person as both Contractor Manager and Project Superintendent.
 - .2 The Project Superintendent shall be employed full time with full authority to supervise the Work, who shall be directly available to the Department Representative during all active periods of Work. Either they or their designated deputy shall be present on the Work Site each and every workday that Work is being performed, from the commencement of Work to Total Performance of the Work.
 - .3 The Project Superintendent shall nominate a Deputy Project Superintendent who shall have the authority of the Project Superintendent during the latter's absence.
 - .4 The Safety Representative shall possess a minimum of 2 years' construction safety supervisory experience. Their duties shall encompass all matters of safety activities from commencement of Work until the Total Performance of the Work.
 - .5 The Quality Control Representative shall be responsible for the development, implementation and execution of the Quality Management Plan and shall be the single point of contact for all quality related queries.
 - .6 The Environmental Representative shall be responsible for the development, implementation and execution of the Environmental Protection Plan and shall be the single point of contact for all environmental related queries.

1.14 WASTE DISPOSAL

- .1 All surplus, unsuitable and waste materials shall be removed from the Work Sites to approved sites outside the National Parks. Refer to Section 01 35 43 - Environmental Procedures.
- .2 Deposit of any construction debris into any waterway is strictly forbidden.
- .3 Cost for Waste Disposal described above shall be considered incidental to the Unit Price items and no additional payment will be made.
- .4 The Contractor shall provide at least one "Bear Proof" garbage container in accordance with Section 01 74 11 - Cleaning.

1.15 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of the environment over cost and schedule considerations for Work.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 21 00 ALLOWANCES**Part 1 General****1.1 REFERENCES**

- .1 General Conditions.

1.2 PRIME COST SUM

- .1 Included in Contract Price a total Prime Cost Sum of \$25,000.00.
- .2 Do not include in the Contract Price, additional contingency allowances for products, installation, overhead or profit.
- .3 Prime Cost Sum provided for in the Lump Sum Arrangement Table is not a sum due to the Contractor. Rather, payment will be made against it for miscellaneous work not included in the unit price table under the General Conditions of the Contract.
- .4 No interpretation of the items listed under Prime Cost Sum Allowances shall indicate that work will be included under the Prime Cost Sum. Items, tasks, and activities included in the Works elsewhere in the Contract, including Unit Price and Lump Sum Items, shall be paid as indicated in those sections and not under the Prime Cost Sum.
- .5 Any and all additional work must be approved in writing by the Departmental Representative prior to commencement.
- .6 All expenditures must be substantiated with verified invoices and/or accepted daily extra work reports as noted in Measurement and Payment Procedures below.
- .7 Such work may include, but not be limited to:
 - .1 Additional Clearing and Grubbing;
 - .2 Additional stripping, excavation and disposal of waste materials as directed by the Departmental Representative;
 - .3 Danger tree assessment and removal;
 - .4 Additional survey resulting from changes made by the Departmental Representative;
 - .5 Additional remediation or removal and replacement of unsuitable or contaminated soils not described in the Contract documents;
 - .6 Additional supply and installation of seeding not covered under unit price table;
 - .7 Supply and installation of additional landscaping;
 - .8 Additional supply and installation of Riprap not covered under unit price table;
 - .9 Additional road structure repairs not covered under unit price table;
 - .10 Additional drainage improvements; ditching; culvert repairs; and cleaning;
 - .11 Traffic control equipment additional to that required by the applicable regulations and standards.
 - .12 Miscellaneous work as directed by the Departmental Representative.
- .8 The Contract Price, and not Prime Cost Sum, includes Contractor's overhead and profit in connection with the Work.

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for Work under the “**Lump Sum Price Item 5 – Prime Cost Sum**” made using negotiated rates or by material, labour and equipment rates as per the following:
 - .1 Rental rates will be in accordance with current British Columbia Roadbuilders and Heavy Construction Association rate schedule, and will be all inclusive and fully operated.
 - .2 Vehicles (ie. Pickup trucks) will be paid either at daily rates as per the British Columbia Roadbuilders and Heavy Construction Association (most recent) or by mileage using National Joint Council (NJC) rates, whichever is lower. The Contractor will not be permitted to claim both daily rental and mileage rates.
 - .3 Hourly rental of equipment will be measured in actual working time and necessary travel time within project limits. Transportation time to and from site to be reimbursed only if equipment is used exclusively for additional work.
 - .4 Equipment paid on standby will be paid on 50% of the relevant Less Operator rates to a maximum of 10 hours per day.
 - .5 When based upon actual costs for additional works under Prime Cost Sum, payment will be based upon supplied invoices and other work records.
 - .6 The Prime Contractor may apply a 10% mark-up to subcontractor or supplier invoices only, as accepted by the Departmental Representative. No mark-up will be allowed on relevant equipment and labour rates.
 - .7 A claim for additional payment will be considered submitted when all required documentation has been received by the Departmental Representative.
 - .8 The Departmental Representative’s, or their delegate’s, signature on extra work reports is only a record of the equipment, materials and labour hours utilized on the task, not an agreement to entitlement or quantification of that Work. Review and acceptance may be based on Contractor submitted finalized extra work reports, which are to include appropriate rates, quantities and applicable invoices. Labour and equipment rates are to be reviewed by the Departmental Representative against the appropriate accepted rates when submitted for payment.
 - .9 The Contractor shall submit extra work reports to the Departmental Representative within 24 hours of the day of extra work.
 - .10 The Departmental Representative’s, or their delegate’s, signature on any of the Contractor’s Daily Extra Work Reports shall not be an agreement to waiver any portion of the Contract regardless of any wording to the contrary.
 - .11 Unless otherwise provided for in the Contract, payment on a time and materials basis represents complete payment (exclusive of GST) and reimbursement for all impacts, related costs and expenses, including, without limitation: time; labour; materials; equipment; mobilization; subcontracting; overhead; profit; general supervision; occupational tax and any other Federal or Provincial revenue legislation exclusive of GST; premiums for public liability and property damage insurance policies; bonding; for the use of all tools and equipment for which no specific rental payment provision exists; and for all costs incurred by the Contractor in supplying materials.

Part 2 Products

- .1 Products shall be as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be as directed by the Departmental Representative.

END OF SECTION

01 25 20 MOBILIZATION AND DEMOBILIZATIONS

Part 1 General

1.1 DESCRIPTION

- .1 Mobilization and Demobilization 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 sites.
- .2 Any protective measures or movement of Contractor trailers necessitated by animal interactions and required by Parks Canada will be paid by the Departmental Representative, and are not to be anticipated in the Lump Sum Contract Price for Mobilization and Demobilization.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 Payment will be made under “**Lump Sum Price Item 1 – Mobilization / Demobilization**”.
 - .2 50% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
 - .3 The remainder of the Lump Sum Price for Mobilization and Demobilization to be paid when work is complete and all materials, equipment, camp, buildings, shops, offices, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 29 01 SITE OCCUPANCY

Part 1 General

1.1 DEFINITION OF OCCUPANCY

- .1 The Contractor shall be permitted to lease and occupy sites where they will be working in the National Parks, free of charge from the date of award of the Contract up to and including the specified completion date. The sites to be leased by the Contractor include all the roads and areas specified in the Contract documents and as directed by the Departmental Representative.
- .2 The Contractor's occupancy of the sites identified in Contract will be deemed to have ended, when the following conditions are met to the satisfaction of Parks Canada:
 - .1 All the work identified under this Contract, has been completed.
 - .2 All sites' have been cleaned up and any outstanding deficiencies for the work identified under this Contract have been addressed to the satisfaction of the Departmental Representative.
 - .3 Contractor has removed from the park all trailers and equipment and sites have been cleaned-up to the satisfaction of the Departmental Representative.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 31 00 PROJECT MANAGEMENT AND COORDINATION**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This Work shall be incidental to the Contract and will not be measured for payment.

1.2 CHANGES TO DESIGN

- .1 If a change from the IFC design is accepted in writing by the Departmental Representative and agreed on by the Contractor, a design variance letter will be issued by the Departmental Representative. The design variance letter must state what changes are being made from the IFC design and what the method of measurement for payment will be, if varying from the Contract Documents.
- .2 The design variance letter must be signed by both the Contractor's Representative and the Departmental Representative prior to performing the Work.
- .3 The Departmental Representative reserves the right to use as-built survey or neat line measurements for payment if for any reason tolerances are not in accordance with the IFC design.

1.3 COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other Contractors, and Work by Owner, under instructions of the Departmental Representative.

1.4 PROJECT MEETINGS

- .1 During the course of the Work, the Contractor shall attend weekly construction meetings as scheduled, chaired, and documented by the Departmental Representative.
- .2 The agenda will include among other things, general construction, payment, scheduling, risk, quality, environmental, and safety management items as well as any other reasonably requested by the parties.
- .3 The Contractor shall provide physical space and make arrangements for meetings at or near the Work Sites for all meetings that take place in relation to the Contract from their mobilization until their demobilization.
- .4 Meetings held outside of the time noted above (before mobilization or after demobilization) will either be held in the local PCA Field Unit offices, or at the Owner's site office, as notified by the Departmental Representative.
- .5 The Contractor will attend or otherwise ensure the attendance of their staff, subcontractors, consultants, suppliers, or other key parties all other meetings identified in the Contract or reasonably requested by the Departmental Representative in an effort to resolve specific issues as they may arise.
- .6 Meetings will be called and chaired by the Departmental Representative as required. The Contractor shall be represented at such meetings to the satisfaction of the Departmental Representative.

- .7 As described in Section 01 35 43 – Environmental Procedures, an environmental briefing for all staff will take place before beginning work at the site.

1.5 CONSTRUCTION ORGANIZATION AND START-UP

- .1 Within seven (7) days after award of Contract, request a Preconstruction meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. Meeting shall be chaired by the Departmental representative who will prepare the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Agenda to include following:
 - .1 Appointment of official representative of participants in Work.
 - .2 Schedule of Work, progress scheduling in accordance with Section 01 32 16 – Construction Progress Schedules.
 - .3 Schedule of submittals in accordance with Section 01 33 00 – Submittal Procedures.
 - .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 – Construction Facilities.
 - .5 Site safety and security in accordance with Sections 01 14 00 – Work Restrictions, 01 35 29 – Health and Safety Requirements, 01 52 00 – Construction Facilities and 01 35 43 – Environmental Procedures.
 - .6 Quality Control in accordance with Section 01 45 00 – Quality Control.
 - .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .8 Owner-furnished materials.
 - .9 Monthly progress claims, administrative procedures, photographs, and holdbacks.
 - .10 Closeout procedures and submittals in accordance with Sections 01 77 00 – Closeout Procedures and 01 78 00 – Closeout Submittals.
 - .11 Insurances and transcript of policies.
 - .12 Other business.
- .4 Comply with Departmental Representative’s allocation of mobilization areas of site, for field offices and sheds, and for access, traffic, and parking facilities.
- .5 During construction, coordinate use of site and facilities through Departmental Representative’s procedures for intra-project communications: submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.
- .6 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.
- .7 Coordinate field engineering and layout work with the Departmental Representative.

1.6 ON-SITE DOCUMENTS

- .1 Maintain at job site, one copy each of the following:
 - .1 Contract Drawings if part of tender
 - .2 Specifications
 - .3 Addenda
 - .4 Reviewed Shop Drawings and mix designs
 - .5 Change Orders
 - .6 Other modifications to Contract
 - .7 Safety Plan
 - .8 WHMIS
 - .9 Environmental Protection Plan
 - .10 Quality Control Plan and field test reports
 - .11 Copy of accepted Work schedule and most recent updated schedule
 - .12 Labour conditions and wage schedules
 - .13 Equipment rate schedule and applicable versions of the relevant rate guides
 - .14 Applicable current editions of municipal regulations and by-laws
 - .15 WorkSafe BC Notice of Project

1.7 SUBMITTAL SCHEDULE

- .1 In accordance with Section 01 33 00 – Submittal Procedures.
- .2 Prepare a schedule of the required submissions and the date the submissions will be made. Include columns for Actual Date of Submission, Review Comments Received, Final Submission and Final Acceptance Received. Provide this schedule to the Departmental Representative in Excel format.
- .3 The Owner will not be responsible for any construction delays resulting from delays in submission acceptance if the submittal dates shown in the Submittal Schedule are not achieved.

1.8 PROJECT SCHEDULES

- .1 In accordance with Section 01 32 16 - Construction Progress Schedules.

1.9 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit requests for payment for review, and for transmittal to Departmental Representative. Payment request on last day of the month.
- .3 Submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.
- .4 Process substitutions through Departmental Representative.
- .5 Process change orders through Departmental Representative.

1.10 CLOSEOUT PROCEDURES

- .1 In accordance with Section 01 77 00 - Closeout Procedures.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 32 16 CONSTRUCTION PROGRESS SCHEDULES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This Work shall be incidental to Contract and will not be measured for payment.

1.2 DEFINITIONS

- .1 Activity: An element of Work performed during course of Project. An activity normally has an expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt Chart): A graphic display of schedule-related information. In a typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally, Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: Original accepted plan for Project.
- .4 Construction Work Week: Monday to Saturday, inclusive, will provide six-day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: Number of work periods (not including holidays or other nonworking periods required to complete an activity or other Project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: A summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: A significant event in Project, usually completion of a major deliverable.
- .8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: Overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.3 REQUIREMENTS

- .1 Ensure the Project Schedule is practical and remains within specified Contract duration.
- .2 Ensure all the Work required for the Contract is identified in the Project Schedule. Refer to Section 01 11 00 – Summary of Work for a potential list of activities.
- .3 Include an allowance in the schedule for Work performed and paid for as Prime Cost Sum. Refer to Section 01 21 00 – Allowances for a list of activities.
- .4 Plan to complete Work in accordance with prescribed Project Schedule.

- .5 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.
- .6 After review, revise and resubmit schedule to comply with revised project schedule.
- .7 During progress of Work revise and resubmit as directed by the Departmental Representative.
- .8 Include the requirements of Section 01 14 00 – Work Restrictions and Section 01 35 43 – Environmental Procedures.

1.4 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 – Submittals Procedures.
- .2 Submit to Departmental Representative within 10 working days of Award of Contract a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative in accordance with Section 01 33 00 - Submittal Procedures.

1.5 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
- .2 Include in Project Schedule the Contractual dates under Section 01 11 00 - Summary of Work.

1.6 MASTER PLAN

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 Revise impractical schedule and resubmit within 5 working days.
- .3 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.7 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule separately identifies the Work by area and station.
- .3 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Contract Award
 - .2 Obtaining Permits
 - .3 Pre-mobilization Submittals
 - .4 Mobilization
 - .5 Weir removal
 - .6 Creek improvements
 - .7 Standpipe replacement
 - .8 Passive water system intake
 - .9 Site remediation

- .10 Substantial Performance
- .11 Remediation of any noted deficiencies
- .12 Site Clean-up / Demobilization
- .13 Final Completion

1.8 PROJECT SCHEDULE REPORTING

- .1 Update Project Schedule on monthly basis or as and when requested by the Departmental Representative, reflecting activity changes and completions, as well as activities in progress.
- .2 Provide Weekly Progress Reports that identify completed work and Work planned for the following week in accordance with Section 01 33 00 - Submittal Procedures.
- .3 Include as part of Project Schedule Update, a narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.9 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current accepted dates shown on baseline schedule.
- .2 Meetings in accordance with Section 01 31 00 - Project Management and Coordination.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 33 00 SUBMITTAL PROCEDURES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

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 Do not proceed with Work affected by submittal until review is complete, and written acceptance of the submittal has been issued by the Departmental Representative.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 Submittals must be accompanied by a completed Quality Control Checksheet in accordance with Section 01 45 00 – Quality Control prior to submission to Departmental Representative. This completed Quality Control Checksheet represents that all the necessary requirements have been met and that the submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 Notify Departmental Representative in writing at time of submission, identifying any deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work is consistent.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one accepted copy of each submission on site.

1.3 "DESIGN AND BUILD", SHOP DRAWINGS, PRODUCT DATA, AND MIX DESIGNS

- .1 "Design and Build": The term "Design" refers to all detailed design activities (survey, investigation, drawings, specifications) based on general requirements contained in the Contract Documents. "Build" refers to construction of Contractor's detailed design after design has been reviewed by the Departmental Representative. Contractor's responsibility for error and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .2 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data that are to be provided by the Contractor to illustrate details of a portion of Work.

- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of section under which adjacent items will be supplied and installed. Indicate cross-references to Contract Documents.
- .4 Allow fourteen (14) calendar days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by the Departmental Representative are not intended to change the Contract Price. If adjustments affect the value of Work, state such in writing to the Departmental Representative prior to proceeding with the Work.
- .6 Make changes in shop drawings as the Departmental Representative may require, consistent with the Contract Documents. When resubmitting, notify the Departmental Representative in writing of any revisions other than those requested.
- .7 Submit letter(s) of certification with all mix designs.
- .8 Accompany submissions with a transmittal letter containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, mix design, product and sample.
 - .5 Other pertinent data.
- .9 Submissions shall include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor,
 - .2 Supplier,
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with the Contract Documents.
 - .5 Details of appropriate portions of the Work as applicable:
 - .1 Fabrication,
 - .2 Performance characteristics,
 - .3 Standards.
- .10 After the Departmental Representative's review, distribute copies.
- .11 Submit one (1) electronic copy of the shop drawings or mix design for each requirement requested in the Contract Documents and as requested by the Departmental Representative.
- .12 Submit one (1) electronic copy of the product data sheets or brochures for requirements requested in the Contract Documents and as requested by the Departmental

Representative where shop drawings will not be prepared due to standardized manufacture of the product.

- .13 Delete information not applicable to project.
- .14 Supplement standard information to provide details applicable to project.
- .15 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .16 The review of shop drawings and mix designs by Departmental Representative is for the sole purpose of ascertaining conformance with the Contract requirements. This review shall not mean that Departmental Representative approves details of the design inherent in shop drawings, responsibility for that shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting the generality of the foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 SAMPLES

- .1 Material samples to be provided as outlined in the Contract Documents or as requested by the Departmental Representative.

1.5 MOCK-UPS

- .1 Not used.

1.6 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

1.7 REQUIRED CONTRACTOR SUBMITTALS

.1 General

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

.2 Pre-Mobilization Submittals

The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of submittals in writing. Submit the following plans and programs to the Departmental Representative for review a minimum of fourteen (14) days prior to mobilization to the project site:

- .1 Project schedule, detailing the schedule of the workdays required from Contractor, subcontractors, suppliers and consultants to complete each activity of the project by road segment or location in order to meet stages specified in Section 01 32 16 – Construction Progress Schedules. In addition, for each

activity critical elements that could impact on the schedule are to be identified. Submission shall include both a paper copy of the schedule and an electronic copy in Microsoft Projects format.

- .2 Work Plan, describing in detail for each activity by road segment and location, the Contractor's intended methods of construction, and materials, equipment and manpower that will be used to meet stages specified in Section 01 32 16 – Construction Progress Schedules. The Work Plan must be logically consistent with the Project Schedule and include the following appendices:
 - .1 Contractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone and cellular telephone. The list shall include the names and telephone/cellular telephone for contact persons who are available on a 24-hour basis in the event of emergencies.
 - .2 List of subcontractors, suppliers and consultants, their role and their key personnel, including names and positions, addresses, telephone and cellular telephone.
- .3 Quality Control Plan in accordance with Section 01 45 00 – Quality Control, including Quality Control checklist examples.
- .4 Environmental Protection Plan (EPP) that meets the requirements of Section 01 35 43 – Environmental Procedures. Submission of EPP must allow 2 weeks for review by the Parks ESO, in accordance with Section 01 35 43 – Environmental Procedures. The EPP shall include the following appendix:
 - .1 Instream Works Plan detailing how the Contractor will meet all in stream works requirements. Prepared by the Contractor's QEP.
- .5 Contractor and all subcontractors to submit a copy of their valid Parks Canada Business License.
- .6 Health and Safety Plan - The Contractor shall have a Certificate of Recognition (COR) or Registered Safety Plan (RSP) including a site specific Health and Safety Plan acceptable to the Departmental Representative. The Contractor shall implement and maintain the Health and Safety Plan during the Work. Health and Safety Plan must include in accordance with Section 01 35 29 – Health and Safety Requirements. The Health and Safety Plan shall include the following appendices:
 - .1 Plan describing methods the Contractor will have to meet their responsibilities as the Prime Contractor for Safety and Traffic Control within the Work limits and to co-ordinate Work, traffic control, site access, safety, with other Contractors working in or adjacent to the Contract Work zone.
 - .2 Contractor shall develop an "Emergency Procedures Protocol" in consultation with Parks Canada. On site Contingency and Emergency Response Plan to address standard operating procedures to be implemented during emergency situations.
 - .3 Copy of the filed Notice of Project with Provincial authorities.
- .7 BC One Call and Utilities Coordination Plan, including notifications to Utility Owners.

- .8 The Contractor shall not begin any Work on the Site until the Departmental Representative has provided a Notice to Proceed.

.3 **Construction Phase Submittals**

- .1 Monthly Progress Reports in accordance with Section 01 32 16 – Construction Progress Schedules.
- .2 Weekly Progress Reports that outline the detailed Work (Contractor, subcontractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed for the following week on a day-by-day basis. Work to be linked to activities by road segment or location identified in project schedule and to provide information on materials, equipment and manpower. Also, alternate Work to be identified if Work or a portion of, proposed cannot be done due to weather, equipment breakdown, delays in delivery, etc. Weekly Progress Reports shall be submitted at the end of each week.
- .3 Quality Control Inspection Reports - The Contractor shall maintain a daily inspection report that itemizes the results of all Quality Control inspections conducted by the Contractor. The reports shall be submitted to the Departmental Representative with the Weekly Progress Report. A summary of all Quality Control inspections conducted to date shall be submitted by the Contractor with each Weekly Progress Report.
- .4 “Design and Build” documents, Shop Drawings – The Contractor shall submit all design drawings, shop drawings and mix designs required to fabricate and / or conduct the work a minimum fourteen (14) days prior to fabrication / production.
- .5 Submit an electronic copy of Contractor’s authorized representative’s work site health and safety inspection reports to Departmental Representative and authority having jurisdiction, weekly.
- .6 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors immediately.
- .7 Submit copies of incident and accident reports immediately.
- .8 Submit daily extra work reports in accordance with Section 01 21 00 – Allowances.

.4 **Project Completion Submittals**

- .1 Record Drawings -The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-built changes to the Work and the Contractor shall submit a set of Contract Drawings clearly marked to record as-built changes to the Work.
- .2 Quality Control Records – The Contractor shall submit a .pdf electronic file containing an itemized set of project quality control documentation.
- .3 All other documents noted within the Contract Documents, and under Section 01 78 00 – Closeout Submittals.
- .5 The Contractor shall not construe the Departmental Representative’s authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Provincial regulations and this specification, or to adequately protect the health and safety of all workers involved in

the project and any members of the public who may be affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

- .6 The Departmental Representative may, at their sole discretion, withhold payment from the Contractor for Work completed until acceptable submittal documents have been provided by the Contractor to the Departmental Representative.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 35 29 HEALTH AND SAFETY REQUIREMENTS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System
 - .1 (WHMIS) Material Safety Data Sheets (MSDS).
- .3 Province of British Columbia - Occupational Health and Safety Act, depending on the province where the Work is occurring.

1.3 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan in accordance with this Section and Section 01 33 00 – Submittal Procedures.

1.4 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work and provide a copy to the Departmental Representative. Notice of Project to be posted onsite upon mobilization and remain posted until project completion.

1.5 SAFETY ASSESSMENT

- .1 Perform site specific safety hazard assessment related to project.

1.6 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work. This meeting may be combined with the Organization and Start-Up meeting identified elsewhere.
 - .1 At this meeting the Contractor is required to complete and sign an Attestation to certify the Contractor will comply with the requirements set out in the Attestation and the terms and conditions of the Contract
 - .2 A copy of the “Attestation and Proof of Compliance with Occupational Health and Safety (OHS)” form is part of the Invitation to Tender package.
- .2 Parks Canada recognizes that federal Occupational Health and Safety legislation places specific responsibilities upon Parks Canada as owner of the work place. In order to meet those requirements, Parks Canada has implemented a contractor safety regime to ensure roles and responsibilities assigned under Part II of the Canada Labour Code and the Canada Occupational Health and Safety Regulations are implemented and observed when involving contractor(s) to undertake work in Parks Canada work places, including on Parks Canada property.

1.7 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with National Parks Act.

1.8 PROJECT / SITE CONDITIONS

- .1 Work at site will involve contact with British Columbia Occupational Health and Safety, depending on which province the Work is occurring in.

1.9 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.10 RESPONSIBILITY

- .1 The Contractor shall act as the Prime Contractor in all matters relating to Occupational Health and Safety. They shall conduct their work and make all such arrangements necessary to allow them to be accepted as such by the relevant Provincial Authorities.
- .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.

1.11 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Act, General Safety Regulation, British Columbia, depending on which province the Work is occurring in.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.12 UNFORESEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or conditions occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.13 HEALTH AND SAFETY REPRESENTATIVE

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Co-ordinator must:
 - .1 Have minimum 2 years' site-related working experience specific to activities associated with roadway construction.
 - .2 Have working knowledge of occupational safety and health regulations.

- .3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.
- .4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.
- .5 Be on site during execution of Work and report directly to and be under direction of site supervisor.

1.14 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Province having jurisdiction and in consultation with Departmental Representative.

1.15 CORRECTION OF NON-COMPLIANCE

- .1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Departmental Representative.
- .2 Provide Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 BLASTING

- .1 Blasting or other use of explosives is not permitted without prior receipt of written approval by the Departmental Representative.
- .2 Production of blasting powder must be done in accordance with Section 01 35 43 – Environmental Procedures.
- .3 Do blasting operations in accordance with Section 31 24 13 – Roadway and Drainage Excavation.

1.17 POWDER ACTUATED DEVICES

- .1 Use powder actuated devices only after receipt of written permission from the Departmental Representative.

1.18 WORK STOPPAGE

- .1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Products

- .1 Not used.

Part 3 Execution

- .1 Not used.

END OF SECTION

01 35 43 ENVIRONMENTAL PROCEDURES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 Preparation and implementation of an Environmental Protection Plan (EPP) in accordance with this Section 01 35 43 – Environmental Procedures, including certification by a registered Qualified Environmental Professional (QEP), will not be measured separately for payment and will be considered incidental to the Work.
- .2 The cost of environmental and aesthetic protection in accordance with this Section 01 35 43 – Environmental Procedures will not be measured separately for payment and will be considered incidental to the Work.

1.2 REFERENCES

- .1 Basic Impact Analysis – Connaught Creek Weir Removal and Passive Water System – MRG2016-32
- .2 Parks Canada National Best Management Practices
 - .1 BMP 1.01 Vegetation Removal Final Signed June 4 2015
 - .2 Direction for Permitted Users conducting water related activities in BNP – Oct 2016
 - .3 PCA National BMP – Roadway, Highway, Parkway and Related Infrastructure

1.3 SUBMITTALS

- .1 The Contractor is required to prepare an Environmental Protection Plan in accordance with this Section 01 35 43 – Environmental Procedures and Section 01 33 00 – Submittal Procedures. The EPP document will be reviewed and accepted for use on the project by the Departmental Representative in collaboration with the Parks Canada designated ESO.

1.4 NATIONAL PARK REGULATIONS

- .1 The Contractor shall ensure that all work is performed in accordance with the ordinances, laws, rules and regulations set out in the Canada National Parks Act and Regulations.
- .2 The Contractor and any sub-contractors shall obtain a business license from a Parks Canada Administration Office, prior to commencement of the Contract. The business license must be valid for the Park in which the Work is occurring.
- .3 All Contractor's vehicles are required to display a vehicle work pass from PCA. These permits may be obtained free of charge from the PCA Administration Office once a business permit has been obtained.

1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

- .1 Execution of the work is subject to the provisions within the *Canadian Environmental Assessment Act* (CEAA) Guidelines Order of 2003 and subsequent amendments.
- .2 Refer to the PCA Best Management Practices (BMPs) and/or Basic Impact Analysis (BIA) for the Work included with this tender. The Contractor is required to implement all recommendations and mitigations, and follow all procedures and processes whether supply, construction, administration or otherwise as described in the BMPs / BIA.
- .3 The Contractor shall prepare their Environmental Protection Plan (EPP) to implement the mitigations identified in the BMPs / BIA as a minimum but shall ensure that all environmental requirements under the Contract and associated with the Works are appropriately managed through their EPP processes.
- .4 Where there is a discrepancy or inconsistency between the BMPs / BIA and other documents, the BMPs / BIA takes precedence over other documents.
- .5 Failure to comply with or observe environmental protection measures as identified in the Contract Documents may result in the work being suspended pending rectification of the problems.

1.6 START-UP AND ENVIRONMENTAL BRIEFING

- .1 **All staff employed at the construction site will be required to attend an approximate one (1) hour environmental briefing presented by PCA prior to their commencement of work on site.** It is recognized that new employees may join the Contractors' work force after the initial round of "environmental briefing". In that case and as required, subsequent "environmental briefings" can be presented as numbers warrant, by arrangement with the ESO through the Departmental Representative. Also, some sub-trades may be present at the site for a short time, to perform once-only duties. In these cases, the "environmental briefing" will be replaced by the Contractor explaining the environmental sensitivity of the work location to the sub-trade worker(s), and reviewing highlights of personal conduct expected, with reference to a one-page briefing summary to be provided to the Contractor by the ESO. A copy of this summary will be provided to each sub-trade worker joining the work force at the site.
- .2 Parks Canada will have an ESO attending the site to inspect the construction activity for conformance with the EPP. The ESO or alternate designated Parks Canada staff member will present the "environmental briefing". The ESO's main duties are to inspect the progress of the construction on an on-going basis to ensure compliance with environmental protection measures, and to provide guidance through the Departmental Representative, in the event of unanticipated environmental problems. Although the ESO has authority to enforce National Parks Act violations, direction to the Contractor will be the duty of the Departmental Representative.
- .3 The ESO is not to act as daily environmental monitor, but shall check activities with the approved EPP to ensure compliance, at their discretion. The Contractor's QEP shall be responsible for ensuring all activities are conducted in accordance with the approved environmental documents.

1.7 ENVIRONMENTAL PROTECTION PLAN

- .1 The EPP is to be prepared and certified by a Qualified Environmental Professional. Certification by a QEP is considered incidental to the Works and no additional payment will be made.
- .2 Changes and/or revisions to the EPP may be required by the ESO as the Work progresses and more information becomes available. No additional payment will be made for changes and/or revisions to the EPP.
- .3 The Contractor's EPP will detail how the work limits 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 and the ESO.
- .4 The EPP will include how the Contractor will manage all environmental risks and specify site-specific details for implementing mitigation or achieving mitigation outcomes identified in the BMPs and/or BIA.
- .5 Spill Response and Erosion and Sedimentation Management Plans are to be included in the EPP, in accordance with this Section.
- .6 QEP resumes are to be included in the EPP for Departmental Representative and ESO review.
- .7 The Contractor shall submit the EPP in accordance with Section 01 33 00 – Submittal Procedures, yet **allow no less than fourteen (14) days for the review of their EPP** and shall address and respond to all comments raised during the review within a maximum of fourteen (14) days.

1.8 RESTRICTED ACTIVITY PERMITS

- .1 Prior to commencing any activity, the Contractor may be required to first obtain a Restricted Activity Permit (RAP) in consultation with PCA and Departmental Representative.
- .2 Prior to mobilization, Contractor is to establish what RAPs are required for the Works, for the duration of the project. Include, in the project schedule, the acquisition of the application for RAPs, allowing no less than 2 weeks for review and acceptance by the ESO.
- .3 Contractor shall list RAPs they require in the EPP.
- .4 The Contractor is required to submit an application form to the Departmental Representative for each required RAP.
- .5 RAP application details include, but are not limited to: Name of activity, start and end date of activity, location of Work, Contractor company name and address, Contractor contact name, phone number and email address and vehicle / equipment information.
- .6 Following the application submission, the Contractor may be required to provide further details regarding the Work to PCA.
- .7 Submission of a RAP application to the Departmental Representative does not permit the Contractor to commence the restricted activity.

1.9 CONSTRUCTION SITE ACCESS AND PARKING

- .1 Points of access from the existing roadway to the various construction sites will be required. The Contractor shall review both short and long term construction access requirements with the Departmental Representative, both at start-up and on an ongoing basis. In consultation with the Departmental Representative, the Contractor shall formulate an agreement for worker transportation to and from the work sites and where workers shall park their private vehicles.
- .2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.

1.10 ACCIDENTAL FINDS

- .1 It is possible that a scattering of historic objects will be found within the Project limits. If significant features are encountered, stop Work in the immediate area, notify the Departmental Representative, take photographs of the findings and a GIS location reading.
- .2 Significant features include items such as:
 - .1 Structural remains, high artifact concentrations, tent platforms, log cribbing retaining features, human remains, marked trees and other various items.
 - .2 If unsure, contact the Departmental Representative immediately.
- .3 The Departmental Representative will notify the Contractor when Works can resume in the area.
- .4 Should any process or requirements regarding archeological matters listed in this Section contradict the BIA, the BIA shall take precedence.

1.11 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 A RAP application will be required for any permitted Work camps or off-highway operation of a motor vehicle.
- .2 A Contractor's office and work headquarters material laydown, equipment parking and storage area will be permitted in accordance with this Section and Section 01 14 00 - Work Restrictions.
- .3 The Contractor shall control blowing dust and debris generated from the construction site by means such as covering or wetting down dry materials and rubbish. Dust generated during the grade construction and or utilization of any temporary access roads must be kept at a reasonable level so as not to impart any hazard to the public traffic. Control measures must be initiated as and when required and may require increased vigilance at the discretion of the Departmental Representative.

1.12 SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION

- .1 The Contractor's QEP shall prepare an Erosion and Sedimentation Management Plan (ESMP) for the components of the Contract that are undertaken in proximity to

- watercourses, wetlands or riparian environments. The plan shall be included in the EPP and prepared to the satisfaction of the Departmental Representative and ESO.
- .2 The ESMP shall be prepared so as to ensure that there is no release into watercourses of sediments in levels that are deleterious to fish or that would harmfully alter, disrupt, destroy fish habitat, or cause serious harm to fish. Similarly, there is to be no sediment release into areas of vegetation growth or sensitive areas of sediments in levels that would adversely alter growing or hydraulic conditions. The target is 0 mg/L of TSS over background levels. The threshold is a maximum instantaneous increase of 25 mg/L over background levels when background levels are <250 mg/L, or a maximum instantaneous increase of 10% over background levels when background levels are >250 mg/L. This threshold shall not be exceeded.
 - .3 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating construction activities.
 - .4 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 and ESO also will monitor erosion control performance.
 - .5 The site will be secured against erosion during any periods of construction inactivity or shutdown.

1.13 SPECIFIC CONCERNS RELATIVE WATER DIVERSIONS

- .1 The Contractor's EPP, as prepared by their QEP, shall describe the proposed locations and types of temporary stream or channel diversions, complete with construction procedures and timing of construction.
- .2 Temporary stream or channel diversions shall be subject to the same environmental constraints as permanent watercourses and shall be built to pass, at least, the 10 year return period flood for the time of year during which the temporary diversion will be in place.
- .3 Temporary stream or channel diversions that have been constructed during periods of low precipitation shall be completely removed prior to periods of increased precipitation unless otherwise approved by the Departmental Representative.

1.14 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 from watercourses.
- .2 A Spill Response Plan will be prepared by the Contractor's QEP 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 PCA 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 watercourses.
 - .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 and the ESO before start-up. 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 by methods that are approved by the Departmental Representative or ESO.
 - .6 The Contractor shall provide spill kits 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 ESO and Departmental Representative prior to project start-up must approve these spill kits. 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 action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. Parks Canada Dispatch shall be notified immediately of any spill immediately and can be contacted at a phone number provided in the Preconstruction Meeting. Following notification of Parks Canada Dispatch, the Departmental Representative and the ESO shall be notified. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.
 - .8 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
 - .9 The costs involved in a spill incident (the 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 expected standard and to the satisfaction of the Departmental Representative and ESO.

1.15 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 the National Parks before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Except for chain saws, any fuelling closer than 100 metres any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.

- .3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any streams, wetlands, water bodies or watercourses. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain presence at and immediate attention to the fuelling operation.
- .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 above.
- .5 Equipment used on the project shall be fuelled with E10, and low sulfur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
- .6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations approved by the ESO or the Departmental Representative. Waste lubrication products (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc., anywhere within the National Parks.
- .7 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
- .8 Fuel containers and lubricant products shall be stored only in secure locations specified by the Departmental Representative. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight the National Parks. Alternatively, the Contractor may hire a security person employed to prevent vandalism in accordance with Section 01 52 00 - Construction Facilities.

1.16 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 approved by the Departmental Representative. Unless authorized by the Departmental Representative, activities beyond the work limits are not permitted. No machinery will enter, work in or cross over streams, rivers, wetlands, water bodies or watercourses, nor damage aquatic and riparian habitat or trees and plant communities. Some of the construction shall require working close to watercourses or water bodies. In these instances, the Contractor is to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) do not enter any watercourses, to the satisfaction of the Departmental Representative and ESO.
- .2 The Contractor shall instruct workers to prevent pushing, placement, raveling, storage or stockpiling of any materials (e.g. slash, rock, fill or topsoil) in the trees bordering the right-of-way or into watercourses or water bodies.
- .3 When, in the opinion of Parks Canada, 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 and ESO.

- .4 Restrict vehicle movements to work limits.
- .5 Workers private vehicles are to remain within the construction footprint.

1.17 FIRE PREVENTION AND CONTROL

- .1 A fire extinguisher shall be carried and available for use on each machine and at locations within the plant in the event of fire. Basic firefighting equipment 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 pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to all the Contractors' staff.
- .2 A water truck may be necessary and will depend on the timing of the Contract (e.g. not required during winter or snow covered conditions).
- .3 Construction equipment shall be operated in a manner and with all original manufacturers' safety devices to prevent ignition of flammable materials in the area.
- .4 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented. Fires or burning of waste materials is not permitted.
- .5 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. Parks Canada Dispatch shall be notified immediately of any fire immediately and can be contacted at a phone number provided in the Preconstruction Meeting. Following notification of Parks Canada Dispatch, the Departmental Representative and the ESO shall be notified.
- .6 Fires or burning of waste materials is not permitted.

1.18 WILDLIFE

- .1 During the Environmental Briefing all personnel shall be instructed by the ESO on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .2 Avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if bears, cougars, wolves, elk or moose display aggressive behaviour or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.
- .3 Notify the ESO and Departmental Representative immediately about dens, litters, nests, carcasses (road kills), bear activity or encounters on or around the site or crew accommodation. Other wildlife-related encounters are to be reported within 24 hours. If the ESO or Departmental Representative is not available, Parks Canada Dispatch will be contacted at a phone number provided in the Preconstruction Meeting.

1.19 RELICS AND ANTIQUITIES

- .1 Artifacts, relics, antiquities and items of historical interest such as cornerstones, commemorative plaques, inscribed tablets and similar objects found on the work site

shall be reported to the ESO or the Departmental Representative immediately. The Contractor and workers shall wait for instructions before proceeding with their work.

- .2 All historical or archaeological objects found in the National Parks are protected under the National Parks Act and Regulations and are the property of Parks Canada. The Contractor and workers shall protect any articles found and request direction from the ESO or the Departmental Representative.

1.20 WASTE MATERIALS STORAGE AND REMOVAL

- .1 The Contractor and workers shall dispose of hazardous wastes in conformance with the Environmental Contaminants Act and applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .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 or elsewhere in the National Parks. 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 park. Construction waste storage containers, provided by the Contractor, shall be emptied by the Contractor when 90% full. Waste containers will have lids, and waste loads shall be covered while being transported.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials.
- .5 All efforts to prevent wildlife from obtaining food, garbage or other domestic wastes shall be made by the Contractor and Contract staff while undertaking their work in the National Parks. Such wildlife attractants shall not be stored at the work site overnight. Lunches, coolers and food products, including waste food products, shall be securely stored away from access by animals. Daily removal of food scraps, food wrappers, pop cans or other attractive products to bear proof containers is mandatory. It is incumbent on the Contractor to notify Parks Canada and make specific arrangements to have garbage collected by Parks Canada when using existing Parks Canada receptacles.
- .6 The Contractor and workers shall immediately report any circumstances related to food/garbage (e.g. overflowing container or strong smell) and wildlife to the ESO or the Departmental Representative. If neither can be reached, the Contractor/worker shall immediately contact Parks Canada Dispatch at the phone number provided in the Preconstruction Meeting and report the details.
- .7 Sanitary facilities, such as a portable container toilet, shall be provided by the Contractor and maintained in a clean condition.

1.21 PRODUCTS

- .1 Not Used.

Part 2 Execution**2.1 WATER EXTRACTION AND DISTRIBUTORS**

- .1 All water related activities are to be conducted in accordance with *Direction for Permitted Users conducting water-related activities in LLYK*
- .2 Backflow prevention is required on all water trucks.
- .3 All water trucks and water extraction equipment must be thoroughly cleaned prior to entering any Park. Proof of cleaning must be provided to the Departmental Representative and ESO for verification.
- .4 Extraction of water within any National Park requires a RAP.
- .5 Care must be taken by the Contractor to ensure extracted water does not enter another water body, other than the initial source of extraction.
- .6 ESO may require water trucks to be cleaned prior to moving between sites within the Parks to mitigate the risk of cross- contamination of water bodies.

2.2 CLEARING AND GRUBBING

- .1 Clearing, grubbing and/or tree removal is only permitted during the migratory bird least risk window, which is September 1 – March 31 in Glacier National Park. A RAP must be obtained prior to any vegetation removal. Clearing, grubbing and/or tree removal will only be permitted outside of the migratory bird least risk window upon written approval by the Departmental Representative and the completion of a nest survey by the Contractor's QEP.

2.3 SPECIFIC CONCERNS RELATIVE TO SENSITIVE SITES AND ACTIVITIES

- .1 Grade construction and paving activity near streams, rivers, wetlands, water bodies or watercourses must be undertaken with care to prevent damage to aquatic and riparian habitat or associated tree and plant communities. A large and mobile spill kit shall be kept at hand during construction at these sensitive sites in proximity to watercourses.

END OF SECTION

01 45 00 QUALITY CONTROL**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)

1.3 QUALITY CONTROL PLAN

- .1 Contractor's quality control plan shall be in accordance with Section 101 of the BC MoTI – Standard Specifications for Highway Construction (latest edition).
- .2 Submittals in accordance with Section 01 33 00 – Submittals Procedures.

1.4 TESTING BY THE CONTRACTOR

- .1 Testing required to provide quality control to assure that the Work strictly complies with the Contract requirements shall include, but not be limited to:
 - .1 Testing all structural concrete, grout, reinforcing steel, asphalt concrete pavement, structural backfill, corrugated steel culverts, miscellaneous metals, concrete barriers, and all source acceptance testing; and
 - .2 All testing specified in the Contract Documents; and
 - .3 Any other testing required as a condition for deviation from the specified Contract procedures.
- .2 Testing proposed shall be based on testing requirements with current ASTM and CSA Standards or as stated below.
- .3 All Quality Control technicians are to be certified by Canadian Council of Independent Laboratories (CCIL) for testing asphalt, aggregates and concrete, as applicable to the testing requirements for that item of Work.
- .4 The Contractor shall be fully responsible and bear all costs for all quality control testing and shall conduct such testing in the following manner:
 - .1 Provide testing facilities and personnel for the tests and inform the Departmental Representative in advance to enable the Departmental Representative to witness the tests if it so desired;
 - .2 Notify the Departmental Representative when sampling will be conducted;
 - .3 Within one Day after completion of testing, submit test results to the Departmental Representative; and
 - .4 Identify test reports with the name and address of the organization performing all tests, and the date of the tests.
- .5 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.

- .6 Testing agencies, their inspectors, and their representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the Contract Documents, nor to approve or accept any part of the Work
- .7 The minimum frequency for Quality Control testing during embankment construction, backfill, and granular works will be as follows:

CONSTRUCTION TYPE	TEST TYPE	MINIMUM FREQUENCY OF TESTS
Embankment construction with fine grained or granular soil	Standard Proctor by: ASTM D698	1 per change in material or 1 per week, whichever is more frequent
	Field density by: ASTM D1556 / D1556M – Sand Cone ASTM D2167 – Balloon ASTM D6938 – Nuclear	1 per 1000 m ² per lift, spaced randomly across full width of embankment
	Proof Roll and or Rutting Test	As required by the Departmental Representative
Manhole or structure granular bedding	Standard Proctor by: ASTM D698	1 per change in material or 1 per week, whichever is more frequent
	Field density by: ASTM D1556 / D1556M – Sand Cone ASTM D2167 – Balloon ASTM D6938 – Nuclear	1 per lift, per structure.
	Standard Proctor by: ASTM D698	1 per change in material or 1 per week, whichever is more frequent
Manhole or structure backfill	Field density by: ASTM D1556 / D1556M – Sand Cone ASTM D2167 – Balloon ASTM D6938 – Nuclear	1 per lift, per structure.
	Standard Proctor by: ASTM D698	1 per change in material or 1 per week, whichever is more frequent
	Field density by: ASTM D1556 / D1556M – Sand Cone ASTM D2167 – Balloon ASTM D6938 – Nuclear	1 per lift, per structure.
Road structure construction with granular materials	Standard Proctor by: ASTM D698	1 for each material type and 1 for each accepted change in material gradation.
	Field density by: ASTM D1556 / D1556M – Sand Cone ASTM D2167 – Balloon ASTM D6938 – Nuclear	3 tests per 50 m per lift; on centreline and on lt and rt fog lines
	Proof Roll and or Rutting Test	As required by the Departmental Representative

- .8 The minimum frequency for Quality Control testing for the supply of aggregate products will be as follows:

	ASTM Test	*Minimum Frequency
Tests During Aggregate Production	ASTM C136 / C136M – Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates	-Split Stockpiles: 1 for each stockpile for every 2 hours of production. - One main stockpile: for every 300 tonnes.
	Or	- Blend Sand: 1 for every 100 tonnes during stockpiling.

Tests During Aggregate Production (cont.)	C 117 – Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing	- Natural filler: 1 for every 50 tonnes during stockpiling.
	ASTM D5821 – Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate	Every second coarse aggregate sieve test
	C 117 – Sieve Analysis of Aggregates by Washing (Modified for Field Lab)	1/shift on reduced sample obtained from combined samples from the crusher

**These are the minimum frequencies and the Contractor is responsible to assess the need to increase testing frequency, where aggregate source is not uniform or any other condition exists that may warrant it. QC frequencies may be reduced below this level, subject to the Departmental Representative’s authorization, should the Contractor’s QC plan be proven very effective.*

** Passing the minimum quantity of QC tests does not relieve the Contractor from the obligation of meeting the Contract requirements and any identified non-compliant works or products shall be rectified by the Contractor at their cost.*

1.5 CONTRACTOR’S QUALITY CONTROL PROGRAM

- .1 The Contractor shall prepare a Quality Control Program. The purpose of the program shall be to ensure the performance of the Work in accordance with Contract requirements.
- .2 The Quality Control Program shall be described in a Quality Control Plan. The Contractor shall submit the Manual to the Departmental Representative for review in accordance with Section 01 33 00 - Submittal Procedures. The Manual shall develop a logical system for tracking and documenting the Quality Control of the Work. A systematic format and a set of procedures patterned on a recognized Quality Control Standard will be acceptable, subject to review by the Departmental Representative.
- .3 The Quality Control Plan shall include the following information:
 - .1 Distribution list, providing a list of names to whom the Manual shall be distributed;
 - .2 Title page, identifying the Contract, Contractor and copy number;
 - .3 Revision page, identifying the revision number and date of the Manual;
 - .4 Table of contents;
 - .5 Revision control, tabulating the revision number, date of revision, description of revisions and authorized signature;
 - .6 Details of measuring and testing equipment including methods and frequency of calibration;
 - .7 Purchasing details of all materials and equipment including procurement documents and vendor's Quality Control Program standards;
 - .8 Procedures for inspection of incoming items, in-process inspection and final inspection and tagging of all supply items;

- .9 Details of special processes as identified by the Departmental Representative, including qualifications of personnel and certification;
 - .10 Procedures for shipping, packaging and storage of materials;
 - .11 Procedures for maintaining quality records and Statements of Compliance, including filing and storage of documents for a period of one year after Completion of the Works;
 - .12 Details of any non-conformance, including identification and recording of deficiencies, tagging procedures for "HOLD" or "REJECT" items, and final disposition of non-conformance forms by the Quality Control Manager;
 - .13 Inspection and test checklists, including tabulated checklists describing all manufacturing and delivery activities such as Inspection or Test, frequency of tests, description of tests, acceptance criteria of tests, such as verification, witnessing or holding tests and sign-off by the Quality Control Manager and the Departmental Representative, if the Departmental Representative witnesses the tests; and
 - .14 Forms used to ensure the application of the inspection and test checklist requirements. These forms shall be identified in the checklists and describe all testing requirements for Contract Document compliance.
- 4 The Contractor shall appoint a qualified and experienced Quality Control Manager who will report regularly to the Contractor's management at a level that shall ensure that Quality Control requirements are not subordinated to manufacturing, construction or delivery. The Quality Control Manager shall be empowered by the Contractor to resolve quality matter and shall be onsite for the duration of the Contract.
 - 5 The Quality Control Plan shall include samples of all forms to be filled in by the Quality Control Inspectors. All forms shall be signed by the Quality Control Manager and submitted promptly to the Departmental Representative who will add its review signature.
 - 6 An independent check of all Work shall be performed by the Contractor. The Contractor shall appoint Quality Control Inspectors to ensure compliance of products and workmanship with Contract requirements. The same personnel may not be used to perform a given task and to check the quality and accuracy of the task.
 - 7 At completion of the Work a bound and itemized copy of all Quality Control documents and reports shall be prepared by the Contractor's Quality Manager and submitted to the Departmental Representative.

1.6 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 will 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.
- .5 The Departmental Representative will provide the Contractor with an Approval to Proceed document, after performing an audit and confirming all requirements are met, as stated in Section 01 71 00 - Examination and Preparation. The Approval to Proceed must be signed by the Departmental Representative and the Contractor's representative before proceeding to the next layer.
 - .1 The Contractor shall provide a minimum of 48 hours notice to the Departmental Representative to arrange for an audit and Approval to Proceed.

1.7 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies will be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Employment of inspection/testing agencies does not relax responsibility to perform Work in accordance with Contract Documents.
- .3 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 the Departmental Representative at no cost to the Departmental Representative.

1.8 ACCESS TO WORK

- .1 Allow inspection / testing agencies access to Work, including but not limited to: off site manufacturing and fabrication plants, QC testing facilities and asphalt plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.9 PROCEDURES

- .1 Notify appropriate agency and Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Provide labour and facilities to obtain and handle samples and materials on site.

1.10 NON-CONFORMANCES

- .1 A Non-Conformance can relate to any item within the Contract including but not limited to: materials testing, lines and levels, products, design-build items, traffic accommodation, quality control, environmental, health and safety, and other general procedural matters including communication protocols.
- .2 Contractor's Internal Non-Conformance Report (NCR):
 - .1 Should the Contractor's QC reporting indicate that the Work is not in conformance, the Contractor's QC Manager shall issue an internal Non-

Conformance Report (NCR) to the Contractor, with a copy to the Departmental Representative, including a response time.

- .3 The Contractor shall then respond to the QC Manager, with a copy to the Departmental Representative, with respect to the NCR, within the specified time, with proposed resolutions and corrective actions. The Contractor and/or the QC Manager shall consult with the Departmental Representative on the resolutions.
- .4 The Departmental Representative will accept or reject the proposed resolution and corrective action proposal.
- .5 Payment for the Work itself may be withheld until the NCR issue is resolved.
- .6 Owner Issued NCR:
 - .1 Should the Quality Assurance reporting indicate that the Work is not in conformance, the Departmental Representative will issue to the Contractor a NCR, including a response time.
 - .2 The Contractor shall then respond to that NCR, within the specified time, with proposed resolutions and corrective actions.
 - .3 The Departmental Representative will accept or reject the proposed resolution and corrective action proposal.
 - .4 Assurance testing and inspection will be performed to determine if the corrective action has provided an acceptable product. Acceptance and rejection will continue until the Departmental Representative determines that a quality product has been achieved.
 - .5 Payment for the Work itself may be withheld until the NCR issue is resolved.
- .7 The Completion Certificate will not be issued if there are any unresolved Non-Conformance Reports.
- .8 Appealing an NCR:
 - .1 If the Contractor disputes the validity of a finding in an NCR, the Contractor may file an appeal with the Departmental Representative. The Departmental Representative and the Contractor Representative will use all reasonable efforts to refine the area of dispute and to resolve the determination of conformance with the Contract.
 - .2 If the Departmental Representative and the Contractor Representative cannot come to a mutually agreeable resolution, the Work that is the subject of the Non-Conformance Report shall be re-evaluated by an independent third-party, selected by the Departmental Representative in consultation with the Contractor, at a test frequency equivalent to twice that specified in the Contract or to such other frequency as may be mutually agreed between the Departmental Representative and the Contractor.
 - .3 If the appeal testing confirms the non-conformance determination, all appeal testing costs will be borne by the Contractor. If the appeal testing shows that the Work did in fact meet the requirements of the Contract, all appeal testing costs will be borne by the Owner.

1.11 OPPORTUNITIES FOR IMPROVEMENT

- .1 Should the QA review indicate that the Work is not in conformance, but the variance is deemed minor by the Departmental Representative, the Departmental Representative may issue an Opportunity for Improvement (OFI) report.
- .2 The Contractor is encouraged to review the findings and undertake such modifications to the QC Plan and the work procedures as necessary to address the issue.

1.12 REJECTED WORK

- .1 Remove defective Work, whether as a result of poor workmanship, use of defective products or damage and whether incorporated in Work or not. Replace or re-execute defective Work in accordance with Contract Documents, through the NCR process.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in the opinion of the Departmental Representative, it is not expedient to the greater benefit of the Project to remedy defective Work or Work not performed in accordance with Contract Documents, the Owner may deduct from the Contract Price the difference in value between the Work performed and that called for by Contract Documents, the amount of which shall be determined by Departmental Representative.

1.13 REPORTS

- .1 Submit one (1) electronic copy of all inspection and test reports to Departmental Representative in accordance with Section 01 33 00 - Submittals Procedures.

1.14 TESTS AND MIX DESIGNS

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

1.15 MILL TESTS

- .1 Submit mill test certificates as required in the Contract Documents.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 52 00 CONSTRUCTION FACILITIES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 All work of this section shall be incidental to Contract and will not be measured for payment.

1.2 INSTALLATION AND REMOVAL

- .1 Provide construction facilities in order to execute work expeditiously.
- .2 Remove from site all such work after use.

1.3 SITE STORAGE / LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.
- .2 Do not load or permit to load any part of Work with a weight or force that will endanger the Work.

1.4 CONSTRUCTION PARKING

- .1 Provide and maintain adequate access and parking at the project site in areas approved by the Departmental Representative.
- .2 Build and maintain temporary roads and provide snow removal during period of Work.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractors' use of roads.

1.5 SECURITY

- .1 If required by the Contractor, provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays. For extended shut-downs, the Contractor shall provide the level of security as required to protect the Work. The Contractor is advised that some random acts of vandalism to equipment have occurred within the Park. Cost of security personnel is incidental to the Work and no additional payment will be made.
- .2 It is strongly advised that the Contractor consider the provision of security personnel.

1.6 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

1.7 SANITARY FACILITIES

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

1.8 CONSTRUCTION SIGNAGE

- .1 To be in accordance with WCB requirements.
- .2 Not to include branded advertisements of any kind as determined at the Departmental Representative's discretion.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

Part 1 General

1.1 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to the Contract and will not be measured for payment.

1.2 INSTALLATION AND REMOVAL

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

1.3 HOARDING

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

1.4 GUARDRAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around deep excavations.

1.5 WEATHER ENCLOSURES

- .1 Not used.

1.6 DUST TIGHT SCREENS

- .1 Not used.

1.7 ACCESS TO SITE

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

1.8 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.

1.9 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 In accordance with Section 01 14 00 - Work Restrictions.

1.10 PRODUCTS

- .1 Not Used.

Part 2 Execution

- .1 Not Used

END OF SECTION

01 61 00 COMMON PRODUCT REQUIREMENTS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 REFERENCE STANDARDS

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 Conform to these reference standards, in whole or in part as specifically requested in the Contract Documents.
- .3 If there is question as to whether any product or system is in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.
- .5 Conform to latest date of issue of referenced standards in effect on date of submission of Tenders, except where specific date or issue is specifically noted.

1.3 QUALITY

- .1 Products, materials, equipment and articles (referred to as products throughout specifications) incorporated in Work shall be new, not damaged or defective, and of best quality (compatible with specifications) for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.
- .3 Should any dispute arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.
- .4 Unless otherwise indicated in Contract Documents, maintain uniformity of manufacture for any particular or like item throughout building.

1.4 AVAILABILITY

- .1 Immediately after signing the Contract, review product delivery requirements and anticipate foreseeable supply delays for any items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work
- .2 In the event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Store cementitious products clear of earth or concrete floors, and away from walls.
- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials, lumber and miscellaneous metals on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

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

1.7 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in the Contract Documents, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing, of conflicts between Contract Documents 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.

1.8 QUALITY OF WORK

- .1 In accordance with Section 01 45 00 – Quality Control.
- .2 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.
- .3 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.

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

1.9 CO-ORDINATION

- .1 Ensure cooperation of workers in laying out Work. Maintain efficient and continuous supervision.
- .2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 CONCEALMENT

- .1 The Departmental Representative will inspect all work prior to any concrete pours. The Contractor shall notify the Departmental Representative 24 hours before any pour for inspection.

1.11 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Coordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 FASTENINGS

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.
- .5 Keep exposed fastenings to a minimum, space evenly and install neatly.
- .6 Fastenings that cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 PROTECTION OF WORK IN PROGRESS

- .1 Do not cut, drill or sleeve any load bearing structural member without written approval of Departmental Representative, unless specifically indicated.

Part 2 Products

- .1 Materials shall be in accordance with Drawings and Specifications or as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be in accordance with Drawings and Specifications or as directed by the Departmental Representative.

END OF SECTION

01 71 00 EXAMINATION AND PREPARATION**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 REFERENCES

- .1 Owner's identification of existing survey control points and property limits.

1.3 QUALIFICATIONS OF SURVEYOR

- .1 Qualified surveyor, licensed to practise in Place of Work, acceptable to Departmental Representative.

1.4 SURVEY REQUIREMENTS

- .1 The Departmental Representative shall identify the location of all work sites and the provision of georeferenced .DWG design files to the Contractor.
- .2 The Contractor shall be responsible for all other survey and layout work identified in the Contract documents and as required to complete the works including but not limited to:
 - .1 Establishing lines and levels, locate and layout, by instrumentation.
 - .2 Establishing manhole and other structures, invert elevations, grades, and locations.
 - .3 Re-establishing Reference Survey Control Points that are in danger of being damaged or destroyed.
- .3 Survey Accuracy:
 - .1 All survey work shall be tied into the existing Control Monument Network with grid coordinates in UTM Zone 11 NAD 83. Departmental Representative will provide information on Control Points.
 - .2 All traverses will be closed and balanced. All level loops and traverses will be tied into the Control Monument Network.
 - .3 Secondary Control Points will be tied into and relative to Control Monument Network. Accuracy for Control Point surveys shall be to second order:
 - .4 Horizontal shall be less than $r = 5(d+0.2)$ where "r" is in cm and "d" is in km
 - .5 Vertical shall be less than $0.008 \times \sqrt{k}$ where k is distance in kilometers.
- .4 Staking accuracy shall be:
 - .1 All structures shall be within 20 mm of Design elevation and horizontal
- .5 The Departmental Representative will complete quality assurance construction survey measurements to verify grades and alignment, interim survey re-measurements for excavation limits and final neat line measurements to verify payment quantities for completed works.

- .6 Contractor to incorporate as-built surveys of all installed structures and final creek topography within the Record Drawings.
- .7 Contractor to provide a stake out report as requested by the Departmental Representative.

1.5 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 Record locations of maintained, re-routed and abandoned service lines.

1.6 SUBMITTALS

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of Departmental Representative, submit documentation to verify accuracy of field engineering work.
- .3 On request of Departmental Representative, submit survey data.
- .4 Submit certificate signed by surveyor certifying those elevations and locations of completed Work that conform to the Contract Documents.

Part 2 Products

- .1 Not Used.

Part 3 Execution**3.1 CROSS SECTIONS**

- .1 Cross sections will be taken at a maximum of 20 metre intervals. Additional cross sections will be taken where variations occur, including but not limited to: drainage channels, structures and/or other obstructions.
 - .1 Cross section intervals will be established on OG and are to be used for the duration of the project.

3.2 LAYOUT REQUIREMENTS

<u>Survey Layout</u>	<u>Maximum Interval</u>	<u>Product</u>
Storm Drainage, Subdrain, Watermain or Sanitary Sewer		Stakes showing locations of manholes, catch basins and other structures and their relevant inverts, and invert locations of pipe inlets and outlets, as well as stations.
Standpipe		Stakes showing locations

END OF SECTION

01 74 11 CLEANING**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Contractor to provide at least one on-site bear proof containers 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.
- .10 The Departmental Representative and Environmental Surveillance Officer may, at their total discretion, require the Contractor to suspend work activities until such a time as the Work Site is cleaned and debris, waste, and animal attractants are satisfactorily managed. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted.

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 Prior to final review, remove surplus products, tools, construction machinery and equipment.
- .3 Remove waste products and debris including that caused by Owner or other Contractors.
- .4 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Inspect finishes and ensure specified workmanship and operation.
- .7 Remove dirt and other disfiguration from exterior surfaces.

- .8 Sweep and wash clean paved areas.
- .9 Remove all construction debris and accumulated dirt from completed drainage systems; manholes; catch basins; and all piping.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 77 00 CLOSEOUT PROCEDURES

Part 1 General

1.1 MEASUREMENT AND PAYMENT PROCEDURES

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 INSPECTION AND DECLARATION

- .1 Contractor's Inspection: Contractor and all subcontractors shall conduct an inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's Inspection and that corrections have been made.
 - .2 Request Departmental Representative's Inspection.
 - .2 Departmental Representative's Inspection: Departmental Representative and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.
 - .3 Completion: submit written certificate that following have been performed:
 - .1 Work has been completed and inspected for compliance with Contract Documents.
 - .2 Defects have been corrected and deficiencies have been completed.
 - .3 Work is complete and ready for Final Inspection.
 - .4 Final Inspection: when items noted above are completed, request final inspection of Work by Departmental Representative, and Contractor. If Work is deemed incomplete by Departmental Representative, complete outstanding items and request re-inspection.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

01 78 00 CLOSEOUT SUBMITTALS**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 CLOSEOUT SUBMITTALS

- .1 The Contractor shall provide the following documents and information to the Departmental Representative prior to them being eligible for Final Completion as detailed in Section 01 77 00 – Closeout Procedures.

1.3 AS-BUILTS AND SAMPLES

- .1 In addition to requirements in General Conditions, maintain at the site for Departmental Representative one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to the Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction.
- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.4 RECORDING ACTUAL SITE CONDITIONS

- .1 Record information on set of black line opaque Drawings and in copy of the Project Manual.
- .2 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.

- .2 Changes made by change orders.
- .3 Details not on original Contract Drawings.
- .4 References to related shop drawings and modifications.
- .4 Specifications: legibly mark each item to record actual construction, including:
 - .1 Changes made by Addenda and change orders.

1.5 FINAL SURVEY

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

1.6 WARRANTIES AND BONDS

- .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten days after completion of the applicable item of work.
- .4 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial Performance is determined.
- .5 Verify that documents are in proper form, contain full information, and are notarized.
- .6 Co-execute submittals when required.
- .7 Retain warranties and bonds until time specified for submittal.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

02 41 99 DEMOLITION FOR MINOR WORKS**Part 1 General****1.1 SUMMARY**

- .1 Without limiting the Works, this section incorporates:
 - .1 Demolition and removal of Connaught Creek weir and associated infrastructure including but not limited to, sluice gate, timber, and steel sluice gate support.
 - .2 Removal of existing hydroelectric intake structure grate and 400mm steel pipe, and the filling of the remaining structure with gravel fill and abandoning it in place.
 - .3 Removal of the existing intake vault screen and existing raw water supply intake pipe, filling the vault with gravel fill, and abandoning it in place.
- .3 Removal of existing standpipes is incidental to **“Unit Price Item 2 – Supply & Install Water Standpipe Assembly”**.

1.2 MEASUREMENT FOR PAYMENT

- .1 Demolition of the existing structures shall include all labour, material and equipment required to remove, load, haul and dispose of existing structures specified in the Contract Documents at suitable disposal facilities outside of the Park as well as all works to properly abandon remaining infrastructure as required. Payment will be made under **“Lump Sum Price 2 – Weir & Intake Structure Removal”**
- .2 Mobilization and Demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”** and no separate payment will be made to the Contractor.
- .3 Establishment of water isolation, fish barriers, downstream fish exclusion netting, erosion and sediment control and any other relevant and applicable requirement for working in or adjacent to Connaught Creek in accordance with all applicable regulations and permits is incidental to the works and no further payment will be made.
- .4 Asphalt removal, excavation, backfill and surface restoration to existing conditions other than that required elsewhere in the Contract or under other Unit Price Items shall be incidental to Demolition for Minor works and no additional payment will be made.
- .5 Surface restoration and/or repair to any damaged infrastructure, other than that required elsewhere in the Contract or under other Unit Price Items, shall be incidental to Demolition for Minor works and no additional payment will be made.
- .6 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

1.3 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA S350 [M1980(R1998)], Code of Practice for Safety in Demolition of Structures.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 35 43 – Environmental Procedures and Section 01 74 11 – Cleaning.
- .2 Dispose of all waste outside the Park at site obtained by the Contractor.

1.5 SITE CONDITIONS

- .1 Not disrupt services without prior approval to proceed being granted by the Departmental Representative.

Part 2 Products

- .1 Not used.

Part 3 Execution**3.1 PREPARATION**

- .1 The Contractor shall inspect the site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 The Contractor shall locate and protect utilities in accordance with Section 01 14 00 - Work Restrictions.
 - .1 Preserve active utilities traversing the site in operating condition.
 - .2 The Contractor shall notify and obtain approval of utility companies before starting demolition.
 - .3 The Contractor shall disconnect, cap, plug or divert, as required, existing public utilities within the roadway where they interfere with the execution of the work, in conformity with the requirements of the authorities having jurisdiction. Mark the location of these and previously capped or plugged services on the site and indicate location (horizontal and vertical) on the record drawings. Support, shore up and maintain pipes and conduits encountered.
 - .4 Immediately notify the Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
 - .5 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PROTECTION

- .1 The Contractor shall prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features to remain in place.
 - .1 Provide bracing and shoring as required.
- .2 The Contractor shall keep noise, dust, and inconvenience to occupants and public to minimum.

- .3 The Contractor shall provide temporary dust screens, covers, railings, supports and other protection as required.

3.3 SALVAGE

- .1 Salvage items for use in accordance with the Contract documents. Remove items to be reused, store as directed by Departmental Representative and reinstall under the appropriate Section(s) of the Contract Documents.
- .2 Salvaged materials damaged during removal due to the Contractor's negligence shall be replaced at the Contractor's expense.

3.4 REMOVALS

- .1 Remove items as indicated in the Contract Documents or as directed by the Departmental Representative.

3.5 ABANDONMENT

- .1 Abandon items indicated in the Contract documents or as directed by the Departmental Representative.
- .2 Fill voids and abandoned structures with material from adjacent stockpile.

3.6 DISPOSAL

- .1 Manage and dispose of removed hazardous materials and items in accordance with Section 02 81 01.
- .2 Dispose of other materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .3 Recycle other materials for which there is an approved, cost effective recycling process available.
- .4 Send other materials only to authorized disposal sites or facilities.
- .5 Burning, diluting, burying or mixing removed materials for purpose of disposal is prohibited.
- .6 Disposal of any materials in waterways, or storm or sanitary sewers is prohibited.

END OF SECTION

02 81 01 HAZARDOUS MATERIAL**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 This work shall be incidental to Contract and will not be measured for payment.

1.2 REFERENCES

- .1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92-637.
- .2 National Fire Code of Canada 1995.
- .3 Transportation of Dangerous Goods Act, 1992 (TDG Act) [1992], (c. 34).
- .4 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).

1.3 DEFINITIONS

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

1.4 SUBMITTALS

- .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Retain current Material Safety Data Sheet (MSDS) for each hazardous material required on site. Submit MSDS to Departmental Representative upon request.

1.5 STORAGE AND HANDLING

- .1 Coordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4 All explosives must be mixed outside of the Park and delivered to the site. No storage of explosives shall be allowed within the National Parks.

- .5 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.
- .6 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .2 Store hazardous materials and wastes in closed and sealed containers which are in good condition.
 - .3 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .4 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .5 Segregate incompatible materials and wastes.
 - .6 Ensure that different hazardous materials or hazardous wastes are not mixed.
 - .7 Store hazardous materials and wastes in a secure storage area with controlled access.
 - .8 Maintain a clear egress from storage area.
 - .9 Store hazardous materials and wastes in a manner and location which will prevent them from spilling into the environment.
 - .10 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.
 - .11 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .7 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.6 TRANSPORTATION

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:
 - .1 Coordinate transportation and disposal with Departmental Representative.
 - .2 Ensure compliance with applicable provincial laws and regulations for generators of hazardous waste.
 - .3 Use only a licensed carrier authorized by provincial authorities to accept subject material.
 - .4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept the material.
 - .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.

- .6 Ensure that only trained personnel handle, offer for transport, or transport dangerous goods.
- .7 Provide a photocopy of all shipping documents and waste manifests to Departmental Representative.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
- .9 Report any discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 MATERIALS

- .1 Only bring on site the quantity of hazardous materials required to perform Work.
- .2 Maintain MSDSs in proximity to where the materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 DISPOSAL

- .7 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .8 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.
- .9 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .10 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .11 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.

END OF SECTION

31 05 10 CORRECTED DRY DENSITY FOR FILL**Part 1 General****1.1 SUMMARY**

- .1 This Section defines correction to maximum dry density to take into account aggregate particles larger than 19mm.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM)
 - .1 ASTM C127, Standard Test Method for Density, Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.
 - .2 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
 - .3 ASTM D1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
 - .4 ASTM D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

1.3 DEFINITIONS

- .1 Corrected maximum dry density is defined as:
 - .1 $D = (D1 \times D2) / ((F1 \times D2) + (F2 \times D1))$.
 - .2 $D = (F1 \times D1) + (0.9 \times D2 \times F2)$.
 - .3 Where: D = corrected maximum dry density kg/m³.
 - .4 F1 = fraction (decimal) of total field sample passing 19mm sieve.
 - .5 F2 = fraction (decimal) of total field sample retained on 19mm sieve (equal to 1.00 - F1).
 - .6 D1 = maximum dry density, kg/m³ of material passing 19mm sieve determined in accordance with Method A of ASTM D1557.
 - .7 D2 = bulk density, kg/m³, of material retained on 19mm sieve, equal to 1000G where G is bulk specific gravity (dry basis) of material when tested to ASTM C127.
- .1 For free draining aggregates, determine D1 (maximum dry density) to ASTM D4253 wet method when directed by Departmental Representative.

Part 2 Products

- .1 Not Used.

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Part 3 Execution

.1 Not Used.

END OF SECTION

31 37 00 RIPRAP**Part 1 General****1.1 REFERENCES**

- .1 BC MoTI Standard Specifications for Highway Construction (latest edition).

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for the supply and placement of BC MoTI Class 50 Riprap will be made under “**Unit Price Item 1a) – Riprap – Class 50**”. Material to be placed in accordance with the Contract Documents and to the satisfaction of the Departmental Representative.
- .2 Payment for the supply and placement of BC MoTI Class 250 Riprap will be made under “**Unit Price Item 1b) – Riprap – Class 250**”. Material to be placed in accordance with the Contract Documents and to the satisfaction of the Departmental Representative.
- .3 Documents and to the satisfaction of the Departmental Representative.
- .4 No overhaul will be paid for this Work.
- .5 Suitable Riprap material to be sourced from outside of the Parks and delivered to the sites where Riprap material is required.
- .6 Establishment of water isolation, fish barriers, downstream fish exclusion netting, erosion and sediment control and any other relevant and applicable requirement for working in or adjacent to Connaught Creek in accordance with all applicable regulations and permits is incidental to the works and no further payment will be made.
- .7 Excavation, preparation of Riprap base, geotextiles, and any other related materials will be considered incidental to the work.
- .8 Testing of Riprap is considered incidental to the Work and no additional payment will be made.
- .9 Mobilization and demobilization required for this Work shall be incidental to “**Lump Sum Price Item 1 – Mobilization / Demobilization**”, and no additional payment will be made.
- .10 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment will be made to the Contractor.

1.3 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Remove materials defined as hazardous or toxic and dispose of outside of the Parks.
- .3 Divert leftover geotextiles to recycling facility as approved by Departmental Representative. Disposal and/or recycling, including hauling, is incidental to the Work.

Part 2 Products**2.1 STONE**

- .1 Hard, dense with specific gravity not less than 2.60, free from seams, cracks or other structural defects, to meet following Class for use intended:
 - .1 Only non-acid generating and non-metal leaching rock is suitable.
 - .2 Stone Riprap will be supplied by the Contractor from sources outside of the Parks. The Contractor will be responsible for sorting of Riprap and delivering to the sites where Riprap is required.
 - .3 Riprap for creek bank protection and channel re-establishment:
 - .1 BC MoTI Class 50 Riprap
 - .2 BC MoTI Class 250 Riprap
 - .3 Supply rock spalls or cobbles to fill open joints.

2.2 GEOTEXTILE FILTER

- .1 None.

Part 3 Execution**3.1 INSTALLATION OF RIPRAP**

- .1 Ensure water isolation and Erosion and Sediment Control measures remain effective and only place riprap in dry conditions.
- .2 Contractor shall do the layout for placement of Riprap.
- .3 Where Riprap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated.
- .4 Fine grade area where Riprap is to be placed, to a uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .5 Place Riprap (by machine or by hand) to thickness and details as indicated or as agreed to by the Departmental Representative.
- .6 Place stones in manner accepted by Departmental Representative to secure surface and create a stable mass or to match existing Streambed. On slopes, place larger stones at bottom of slopes.
- .7 Hand placing Riprap:
 - .1 Use larger stones for lower courses and as headers for subsequent courses.
 - .2 Stagger vertical joints and fill voids with rock spalls or cobbles.
 - .3 Finish surface evenly, free of large openings and neat in appearance.

END OF SECTION

33 05 15 MANHOLES AND CATCH BASIN STRUCTURES**Part 1 General****1.1 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 Supply and install of Modified Manhole structures:
 - .1 The supply and installation of Modified Manhole structures will be measured for payment as Lump Sum. Payment will be made under **“Lump Sum Item 3 – Modified Manhole Structure”** based on the following:
 - .1 Up to 50% once all materials are supplied and stockpiled at site.
 - .2 Up to 80% once all materials are installed.
 - .3 Up to 100% once all site finishing and restoration is complete.
 - .2 All supply, transportation, assembling, loading, hauling, unloading, stockpiling and protecting is considered incidental to the Work and no additional payment will be made.
 - .3 The supply and installation of gratings and ancillary materials and hardware will not be measured directly for payment but shall be considered incidental **“Lump Sum Item 3 – Modified Manhole Structure”**. Among other things, this includes at least the following:
 - .1 Trash rack
 - .2 Fish screen
 - .3 Access hatch, frame, and cover
 - .4 Gate valve
 - .5 Ladder
 - .6 Piping and connections to existing supply line including but not limited to drain pipe, vent pipe, and 200mm PVC raw water supply line.
 - .7 Gravel bedding and backfill
 - .8 All other specified details, supports, and connections.
- .2 The survey and layout of structures as per requirements identified in this Section, will not be measured directly for payment but shall be considered incidental to the Work.
- .3 Establishment of water isolation, fish barriers, downstream fish exclusion netting, erosion and sediment control and any other relevant and applicable requirement for working in or adjacent to Connaught Creek in accordance with all applicable regulations and permits is incidental to the works and no further payment will be made.
- .4 Placing Riprap for will be paid under **“Unit Price Item 1 – Riprap”**, in accordance with Section 31 37 00 – Riprap.
- .5 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 - Mobilization / Demobilization”**, and no additional payment will be made.
- .6 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment will be made to the Contractor.

1.2 REFERENCES

- .1 American Society for Testing and Materials (ASTM International)
 - .1 ASTM A48/A48M, Standard Specification for Gray Iron Castings.
 - .2 ASTM C139, Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes.
 - .3 ASTM C478M, Specification for Precast Reinforced Concrete Manhole Sections.
 - .4 ASTM C618, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
 - .5 ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.
 - .2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.
- .3 Canadian Standards Association (CSA International)
 - .1 CAN/CSA-A3000, Cementitious Materials Compendium.
 - .2 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test for Concrete.
 - .3 CSA-A165, CSA Standards on Concrete Masonry Units.
 - .4 CAN/CSA-G30.18, Carbon Steel Bars for Concrete Reinforcement.
 - .5 CAN/CSA-G164-M92R1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
- .4 BC MoTI – Standard Specifications for Highway Construction Manual (latest edition)

1.3 SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit manufacturer's test data and certification in accordance with Section 01 33 00 – Submittal Procedures prior to beginning Work. Include manufacturer's Drawings, information and shop drawings for all ancillary components.

1.4 STAGED CONSTRUCTION

- .1 Provisions for staged construction shall be shown in the shop drawings, including any temporary support required, until catch basin structure is complete.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Protection.
- .2 Collect and separate for disposal packaging material for recycling in accordance with Section 01 35 43 – Environmental Procedures.
- .3 Divert unused metal and wiring materials from landfill to metal recycling facility as approved by Departmental Representative, outside of the National Parks.
- .4 Unused concrete materials to be disposed of outside of the Parks.

Part 2 Products**2.1 MATERIALS**

- .1 20mm crush material for bedding to be supplied by the Contractor from outside the Park.
- .2 Suitable material for backfill to be supplied by the Contractor from outside the Park or produced from suitable material excavated from within the design cuts and structure excavations.
- .3 Concrete mixes and materials: in accordance with BC MoTI – Standard Specifications for Highway Construction Manual (latest edition).

Part 3 Execution**3.1 EXCAVATION AND BACKFILL**

- .1 Install water isolation and Erosion and Sediment Control measures as approved by the Departmental Representative, and in accordance with all applicable permits and the requirements of all regulatory bodies having jurisdiction.
- .2 Excavation and backfill are incidental to the Work.
- .3 If unsuitable materials are encountered within the excavation, dispose of those materials as approved by the Departmental Representative, and make up the volume of backfill from the existing gravel stockpile adjacent to the site.
- .4 Obtain approval of Departmental Representative before installing manholes or catch basins.

3.2 INSTALLATION

- .1 Ensure water isolation and Erosion and Sediment Control measures remain effective and only work in dry conditions.
- .1 Construct units in accordance with details indicated on the drawings, plumb and true to alignment and grade.
- .2 Dewater excavation to approval of Departmental Representative and remove soft and foreign material before placing concrete base.
- .3 Precast units:
 - .1 Set precast concrete unit on 200 mm minimum of 20mm (NMS) gravel material compacted to 100% Standard Proctor density to ASTM D698 with the top of units at correct elevation.
 - .2 Clean surplus mortar and joint compounds from interior surface of unit as work progresses.
 - .3 Plug lifting holes with precast concrete plugs set in cement mortar or mastic compound.
- .4 Grout around pipes that lead to and from the precast units and trim the pipes flush with the inside surface of the precast unit.
- .5 Place concrete for bottom and bending, as per the Contract Documents.

- .6 Install appurtenances in accordance with relevant specifications manufacturers requirements.
- .7 Compact backfill to 98% Standard Proctor density to ASTM D698 no sooner than seven (7) days after concrete placement in lifts not exceeding 300mm.
- .8 Final position and elevation of manhole lids and catch basin grates to be reviewed by Contractor's Quality Control and Departmental Representative prior to acceptance.
- .9 Clean units of debris and foreign materials. Remove fins and sharp projections. Prevent debris from entering system.

END OF SECTION

33 14 16 SITE WATER UTILITY DISTRIBUTION PIPING**Part 1 General****1.1 SCHEDULING OF WORK**

- .1 Schedule work to minimize interruptions to existing services.
- .2 Submit schedule of expected interruptions for approval by Departmental Representative.
- .3 Notify Departmental Representative a minimum of 48 hours in advance, of any interruption in service.
- .4 Notify Departmental Representative of any planned or accidental interruption of water supply to hydrants.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Supply and installation of the water stand pipe assembly to be measured in complete units installed. **Unit Price Item 2 – “Supply & Install Water Standpipe Assembly”**. Payment shall be compensation in full for excavation, supplying and installing water service pipe, water main connections, valves including fittings and adapters, all fittings required including double spigot, backfilling, concrete post support, wood post (blue) with sign, protective sleeve, drain rock and all other work and material required to install the standpipe.
- .2 All supply, assembling, loading, hauling, unloading, stockpiling and protecting is considered incidental to the Work and no additional payment will be made.
- .3 The supply and installation ancillary materials and appurtenances will not be measured directly for payment but shall be considered incidental **“Unit Price Item 2 – “Supply & Install Water Standpipe Assembly”**. Among other things, this includes at least the following:
 - .1 Blow-off
 - .2 Thrust blocks
 - .3 Inlets
 - .4 Valves
 - .5 Camlock fittings
 - .6 Piping and connections to existing mainline line
 - .7 Valve boxes
 - .8 All other specified details and connections between and including the mainline connection and the camlock fittings identified in the Drawings and Specifications.
- .4 Demolition and removal of existing standpipes is incidental to the works.
- .5 Supply and installation of water main in open trench shall be paid for under **“Unit Price Item 3 – Supply & Install Water Supply Line c/w connections”** per linear meter of pipe measured from the 50mm vent pipe to the connection to the existing raw water supply line. Price shall be full compensation for all work necessary for the supply and installation of water mains, including excavating, trenching, gravel bedding, removal of existing

watermain where required, pipe laying, tracer wire, bends, tees and all appurtenances, jointing, thrust blocking, cathodic protection, backfill, re-instatement of pavement, temporary connections to existing mains, testing, and flushing and no additional payment will be made.

- .6 The survey and layout of structures, and piping as per requirements identified in this Section, will not be measured directly for payment but shall be considered incidental to the Work.
- .7 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 - Mobilization / Demobilization”**, and no additional payment will be made.
- .8 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment will be made to the Contractor.
- .9 Connection of the new passive water intake to the existing raw water supply line is incidental to **“Lump Sum Price Item 3 – Modified Manhole Structure”** and no additional payment will be made.

1.3 PROTECTION

- .1 Disruption of Water Supply
 - .1 Notify Departmental Representative in writing at least 48 hours prior to any anticipated interruptions in their water service. Where possible, schedule interruptions to occur in non-peak hours.
- .2 Live Valve Operation during Construction
 - .1 Parks is responsible for existing live valve operation.
 - .2 At no time shall the contractor be permitted to operate live valves.
 - .3 Requests for valve operation will follow the notification timelines above.
 - .4 It will remain the responsibility of the Contractor to ensure that valves which are closed for construction are kept closed and secured until Construction Completion Certificates are issued, except for the following construction activities:
 - .1 Filling water mains for wet tapping of service.
 - .2 Pressure and leakage testing.
 - .3 Disinfection and subsequent flushing.
 - .4 Other instances specifically approved by the Departmental Representative
 - .5 To prevent backflows, not more than one existing live valve is to be operated at one time.

Part 2 Products

2.1 PIPE, JOINTS AND FITTINGS

- .1 Pipe
 - .1 PVC Pipe

- .1 Polyvinyl chloride pressure pipe to CAN3-B.137.3 (AWWA C900 for 100 mm to 300 mm diameter pipe and AWWA C905 for 350 mm to 1,200 mm diameter pipe), pressure class 150, cast iron outside diameter, designated DR 18 and colored blue.
 - .1 Joints:
 - .1 Polyvinyl chloride pipe joints to be bell and spigot joints with gaskets conforming to AWWA C111. Mechanical and flange joints with gaskets conforming to AWWA C111 to be used when specified or approved by Departmental Representative. Denso tape or approved equal to be applied to all mechanical joint fittings.
 - .2 Fittings:
 - .1 Polyvinyl chloride fitting to CAN 3-B.137.3, pressure class 150 with bell end joints and gaskets conforming to AWWA C111.
 - .2 Cast ductile iron fitting to AWWA C110 with bell end joints with gaskets conforming to AWWA C111. Mechanical and flange joints as specified or approved by Departmental Representative, with gaskets conforming to AWWA C111 and ANSI 303 stainless steel bolts, hex head nuts and washers conforming to ASTM A-3200.

2.2 VALVES AND VALVE BOXES

- .1 Gate valves to be resilient seat gate valves conforming to AWWA C509 and approved for potable water service.
 - .1 Working pressure 1034 kPa.
 - .2 Iron body, double disc or solid wedge with full 360E rubber to cast iron resilient seat. Resilient seat to be bonded or mechanically attached to gate and valve body.
 - .3 Valve interior to be epoxy coated for corrosion protection.
 - .4 Non-rising stem with o-ring seals.
 - .5 50 mm square operating nut.
 - .6 Valves to open counter clockwise.
 - .7 Exterior to be factory coated.
 - .8 All exterior bolts and nuts must be T304 stainless steel.
 - .9 Valves in water bypass flow meter chamber to be painted oxford blue
- .2 Cast ductile iron valve boxes to be bituminous coated three-piece screw down type, Norwood type B or approved equal.

Part 3 Execution

3.1 PREPARATION

- .1 Clean pipes, fittings, valves, hydrants, and appurtenances of accumulated debris and water before installation. Carefully inspect materials for defects. Remove defective materials from site.

3.2 REMOVALS

- .1 Do removals work in accordance with Section 02 41 99 Demolition for Minor Works.

3.3 PIPE INSTALLATION

- .1 Lay pipes to manufacturer's standard instructions and specifications.
- .2 Join pipes in accordance with manufacturer's recommendations. Apply a minimum amount of pipe lubricant only to the beveled end of the pipe spigot.
- .3 Handle pipe by approved methods. Do not use chains or cables passed through pipe bore so that weight of pipe bears on pipe ends.
- .4 Lay pipes on prepared bed, true to line and grade. Ensure barrel of each pipe is in contact with shaped bed throughout its full length. Remove and replace defective pipe. Correct pipe which is not in true alignment or grade or pipe which shows undue settlement after installation
- .5 Face bell ends of pipe upstream.
- .6 Do not exceed permissible deflection at joints or bending through length of pipe as recommended by pipe manufacturer.
- .7 Keep jointing materials and installed pipe free of dirt and water and other foreign materials. Whenever work is stopped, install a removable watertight bulkhead at open end of last pipe laid to prevent entry of foreign materials.
- .8 Position and join pipes with equipment and methods approved by the Departmental Representative. The use of excavator or backhoe buckets for pipe connection shall "NOT" be permitted.
- .9 Cut pipes in an approved manner as recommended by pipe manufacturer without damaging pipe or its coating and to leave smooth end at right angles to axis of pipe.
- .10 Align pipes carefully before jointing.
- .11 Install gaskets to manufacturer's recommendations. Support pipes with hand slings or crane as required to minimize lateral pressure on gasket and maintain concentricity until gasket is properly positioned.
- .12 Avoid displacing gasket or contaminating with dirt or other foreign material. Gaskets so disturbed or contaminated shall be removed, cleaned, lubricated and replaced before jointing is attempted again.
- .13 Complete each joint before laying next length of pipe.
- .14 Minimize deflection after joint has been made.
- .15 Apply sufficient pressure in making joints to ensure that joint is completed to manufacturer's recommendations.
- .16 Ensure completed joints are restrained by compacting bedding material alongside and over installed pipes or as otherwise approved by Departmental Representative
- .17 When work stoppage occurs, block pipes in an approved manner to prevent creep during down time.
- .18 Recheck plastic pipe joints assembled above ground after placing in trench to ensure that no movement of joint has taken place.
- .19 Do not lay pipe on frozen bedding.

- .20 Protect hydrants, valves and appurtenances from freezing.
- .21 Upon completion of pipe laying and after Departmental Representative has inspected work in place, surround and cover pipes between joints with approved granular material placed to dimensions indicated or directed by Departmental Representative.

3.4 VALVE AND FITTING INSTALLATION

- .1 Install valves, fittings, and blow-offs to manufacturer's recommendations at locations indicated.
- .2 Support valves and blow-offs located in valve boxes or valve chambers by means of preserved wood blocks located between valve and solid ground.
- .3 All subsurface bolted connections in contact with the soil shall be stainless steel and wrapped in denso-tape.
- .4 All fittings that require concrete thrust blocks shall be wrapped in plastic to avoid concrete coming in contact with pipe or fittings
- .5 Bevel or taper ends of PVC pipe to match fittings.
- .6 Install underground post-type indicator valves as indicated.

3.5 THRUST BLOCKS AND RESTRAINED JOINTS

- .1 Place concrete thrust blocks between valves, tees, plugs, caps, bends, changes in pipe diameter, reducers, hydrants and fittings and undisturbed ground.
- .2 Keep joints and couplings free of concrete.
- .3 Do not backfill over concrete within 24 hours after placing.

3.6 PIPE SURROUND

- .1 Add per Drawings.

3.7 BACKFILL

- .1 Place crushed rock where specified.
- .2 Backfill with native material to existing pavement subgrade.
- .3 Place road gravels and hot mix asphalt to match existing conditions while taking all necessary care to protect standpipe assembly.

3.8 STANPIPE INSTALLATION

- .1 Install standpipe, valves, and fittings to manufacturer's recommendations at locations indicated.

3.9 SURFACE RESTORATION

- .1 After installing and backfilling over water mains, restore surface to original condition as detailed in the specifications and drawings.

END OF SECTION

35 01 40.51 WATERWAY MAINTENANCE DREDGING**Part 1 General****1.1 MEASUREMENT AND PAYMENT**

- .1 Measurement Procedures:
 - .1 Cleaning and deepening of existing channels will be paid under “**Lump Sum Item 4 – Remove Creek Bedload**”.
 - .2 The survey and layout as per requirements, will not be measured directly for payment but shall be considered incidental to the Work.
- .7 Mobilization and demobilization required for this Work shall be incidental to “**Lump Sum Price Item 1 - Mobilization / Demobilization**”, and no additional payment will be made.
- .8 Incidentally to “**Lump Sum Item 4 – Remove Creek Bed**” the Contractor shall provide a fish pass assessment as prepared by a Qualified Environmental Professional.
- .9 Establishment of water isolation, fish barriers, downstream fish exclusion netting, erosion and sediment control and any other relevant and applicable requirement for working in or adjacent to Connaught Creek in accordance with all applicable regulations and permits is incidental to the works and no further payment will be made.
- .10 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment will be made to the Contractor.

1.2 DEFINITIONS

- .1 Common excavation: materials of whatever nature including dense tills, hard pan, frozen materials and partially cemented materials which can be ripped and excavated with heavy construction equipment. Removal of existing weir, passive water intake and all associated infrastructure is measured under Section 02 41 16.09 - Structure Demolition.
- .2 Unclassified excavation: deposits of whatever character encountered in Work.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section [01 33 00- Submittal Procedures].
- .2 Submit information as follows for channel excavation operation:
 - .1 Description of processes to be implemented including, but not limited to, Instream Works Plan, Erosion and Sediment Control Plan, Environmental Protection Plan.
 - .1 Detailed operating procedures for proposed excavation method.
 - .2 Detailed operating procedures for proposed dewatering and water isolation method.

1.4 QUALITY ASSURANCE

- .1 Regulatory Requirements: ensure Work related to dredging is performed in compliance with Section 01 35 43- Environmental Procedures.

- .1 When required obtain and be responsible for all certificates, permits, and license necessary for performance of Work in accordance with authorities having jurisdiction.

1.5 ENVIRONMENTAL PROTECTION AND REPORTING

- .1 Provide erosion and sediment control measures to prevent migration of suspended sediments in downstream areas and erosion of on-site soils/sediments during the execution of the work as per requirements of Section 01 35 43- Environmental Procedures.
- .2 The Contractor shall provide a fish passage assessment of the existing segment of Connaught Creek running between the new passive water intake system and the upstream inlet to the Connaught Creek box culvert crossing under the TCH.
- .3 The fish passage assessment that be provided in a report prepared by a Qualified Environmental Professional and include, among other things, at least the following:
 - .1 Field review by the QEP and photos from that field review.
 - .2 A professional assessment of the fish passage through the creek segment.
 - .3 Identification and explanation of any barriers to fish passage.
 - .4 The QEP's seal and/or certification.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Dispose of waste material to be outside of the Parks at and location provided by the Contractor.

Part 2 Products

2.1 MATERIALS

- .1 Not Used.

Part 3 Execution

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for waterway channel maintenance.
 - .5 Visually inspect substrate in presence of Departmental Representative.
 - .6 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .7 Proceed with maintenance work only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.2 EXCAVATION

- .1 Deepen existing channels to design lines, grades and cross sections as indicated.

- .2 Confirm existing grades and adjust excavation quantities as necessary to produce desired channel configuration.
- .3 Provide and maintain means and devices for dewatering of water entering excavated areas.
 - .1 Remove water as fast as it collects without interfering with execution of work as reviewed by Departmental Representative.
- .4 Stockpile fill material at on-site staging area as directed by Departmental Representative.
- .5 Provide adequate silt control as provided for in Section 01 35 43 - Environmental Procedures.
- .6 Do not place excavated materials adjacent to channel in manner that will impede flow of surface water from adjacent land, or cause instability of channel banks.
- .7 Upon completion of excavation, clean and trim site.
 - .1 Reinstate disturbed areas immediately after completion of grading as directed by Departmental Representative.
- .8 Dispose of excavated materials:
 - .1 Off site as directed by Departmental Representative.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11- Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11- Cleaning.

END OF SECTION

Project No. XXXXXX

Connaught Creek
Weir Removal & Passive
Water System Upgrade

Glacier National Park

Parks Canada Agency

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