

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 14 00 – Work Restrictions.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract generally comprises re-grading, removal and placement of excess material, and revegetation of an existing construction road to create a multi-use trail, accessible by road via Cave and Basin National Historic Site and Sundance Canyon Trail, in Banff, Alberta; and further identified as:
 - .1 Prime Contractor responsible for the work zone.
 - .2 Re-grading, excavating and filling within an existing construction road alignment, using existing roadbed material, to create a new trail segment.
 - .3 Removal of excess roadbed material, screening and placement of materials on nearby trail (Sundance Rd)
 - .4 Supply and application of a hydraulically applied engineered soil medium containing native seed mix for areas to be revegetated.
 - .5 Hydromulching to secure engineered soil medium (as separate application or in combination with engineered soil medium application)
 - .6 Installation of post and rail fence
 - .7 Reclamation of existing decommissioned trail segment
 - .8 Temporary traffic, pedestrian and equestrian-user signage, control, and protection plan as well as coordination of project delivery to facilitate user group access.
 - .9 Environmental Protection Plan
 - .10 All other work included in Drawings and Specifications not listed herein.

1.03 WORK BY OTHERS

- .1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Departmental Representative.
- .2 The Contractor is advised that there may be other contractors working in the vicinity of the contract location.
- .3 The Contractor who is awarded this Contract shall be the Prime Contractor for the management of Site Safety and Traffic Control.

1.04 WORK SEQUENCE

- .1 Schedule work progress to allow Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 Co-ordinate Work with other Contractors / Departmental Representatives doing maintenance, survey / testing work.
- .3 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 16.07 Construction Progress Schedules.
- .4 **The contractor will attempt to complete the entire project scope during the fall 2022 construction window (starting October 11th, 2022); when trail user-groups use is minimal.**
- .5 Obtain **Substantial Performance Certificate by November 01, 2022.**

- .6 **Complete all work by November 15th, 2022.**
- .7 Maintain fire and emergency access on the roadways at all times; including access to Sundance Canyon.

1.05 CONTRACTOR USE OF PREMISES

- .1 Contractor has unrestricted use of site subject to Section 01 14 00 –Work Restrictions 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 Limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Work by other contractors.
 - .3 Guiding by horse outfitters.
- .3 Co-ordinate use of premises under direction of Departmental Representative.
- .4 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .5 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.06 OWNER OCCUPANCY

- .1 Owner will occupy premises during entire construction period for execution of normal operations.
- .2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.07 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.
 - .6 Change Orders.
 - .7 Other Modifications to Contract.
 - .8 Field Test Reports.
 - .9 Copy of Approved Work Schedule.
 - .10 Health and Safety Plan and Other Safety Related Documents.
 - .11 Other documents as specified.

2 PRODUCTS

2.01 NOT USED

.1 Not used.

3 EXECUTION

3.01 NOT USED

.1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 43 – Environmental Procedures.

1.02 ACCESS AND EGRESS

- .1 Provide for pedestrian, cyclist, equestrian, and vehicular traffic on Sundance Canyon Trail for the duration of the construction (minimum 2 m pavement width access where fencing is required on Sundance Rd). Contractor should limit fencing of Sundance rd. to when required for Work.
- .2 The existing trail segment to be replaced is to remain open to trail users until new trail alignment has been completed and accepted by the Departmental Representative.
- .3 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.
- .4 The Contractor is responsible for the development and supply of construction access to the Work as approved by the Departmental Representative.
- .5 Coordinate, at the discretion and direction of the Departmental Representative, with equestrian outfitters to ensure minimal conflict with equipment on the Sundance rd. May include periodic, short, work shut down to allow passage of horses (until October 17th and after April 15th).

1.03 USE OF SITE AND FACILITIES

- .1 The Work Site 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.
- .2 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.
- .3 Office-tool trailer may be set up within the limits of the Works. See Section 01 35 43 – Environmental Procedures.
- .4 The Contractor shall not store material or park equipment in the Cave and Basin National Historic Site parking lot unless written approval is obtained from the Departmental Representative.
- .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

- .9 Pets shall not be brought to or maintained at the construction site.

1.04 ZERO DISTURBANCE AREA

- .1 A ceremonial area exists near the Work Site, to be flagged by Parks Canada. There shall be no entry or disturbance to this area.

1.05 WORKING TIMES

- .1 Work in Banff National Park is permitted 7 days a week during daylight hours from the following;

Month	Start	Finish
January	9:00 AM	4:30 PM
February	8:30 AM	5:00 PM
March	8:30 AM	6:00 PM
April	7:30 AM	8:00 PM
May	7:30 AM	8:30 PM
June	7:30 AM	9:00 PM
July	7:30 AM	9:00 PM
August	7:30 AM	8:00 PM
September	8:00 AM	7:00 PM
October	9:00 AM	5:30 PM
November	9:00 AM	4:00 PM
December	9:00 AM	4:00 PM

1.06 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 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.

1.07 UTILITIES

- .1 The Contractor remains fully responsible for determining the full and accurate extent of utilities within the area of their Works. The Contractor shall be responsible for cost of repair of any damage resulting from their operations.
- .2 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.
- .3 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.
- .4 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.
- .5 The Contractor shall assess the possible impact of its operations on all Utilities that may be

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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.

- .6 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.

1.08 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, 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.

1.09 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall comply with all applicable safety regulations of WorkSafe AB and the Workers Compensation Act of 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 Alberta (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 existing roads and streets except at material loading areas, or alternate sites as designated and approved by the Departmental Representative. Steel tracked equipment with cleats will not be allowed on pavement designated for future use. If or when crossing asphalt designated for future use, rubber mats must be used under the tracks to protect the asphalt. Materials may be hauled on existing roads and streets but this shall be by standard highway trucks not exceeding legal roadway load limits unless accepted in writing by the Departmental Representative.
- .2 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.

1.11 WASTE DISPOSAL

- .1 All surplus, unsuitable, and waste materials shall be removed from the Work Site to approved sites outside Banff National Park. Refer to Section 01 35 43 – Environmental Procedures.
- .2 Depositing any construction debris into any waterway is strictly forbidden.
- .3 Cost for Waste Disposal described above shall be considered incidental to the contract price proposal, and no additional payment will be made.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 DESCRIPTION

- .1 Mobilization and demobilization consists of preparatory work and operations including, but not limited to, those necessary for moving personnel, materials, equipment, camp, buildings, supplies, incidentals, and other facilities to and from the project sites.
- .2 Mobilization shall include all access road design, construction activities, and materials to allow access to the Work Site.
- .3 Mobilization shall include the supply, maintenance, and demobilization of the site offices to the Work Site for the Contract Period.
- .4 Demobilization shall include reinstatement off all access, trails, and vegetated areas to their original condition, or a condition that satisfies the Departmental Representative and all other Agencies having Jurisdiction.
- .5 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.
- .6 All mobilization and demobilization through the Cave and Basin facility road will require flaggers as per Section 03 35 00_06 Special Procedures for Traffic Control.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment shall be made under "Lump Sum Price Item 1 – Mobilization/Demobilization".
- .2 60% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
- .3 The Remainder of Lump Sum Price for Mobilization and Demobilization is to be paid when work is complete, and all materials, equipment, camp, offices, incidentals, and other facilities have been removed from site, and the site has been cleaned and left in a condition that satisfies the Departmental Representative and all other Agencies having Jurisdiction.
- .4 Demobilization and subsequent remobilization due to incomplete work will not be measured for payment.
- .5 Payment up to 10% of the total price tendered will be scheduled as outlined above. If the amount bid for Mobilization and Demobilization is greater than 10% of the total price tendered, payment of the remainder of the amount will be authorized when contract has been completed.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 14 00 – Work Restrictions.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 01 32 16.07 – Construction Progress Schedules.
- .4 Section 01 33 00 – Submittal Procedures.
- .5 Section 01 52 00 – Construction Facilities.
- .6 Section 01 35 29.06 – Health and Safety Requirements.
- .7 Section 01 45 00 – Quality Control.
- .8 Section 01 77 00 – Closeout Procedures.
- .9 Section 01 78 00 – Closeout Submittals.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 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 email will be issued by the Departmental Representative. The design variance email 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 email must be acknowledged 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.

1.04 COORDINATION

- .1 The Contractor shall coordinate progress schedules, submittals, use of site, temporary utilities, construction facilities, construction Work, and Work by others, under the direction of the Departmental Representative.
- .2 The Contractor shall coordinate with other contractors, subcontractors, and stakeholders at the Work site to develop a schedule agreeable to all parties to carry out the Work without interruption.

1.05 PRECONSTRUCTION MEETING

- .1 Within seven (7) days after award of Contract, attend a Preconstruction meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. Senior representatives of PCA, the Engineer of Record, the Departmental Representative, the Contractor, major Subcontractors, field inspectors, and supervisors are to attend the preconstruction meeting. The meeting will be held in Banff National Park (time and location to be determined), and will be chaired by the Departmental Representative.
- .2 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 16.07 – 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 29.06 – Health and Safety Requirements, 01 52 00 – Construction Facilities and 01 35 43 – Environmental Procedures.
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
 - .7 Owner-furnished materials.
 - .8 Monthly progress claims, administrative procedures, photographs, and holdbacks.
 - .9 Closeout procedures and submittals in accordance with Sections 01 77 00 – Closeout Procedures and 01 78 00 – Closeout Submittals.
 - .10 Insurances and transcript of policies.
 - .11 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.

1.06 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.

1.07 SUBMITTALS

- .1 The Contractor shall submit a Weekly Progress Report to the Departmental Representative including, at a minimum, an update on construction progress, an updated schedule, and any anticipated changes to the work scope.
- .2 The Contractor shall submit a Daily Quantity Sheet the following business day to the Departmental Representative.
- .3 The Contractor shall submit requests for payment to the Departmental Representative for review and transmittal.
- .4 The Contractor shall submit requests for interpretation of Contract Documents, and obtain instructions through the Departmental Representative.
- .5 The Contractor shall process Contemplated Change Notices (CCN) and Change Orders (CO) through the Departmental Representative.
- .6 The Contractor shall deliver closeout submittals for review and preliminary inspections to the Departmental Representative for transmittal.
- .7 Requests for Information and Requests for Variance: Any RFIs or RFVs shall receive a response within seven (7) working days. Each RFI or RFV shall be uniquely numbered and shall be in electronic email format.
- .8 Non-conformances (NC) shall be resolved prior to issuance of the Certificate of Substantial Completion.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 14 00 – Work Restrictions.
- .3 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. An activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally, Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity).
- .4 Construction Work Week: Monday to Sunday, will provide seven-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 activity or other project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: 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.

1.04 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 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.

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- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim (Substantial Completion) Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .5 After review, revise and resubmit schedule to comply with revised project schedule.
- .6 During progress of Work revise and resubmit as directed by the Departmental Representative.
- .7 Include the requirements of Section 01 14 00 – Work Restrictions and Section 01 35 43 – Environmental Procedures.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within seven (7) working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within five (5) working days of receipt of acceptance of Master Plan.

1.06 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule.
 - .1 Re-grading and construction of new trail alignment, including removal of excess roadbed material.
 - .2 Screening, placement and compaction of excess roadbed materials along Sundance Rd
 - .3 Biotic earth, seeding and hydromulch placement and seeding.
 - .4 Reclamation of decommissioned trail segment.
 - .5 Project site securement for winter break (if required)
- .2 Include in Project Schedule the Contractual dates under Section 01 11 00 - Summary of Work.

1.07 MASTER PLAN

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

1.08 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Contract Award.
 - .2 Permits.
 - .3 Pre-Mobilization Submittals.
 - .4 Shop Drawings, Samples.
 - .5 Mobilization.
 - .6 Re-Grade New Trail Alignment

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- .7 Excess material screening and placement
- .8 Topsoil placement and seeding:
- .9 Reclamation of decommissioned trail segment
- .10 Interim (Substantial Completion) Inspection.
- .11 Remediation of any noted deficiencies.
- .12 Demobilization.
- .13 Final Completion.

1.09 PROJECT SCHEDULE REPORTING

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

1.10 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.
- .2 Weather related delays with their remedial measures will be discussed and negotiated.

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 32 16.07 – Construction Progress Schedules.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 01 35 29.06 – Health and Safety Requirements.
- .4 Section 01 35 00.06 – Special Procedures for Traffic Control.
- .5 Section 01 45 00 – Quality Control.
- .6 Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
- .7 Section 01 78 00 – Closeout Submittals.
- .8 Section 32 92 19.13 – Mechanical Seeding.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 The submittals shall be in electronic format (Word, Excel, PowerPoint, Project, or PDF) sent by email to the Departmental Representative. Details will be provided during the pre-construction meeting.
- .3 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.
- .4 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .5 Where items or information is not produced in SI Metric units converted values are acceptable.
- .6 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .7 All documents shall be clearly, accurately, and unambiguously marked with the associated date of the document. Where a document has been revised and resubmitted, it shall bear record of the revision by revision number or letters and dates.
- .8 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .9 Verify field measurements and affected adjacent Work is consistent.

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- .10 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .11 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .12 Keep one accepted copy of each submission on site.
- .13 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.
- .14 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.

1.04 PRODUCT DATA

- .1 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.
- .2 Submit one (1) electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
 - .2 Testing must have been completed within maximum allowable time from date of contract award for project, as specified in Contract Documents.
- .3 Submit one (1) electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
 - .2 Certificates must be dated after award of project contract complete with project name.
- .4 Submit one (1) electronic copy of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .5 Submit one (1) electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
- .6 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .7 Submit one (1) electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.

- .8 Delete information not applicable to project.
- .9 Supplement standard information to provide details applicable to project.

1.05 SAMPLES

- .1 Not used.

1.06 MOCK-UPS

- .1 Not used.

1.07 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, the Contractor shall submit the Contractor's Workers' Compensation Board status to the Departmental Representative.
- .2 Immediately after award of Contract, the Contractor shall submit a transcription of their insurance coverage and policy to the Departmental Representative.

1.08 REQUIRED CONTRACTOR SUBMITTALS

.1 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 as noted in Submittal Schedule:

- .1 **Project Schedule**, detailing the schedule of the workdays required from Contractor, subcontractors, suppliers and consultants to complete each activity of the project by location in order to meet stages specified in Section 01 32 16.07 – Construction Progress Schedules. In addition, for each activity critical elements that could impact on the schedule are to be identified.
- .2 **Environmental Protection Plan (EPP)** that meets the requirements of Section 01 35 43 – Environmental Procedures. Submission of EPP must allow seven (7) days for review by the Parks ESO, in accordance with Section 01 35 43 – Environmental Procedures.
- .3 **Restricted Activity Permits** - 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. The Contractor is required to submit an application form to the Departmental Representative for each required RAP. Allow no less than 1 week for review and acceptance by the Parks ESO, in accordance with Section 01 35 43 – Environmental Procedures.
- .4 **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. Where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative. Health and Safety Plan must include in accordance with Section 01 35 29.06 – Health and Safety Requirements:
 - .1 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. Emergency Response Plan can be incorporated into the Health and Safety Plan.

- .5 **Traffic Management Plan**, in accordance with the requirements of Section 01 35 00.06 – Special Procedures for Traffic Control.
 - .6 Contractor and any subcontractors to submit a copy of their valid **Parks Canada Business License**.
 - .7 **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.
 - .8 **List of Subcontractors**, suppliers and consultants, their role and their key personnel, including names and positions, addresses, telephone and cellular telephone.
 - .9 A **Work Plan** describing the Contractor's intended methods of construction including, but not limited to, methods of construction, required equipment, required material, required personnel, environmental mitigation strategies, and projected number of personnel on site. Work plan will include a **site plan** that will indicate staging areas, proposed fences, and sanitary facility.
 - .10 **Product Data** – The Contractor shall submit all product data and certificates required to conduct the work a minimum seven (7) working days prior to production.
 - .11 **Waste Source Separation Program**, in accordance with the requirements of Section 01 74 21 – Construction/Demolition Waste Management and Disposal.
 - .12 The Contractor shall not begin any Work on the Site until the Departmental Representative has provided a Notice to Proceed.
- .2 **Construction Phase Submittals**
- .1 **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 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.
 - .2 **Weekly Health and Safety Inspection Report** – 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.
 - .3 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors immediately.
 - .4 Submit copies of incident and accident reports immediately.
 - .5 **Daily Quality Control Inspection Reports** summarizing the results of all Quality Control inspections conducted by the Contractor. A summary of all Quality Control inspections shall be submitted by the Contractor monthly, or with each request for payment.
 - .6 Carry out quality control testing in accordance with Section 01 45 00 – Quality Control. Submit test results to Departmental Representative within one day after completion of

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.7 **Daily Quantity Sheet** in accordance with Section 01 31 00 – Project Management and Coordination.

.3 **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 Closeout submittals in accordance with Section 01 78 00 – Closeout Submittals.

.4 **Contractor Submittal Schedule**

.1 The following summary is provided for general information only, and does relieve the Contractor of their responsibility to review each specification section and make all required submittals, whether or not they are summarized in the following table. Refer to each specification section for detailed submittal requirements and other submittals that may be required.

Specification Section	Description	Date Required
01 31 00	Daily Quantity Sheet	Next business day following execution of work
01 32 16.07	Construction Schedule – Master Plan	14 working days after Contract Award
01 32 16.07	Project Schedule	7 working days after Master Plan acceptance
01 33 00	Parks Canada Business License(s)	14 working days after Contract Award
01 33 00	Contractor Personnel Contact Information	14 working days after Contract Award
01 33 00	Subcontractor Personnel Contact Information	14 working days after Contract Award
01 33 00	Work Plan	14 working days after Contract Award
01 33 00	Weekly Progress Reports	Weekly, after mobilization
01 33 00	Product Data	Minimum 7 calendar days prior to fabrication / production
01 33 00	Daily Quality Control Inspection Reports	Monthly, or with request for payment
01 35 00.06	Traffic Management Plan	14 working days after Contract Award
01 35 29.06	Health and Safety Plan	14 working days after Contract Award
01 35 29.06	Emergency Procedures Protocol	14 working days after Contract Award

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01 35 29.06	Weekly Health and Safety Inspection Reports	Weekly, after mobilization
01 35 29.06	Federal and Provincial health and safety reports or directions	Immediately after issuance
01 35 29.06	Incident and accident reports	Immediately after issuance
01 35 43	Environmental Protection Plan	14 working days after Contract Award
01 35 43	Restricted Activity Permit Application(s)	14 working days after Contract Award
01 45 00	Quality Control Test Reports	One day after completion of testing
01 74 21	Waste Source Separation Program	7 working days after Contract Award
01 78 00	Project Record Documents	With application for Substantial Performance
32 92 19.13	Seed Certificates	Prior to purchasing seed

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Preparation and implementation of a Traffic Management Plan in accordance with this Section 01 35 00.06 Special Procedures for Traffic Control will not be measured separately for payment and will be considered incidental to the Work.
- .2 The cost of Traffic Control in accordance with this Section 01 35 00.06 Special Procedures for Traffic Control will not be measured separately for payment and will be considered incidental to the Work.
- .4 Items considered incidental to the Work include, but are not limited to:
 - .1 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - .2 Flagging and signage for all works occurring along Sundance Rd as well as at intersections with other trails and facilities to ensure public (pedestrians and equestrians) safely move through project area.
 - .3 Keeping the existing roadway within the Work limits, clean, free of pot holes while Contractor is on site.
 - .4 Cost of snow removal required by the Contractor to complete the work identified in the Contract.

1.03 REFERENCES

- .1 Alberta Transportation – Traffic Accommodation in Work Zones (latest edition)
- .2 Alberta Transportation – Traffic Control Standards (latest edition)
- .3 Manual of Uniform Traffic Control Devices for Canada, (MUTCD) distributed by Transportation Association of Canada. (latest edition)
- .4 Standard CMS Translations Rev 1 - July 2018
- .5 Construction Signage Translation Rev 1 - July 2018

1.04 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Traffic Management Plan – Fourteen (14) work days after contract is awarded, the Contractor shall submit in writing, the intended system of routing traffic during construction, to the Departmental Representative. The Contractor's system of routing traffic will be reviewed by the Departmental Representative with the Contractor and any modifications requested, at any time, by the Departmental Representative, shall be immediately implemented.
 - .1 The Contractor shall design, supply, erect, move and maintain all traffic control devices,

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signs, temporary pavement marking, other safety measures and provide staff to ensure safe passage of all traffic from commencement of site work to date of acceptance by the Departmental Representative.

1.05 PROTECTION OF PUBLIC TRAFFIC, PEDESTRIANS and EQUESTRAIN USERS

- .1 Comply with requirements of Acts, Regulations and By-Laws in force for regulation of traffic or use of roadways upon or over which it is necessary to carry out Work or haul materials or equipment.
- .2 Carry out traffic regulation in accordance with Alberta Transportation – Traffic Accommodation in Work Zones (latest edition), except where specified otherwise.
- .3 When working on travelled way:
 - .1 Place equipment in position to minimize interference and hazard to travelling public.
 - .2 Keep equipment units as close together as working conditions permit and on same side of travelled way. Remove or reposition fencing when not required on the Sundance Rd.
 - .3 Do not leave equipment on travelled way overnight.
- .4 Do not close any lanes of road without approval of Departmental Representative. Before re-routing traffic erect suitable signs and devices in accordance with the requirements of the Alberta Transportation – Traffic Control Standards (latest edition), except where specified otherwise.
- .5 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of Departmental Representative.
- .6 Traffic control measures will be monitored by the Departmental Representative, who may require modifications of these measures from time to time to achieve satisfactory traffic flow, safety of traveling public and coordination with adjacent contracts.
- .7 The Contractor shall maintain a dust free construction zone by means of cleaning and watering when required.
- .8 Load trucks in a manner that will prevent spillage and tracking of soil or debris on roadways. Clean up immediately to the satisfaction of the Departmental Representative if spillage or tracking does occur. Clean haul routes as directed by the Departmental Representative. Failure to clean up haul routes may result in the Departmental Representative crews doing the cleaning without notice to the Contractor and the costs will be deducted from moneys due to the Contractor.
- .9 Coordinate, at the discretion and direction of the Departmental Representative, with equestrian operators to ensure minimal conflict with equipment on the Sundance rd. May included periodic, short, work shut down to allow passage of horses (until October 17th and after April 15th).

1.06 INFORMATIONAL AND WARNING DEVICES

- .1 Provide and maintain signs and other devices required to indicate construction activities or other temporary and unusual conditions resulting from project work which may require road user response.
- .2 All traffic and warning signs shall be either bilingual or of a symbolic or pictorial type. All signs are to be selected from the Construction Signage Translation Database provided in the Reference Documents.
- .3 Supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in Part D, Temporary Conditions, of manual titled the Manual of Uniform Traffic Control Devices for Canada.

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- .4 Place signs and other devices in locations recommended in Part D, Temporary Conditions, of manual titled the Manual of Uniform Traffic Control Devices for Canada.
- .5 All construction signs shall be installed to prevent incidental blow down or displacement and must remain in service throughout the construction period. Construction signage heights to be minimum 1.5m from ground to the bottom of the sign, or as per Alberta Transportation – Traffic Control Standards (latest edition), whichever is higher.
- .6 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.
- .7 Continually maintain traffic control devices in use:
 - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Remove or cover signs which do not apply to conditions existing from day to day.

1.07 CONTROL OF PUBLIC TRAFFIC, PEDESTRIANS and EQUESTRAIN USERS

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped to Manual of Uniform Traffic Control Devices for Canada, for situations as follows:
 - .1 When public traffic, pedestrians and equestrian users are required to pass working vehicles or equipment that block all or part of travelled roadway, including spreading of excess material on the Sundance Rd trail.
 - .2 When vehicles are entering or exiting Work Site access points.
 - .3 When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
 - .4 When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
 - .5 Where temporary protection is required while other traffic control devices are being erected or taken down.
 - .6 For emergency protection when other traffic control devices are not readily available.
 - .7 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Province of Alberta
 - .1 Occupational Health and Safety Act, R.S.A. - Updated 2017.
- .3 Health Canada/Workplace Hazardous Materials Information System
 - .1 (WHMIS) Material Safety Data Sheets (MSDS).
- .4 Canada National Parks Act (S.C. 2000, c. 32) – Updated 2019

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: A minimum of fourteen (14) working days prior to mobilization. Health and Safety Plan must include:
 - .1 Contractor's health and safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 General safety rules for project.
 - .5 Job specific safe work procedures and communications plan.
 - .6 Inspection policy and procedures.
 - .7 Incident reporting and investigation policy and procedures.
 - .8 On-Site Contingency and Emergency Response Plans to address standard operating procedures to be implemented during emergency situations.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.
 - .11 Results of site specific safety hazard assessment.
 - .12 Results of safety and health risk or hazard analysis for site tasks and operation.
 - .13 Schedule of regular on-site health and safety meetings.
 - .14 Schedule of regular on-site tool-box meetings.
- .3 The Departmental Representative will review the Contractor's site-specific Health and Safety Plan and provide comments to the Contractor within seven (7) working days after receipt of plan. The Contractor shall revise the plan as appropriate and resubmit it to the Departmental Representative within five (5) working days after receipt of comments.
- .4 The Departmental Representative's review of the Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

- .5 Submit one (1) electronic copy of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative on a weekly basis.
- .6 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors immediately.
- .7 Submit copies of incident and accident reports immediately.
- .8 Submit WHMIS MSDS - Material Safety Data Sheets to the Departmental Representative.
- .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.05 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.

1.06 SAFETY ASSESSMENT

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

1.07 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work. This meeting may be combined with the Pre-Construction 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.
- .3 The Contractor shall hold daily toolbox meetings and bi-weekly Health and Safety meetings.

1.08 REGULATORY REQUIREMENTS

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

1.09 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with WorkSafe AB.

1.10 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 Where deficiencies or concerns are noted, The Departmental Representative may alert the Contractor in writing, and may request correction of deficiencies or concerns in a timely manner.

1.11 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.

1.12 COMPLIANCE REQUIREMENTS

- .1 The Contractor shall comply with all applicable safety regulations of WorkSafe AB including, but not limited to, the Worker's Compensation Act and the Occupational Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.
- .2 All Work shall comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.13 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factors, hazards, 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 the Province having jurisdiction, and advise the Departmental Representative verbally and in writing.

1.14 HEALTH AND SAFETY REPRESENTATIVE

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Coordinator. Health and Safety Coordinator must:
 - .1 Have minimum two years' site-related working experience specific to activities associated with building and underground services 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.

1.15 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.

1.16 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.
- .4 In the event that work is temporarily stopped either by the Departmental Representative, or by the authority having jurisdiction, it will not relieve the Contractor of his responsibilities under this Contract. Standby time and all costs associated with a stop work order due to safety considerations is considered incidental to the contract.

1.17 BLASTING

- .1 Not used.

1.18 POWDER ACTUATED DEVICES

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

1.19 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.

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 29.06 - Health and Safety Requirements.

1.02 REFERENCES

- .1 West Sulphur Mountain Wildfire Risk Reduction Project Basic Impact Analysis – Amended April 2021 to be provided to Contractor after Award of Contract.
- .2 Canada National Parks Act (S.C. 2000, c. 32) – Updated 2019
- .3 Impact Assessment Act, 2012 (S.C. 2019)

1.03 MEASUREMENT AND PAYMENT PROCEDURES

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

1.04 REGULATORY REQUIREMENTS

- .1 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 business and private vehicles are required to display a vehicle work pass from Parks Canada. These permits may be obtained free of charge from PCA Administration Office once a business permit has been obtained.
- .2 Impact Assessment Act (2019)
 - .1 Execution of the work is subject to the provisions within the Impact Assessment Act (2019) and subsequent amendments.
 - .2 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment, as listed in the EPP, and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit one (1) electronic copy of WHMIS MSDS in accordance with Section 01 35 29.06 - Health and Safety Requirements and this Section 01 35 43 - Environmental Procedures.
- .3 An Environmental Protection Plan (EPP) certified by a Qualified Environmental Professional (QEP) is to be submitted fourteen (14) working days after contract award. EPP to be approved by Banff Field Unit (FU) prior to start of construction.
- .4 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 Environmental Surveillance Officer (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 Include the following information in the EPP: If not applicable; include in EPP indicating why.
 - .1 An access plan that outlines the proposed access route(s), types of equipment to be used and locations/sizes of lay down areas in order to prevent/minimize disturbance to vegetation and soils. This will include details on how the work limits will be marked out and what procedures will be employed to ensure work outside these limits does not occur and to ensure that the environment is not impacted or damaged by works or construction equipment beyond the work limits, to the satisfaction of the Departmental Representative and the ESO.
 - .2 How the Contractor will manage all environmental risks and specify site-specific details for implementing mitigation or achieving mitigation outcomes.
 - .3 An Emergency Response Plan that outlines procedures to follow in the case of a medical/injury incident, including emergency response contacts.
 - .4 A Spill Response Plan will detail the containment and storage, security, handling, use and disposal of all hazardous materials, including empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative and the Environmental Surveillance Officer (ESO) 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 project site that are considered or defined as hazardous or toxic to the environment, including fuel, lubricants, and antifreeze.
 - .5 A Fire Response Plan that outlines procedures to follow in the case of a fire, including a list of adequate fire-fighting equipment located on site, and emergency response contacts.
 - .6 Erosion and Sedimentation Management Plan.

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- .7 QEP resumes for Departmental Representative and ESO review.
 - .8 Name(s) of person(s) responsible for ensuring adherence to Environmental Protection Plan.
 - .9 Name(s) and qualifications of person(s) responsible for manifesting hazardous waste to be removed from site.
 - .10 Drawings indicating locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
- .4 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
- .1 Erosion control measures that prevent sediment from entering waterway at the construction site are a critical element of the project and shall be implemented by the Contractor.
 - .2 On-site sediment control measures shall be constructed and functional prior to initiating activities required for the work. The Contractor shall prepare an Erosion and Sediment Control Plan to the satisfaction of the Departmental Representative and the ESO.
 - .3 The regular monitoring and maintenance of all erosion and sediment 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, remediated, or replaced. The Departmental Representative and ESO will also monitor erosion control performance.
 - .4 The site will be secured against erosion during any periods of construction inactivity or shutdown.
 - .5 Construction and equipment travel will be minimized during periods of heavy precipitation and excavation activities halted during heavy rainfall events (50mm or more in 1 hour).
 - .1 Contingency plans for isolating worksites during high precipitation, high wind and runoff events will be identified in the Contractor's EPP.
 - .6 The area of exposed soil at any given time will be minimized by using techniques such as phased construction activities, retaining vegetation as much as possible, and, following construction works completion, stabilizing the exposed soils as soon as possible via methods acceptable to the ESO and Departmental Representative.
 - .7 All components of the Contractor's Erosion and Sedimentation Controls will be regularly maintained, and the regular inspection must be documented in a report that will be submitted to the ESO and Departmental Representative for weekly review.
- .5 Traffic Control Plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather.
- .1 Plans to include measures to minimize amount of material transported onto

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paved public roads by vehicles or runoff.

- .6 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative and the ESO 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.
 - .7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .8 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
 - .9 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
 - .10 Waste Water Management Plan identifying methods and procedures for management and discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
 - .11 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .5 The Contractor shall submit the EPP in accordance with Section 01 33 00 – Submittal Procedures.

1.06 MEETINGS AND COORDINATION

- .1 Start-Up and Environmental Briefing
 - .1 All staff employed at the construction site will be subject to an approximately one-hour briefing regarding their individual and collective responsibilities to ensure avoidable adverse environmental impact does not arise from their activities and personal choices. Employees must attend this briefing before beginning their work at the site. Each employee, having received the briefing, will be issued a certification sticker to be displayed on their helmet. 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 Environmental Surveillance Officer (ESO) through the Departmental Representative. Also, some subtrades 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 monitor 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 monitor 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.
- .2 Banff Field Unit (FU) to be kept apprised of timelines, work periods, and construction activities so that their staff can provide information to the public to prevent additional safety risks for recreational users in the vicinity of the Project site during construction. Communication to the FU shall be through the Departmental Representative.

1.07 PERMITS

- .1 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 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.

1.08 CONSTRUCTION SITE ACCESS AND PARKING

- .1 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. Generally, personal vehicles shall be parked at least 10 metres distance from any watercourse.
- .2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by workers' vehicles or construction machinery and shall instruct workers

so that the "footprint" of the project is kept within defined boundaries.

1.09 ACCIDENTAL FINDS

- .1 It is possible that undocumented 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.

1.10 FIRE PREVENTION AND CONTROL

- .1 Fires and burning of rubbish on site is not permitted.
- .2 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented. To minimize fire risk, a single location on site for smoking shall be designated and a plan developed for proper disposal of cigarette butts.
- .3 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.
- .4 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). Construction equipment shall be operated in a manner and with all original manufacturers' safety devices to prevent ignition of flammable materials in the area.
- .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 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.

1.11 DRAINAGE

- .1 All Contractor operations shall be performed in such a manner that no detritus from their operations shall enter the Bow River or any other waterway, ditches, or wetlands within Banff National Park.
- .2 If, in the opinion of the Departmental Representative or Parks Canada, full containment of Contractor's detritus is not being achieved, operations may be ordered halted until the situation is rectified.
- .3 Provide temporary drainage and pumping required to keep excavations and site free from water.
- .4 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.12 SITE CLEARING AND PLANT PROTECTION

- .1 Removal of vegetation used by birds (either migratory or non-migratory) is not planned as part of this contract.
- .2 Prior to coming on site, all equipment that came into contact with soil at previous site (i.e. clearing, grading, etc.) must be cleaned (blow down/scrape down) and approved by the Banff FU. The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site is removed (e.g. power washing) outside the Parks before delivery to the work site.
- .3 Protect trees and plants on site and adjacent properties as indicated.
- .4 Protect roots of designated trees to dripline during excavation and site grading to prevent disturbance or damage.
 - .1 Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .5 Minimize stripping of topsoil and vegetation.
- .6 Restrict tree removal to areas designated by Departmental Representative.

1.13 WORK ADJACENT TO WATERWAYS

- .1 To minimize contamination, biodegradable hydraulic fluids may be required for machinery working within drainages, wetlands, water courses and water bodies. This will be at the discretion of the Environmental Surveillance Officer (ESO) and Departmental Representative.
- .2 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.
- .3 No vehicle fueling or servicing permitted within 100 m of the Bow River.
- .4 Construction equipment to be operated on land only.
- .5 Waterways to be kept free of excavated fill, waste material and debris.
- .6 Do not skid logs or construction materials across waterways.

1.14 POLLUTION CONTROL

- .1 Equipment, propane storage, and fuel lines to be inspected daily for leaks. All equipment stored overnight in staging areas to be stored on tarps with appropriate containment and with drip trays and/or pans under fuel tanks.
- .2 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.
- .3 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.
- .4 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for

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temporary roads and on-site work by methods that are approved by the Departmental Representative or ESO. Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

- .5 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.
- .6 Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative and the ESO shall be notified immediately of any spill. In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .7 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.
- .8 Maintain temporary erosion and pollution control features installed under this Contract.

1.15 EQUIPMENT MAINTENANCE, FUELLING AND OPERATION

- .1 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 to any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
- .2 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 provide immediate attention to the fuelling operation.
- .3 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in 1.14 Pollution Control above.
- .4 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.
- .5 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 National Parks.
- .6 All site equipment shall use bio-based or biodegradable hydraulic fluid for works.
- .7 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order. If any equipment is found to have fluid/fuel leaks the leaks are to be contained and cleaned up immediately and the piece of equipment shall be repaired or removed from site.
- .8 Fuel containers and lubricant products shall be stored only in secure locations specified by the

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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 in National Parks. Alternatively, the Contractor may hire a security person employed to prevent vandalism.

1.16 OPERATION OF EQUIPMENT

- .1 Unless authorized by the Departmental Representative, activities beyond the work limits are not permitted. Equipment and vehicle (including personal) 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. For this project, construction requires working close to watercourses or water bodies. 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 In order to minimise soil disturbance, all equipment/machinery on site must use low-impact rubber tires or track systems.
- .4 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 their expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc., to the satisfaction of the Departmental Representative and ESO.
- .5 The Contractor shall restrict vehicle movements to work limits.
- .6 No equipment will idle when not in use, unless required under extenuating circumstances.
- .7 Workers private vehicles are to remain within the construction footprint, or as directed by the Departmental Representative.

1.17 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 The Contractor shall avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if wildlife including bears, cougars, wolves, deer, elk or moose display aggressive behavior or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. disposal and storage of lunches and food scraps) must be exercised at all times.
- .3 Food and attractants (i.e. lunches) are to be stored inside vehicles or site trailers. Daily offsite disposal of food wastes and other wildlife attractants are mandatory.
- .4 The Contractor shall 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.

1.18 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 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.

1.19 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 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 parks. 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 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.
- .7 Sanitary facilities, such as a portable container toilet, shall be provided by the Contractor and maintained in a clean condition.

1.20 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 Contractor's office, work headquarters, material laydown, equipment parking and storage area will be in locations approved by Parks Canada and the Departmental Representative with the goal of minimizing impacts to visitor experience and safety, motorists, wildlife and water quality.
- .2 The National Park Act regulations prohibit anyone working within the Parks from using public campground facilities.
- .3 Removal and storage of snow shall be arranged with the ESO and the Departmental

- .4 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 control measures for temporary access roads may also have to be initiated.

1.21 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental of proposed corrective action and take such action for approval by Departmental Representative.
 - .1 Take action only after receipt of written approval by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 CLEARING AND GRUBBING

- .1 No tree clearing is planned for this contract.
- .2 The Contractor shall ensure that the substrate or riparian area of streams, rivers or watercourses, whether open water or frozen over shall not be disturbed by tracked, wheeled or self-propelled equipment, (e.g. a skidder or truck).
- .3 Logs and other salvage materials are to be transported to and placed at the storage site without spread of debris or damage to other standing trees or landscape resources outside the marked clearing or storage limits. They shall not be skidded through wetlands, waterways or water bodies.
- .4 During the grubbing component, stumps, roots, imbedded logs and other non-soil debris shall be pulled and shaken free of loose soil and rocks before being transported for disposal.
- .5 No slash clearing, pickup or grubbing shall occur outside of the designated area or within 1 metre of the drip line of existing forest.

3.02 STRIPPING

- .1 No stripping is planned for this contract.

3.03 MATERIAL LOADING, HAULING, PLACEMENT AND GRADE BUILDING

- .1 During grade construction conducted close to any watercourse, water body or wetland methods shall be employed to ensure materials are not pushed, are not eroded and do not fall into the water or wetlands. Generally, work within a 30 metre buffer of waterways or wetlands requires the close oversight of the ESO and the Departmental Representative.
- .2 No grade building shall occur outside of the designated area or within 1 metre of the drip line of existing forest. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation at that location. Materials shall be placed at storage sites or on the grade without spillage outside the working limits. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation at that location.

3.04 EXCAVATING AND PLACEMENT

- .1 Excavation will be undertaken according to the design drawings.
- .2 Materials shall be placed at storage sites or on the grade without spillage outside the working limits. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation at that location.
- .3 All sediment control measures shall be implemented by the Contractor prior to the commencement of the work in the vicinity of water bodies, watercourses, and wetlands.
- .4 If sediments enter watercourses during any excavation nearby or at its banks, the Contractor shall ensure that sediment levels in the waters of the river or creeks do not exceed specified limits and meet the "desired end result" limits outlined. See 3.06 Erosion and Sedimentation Control of this Section 01 35 43 – Environmental Procedures.
- .5 Placement of riprap and backfill at creeks shall be undertaken without contacting the watercourse or wetted margins of the stream, unless approved by the Departmental Representative.
- .6 Fisheries protection windows shall be observed for any other watercourse in this contract and will guide the timing of the work so that stream disturbance is prevented. See 3.06 Erosion and Sedimentation Control of this Section 01 35 43 – Environmental Procedures.
- .7 If a pump-out sump to dewater excavation sites will be required, the Contractor is to prepare an EPP that details how the dewatering shall be undertaken, to the satisfaction of the Departmental Representative and the ESO. Special attention is to be given to the environmental sensitivity of the discharge area, freezing conditions operation, overflow avoidance, decanting and settlement pond reclamation. Water containing suspended materials shall not be pumped into watercourses, drainage systems or on to land, except with the permission of the Departmental Representative and the ESO.

3.05 WATER EXTRACTION AND DISTRIBUTORS

- .1 Extraction of water within any National Park requires a RAP. Should the Contractor require/request a water source the Departmental Representative, in consultation with the ESO may approve a RAP and give direction as to a location to be used. Specific intake measures are required when water is approved to be withdrawn from open watercourses.
- .2 The Departmental Representative and ESO may require cleaning and preventative measures to avoid contamination of watercourses with Whirling Disease and other foreign materials.

3.06 EROSION AND SEDIMENTATION CONTROL

- .1 The Contractor shall prepare an Erosion and Sedimentation Management Plan for this contract due to the proximity to waterbody and riparian environment. This plan shall be to the satisfaction of the Departmental Representative and ESO.
- .2 An important desired end result is to allow no release into watercourses of sediments in levels that are deleterious to fish or that would harmfully alter, disrupt, or destroy fish habitat. 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.
- .3 Silt Fence
 - .1 Silt fence shall only be installed where the drainage area is no more than 0.10 hectares per 30 meters of silt fence length. The maximum slope length above the barrier is 30 meters, and the maximum gradient above the barrier is 50 percent.
 - .2 The height of the silt fence shall not exceed 0.9 meters.
 - .3 Filter fabric should be purchased and installed in a continuous roll and cut to the length needed, to avoid joints.
 - .4 Silt fence shall be installed perpendicular to the slope, below disturbed areas where runoff may occur.
 - .5 Silt fence is to be burlap, synthetic filter fabric or geotextile, wire mesh is to be used as reinforcement where necessary, wooden or steel fence posts and staples and wire and ground staples are to be used.
 - .6 Regular inspections shall be conducted after each rainfall and storm to ensure the fence is intact and debris has not accumulated at the bottom. Remove deposits when they reach one half the fence height.

3.07 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
- .2 Do not bury rubbish and waste materials on site under any circumstances.
- .3 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.
- .4 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 – Cleaning.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 43 - Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 INSTALLATION AND REMOVAL

- .1 Provide construction facilities in order to execute work expeditiously and in accordance with all Project Specifications and regulations.
- .2 Remove from site all such work after use.

1.04 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 weight or force that will endanger Work, site personnel, or Park visitors.

1.05 CONSTRUCTION PARKING

- .1 Provide and maintain adequate access and parking at the project site in areas approved by the Departmental Representative. Limited staging space exists in project area.
- .2 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.

1.06 SECURITY

- .1 If required by the Contractor, the Contractor shall provide and pay for security personnel to guard the Work, Work Site, and contents of site after working hours, during holidays, and during extended shutdowns.
- .2 The Contractor is advised that some random acts of vandalism to equipment have occurred within the National Parks.
- .3 Cost of security personnel is incidental to the Work and no additional payment will be made.

1.07 OFFICES

- .1 The Contractor shall provide a clearly marked and fully stocked first aid case in a readily available location in all site offices.

1.08 EQUIPMENT, TOOL AND MATERIALS STORAGE

- .1 Provide and maintain, in 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 manner to cause least interference with work activities.

1.09 SANITARY FACILITIES

- .1 The Contractor shall provide and maintain a minimum of one (1) portable sanitary facility (toilet) for use by the Contractor, in accordance with governing regulations and Section 01 35 43 - Environmental Procedures for this project.
- .2 Sanitary facilities shall be maintained at least once a week and consumables replenished as required by the Contractor with no additional cost to the Project.
- .3 Post notices and comply with requirements of the local health authorities. Keep area and premises in sanitary condition.

1.10 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .3 Maintain approved signs and notices in good condition for duration of project, and dispose of offsite on completion of project or earlier if directed by Departmental Representative.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 00.06 - Special Procedures for Traffic Control.
- .2 Section 01 14 00 - Work Restrictions.
- .3 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 INSTALLATION AND REMOVAL

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

1.04 HOARDING

- .1 Erect temporary site enclosure using minimum 1.8 m high panel fencing. Ensure fence is properly secured at connection points to prevent unauthorized access to worksite and provide adequate measures to prevent blowdown of fence in heavy winds. Provide minimum one lockable truck gate. Inspect fence regularly to ensure it remains upright, intact, and secure. Maintain fence in good repair.
- .2 Ensure work area is secured from unauthorized access when not attended.
- .3 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

1.05 GUARD RAILS AND BARRICADES

- .1 Provide secure, rigid guard rails and barricades around open excavations.
- .2 Design guards to withstand wind pressure and snow loading.

1.06 DUST TIGHT SCREENS

- .1 Not used.

1.07 ACCESS TO SITE

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

1.08 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 public in accordance with Section 01 35 00.06 - Special Procedures for Traffic Control.
- .2 Maintain minimum 2 m width access for existing trails (including Sundance Rd) to remain open

1.09 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

1.10 PROTECTION OF BUILDING FINISHES

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

1.11 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 MEASUREMENT AND PAYMENT PROCEDURES

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

1.02 REFERENCES

- .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.

1.03 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.
- .5 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.04 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.

1.05 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, prefabricated components, 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.

1.06 TRANSPORTATION

- .1 Pay costs of transportation of products required in performance of Work.
- .2 Transportation cost of products supplied by Owner will be paid for by Departmental Representative. Unload, handle and store such products.

1.07 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, 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 will 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.

1.08 QUALITY OF WORK

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

- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.09 CO-ORDINATION

- .1 Ensure co-operation 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.
- .2 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
- .3 Before installation inform Departmental Representative or designated representative if there is interference. Install as directed by Departmental Representative or designated representative.

1.11 REMEDIAL WORK

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate 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 LOCATION OF FIXTURES

- .1 Consider location of fixtures, outlets, and mechanical and electrical items indicated as approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

1.13 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 which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.15 PROTECTION OF WORK IN PROGRESS

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

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit written request in advance of cutting or alteration which affects:
 - .1 Structural integrity of elements of project.
 - .2 Integrity of weather-exposed or moisture-resistant elements.
 - .3 Efficiency, maintenance, or safety of operational elements.
 - .4 Visual qualities of sight-exposed elements.
 - .5 Work of Owner or separate contractor.
- .3 Include in request:
 - .1 Identification of project.
 - .2 Location and description of affected Work.
 - .3 Statement on necessity for cutting or alteration.
 - .4 Description of proposed Work, and products to be used.
 - .5 Alternatives to cutting and patching.
 - .6 Effect on Work of Owner or separate contractor.
 - .7 Written permission of affected separate contractor.
 - .8 Date and time work will be executed.

1.04 MATERIALS

- .1 Required for original installation.
- .2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.05 PREPARATION

- .1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.
- .2 After uncovering, inspect conditions affecting performance of Work.
- .3 Beginning of cutting or patching means acceptance of existing conditions.
- .4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.
- .5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water and snow.

1.06 EXECUTION

- .1 Execute cutting, fitting, and patching, including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.
- .3 Uncover Work to install ill-timed Work.
- .4 Remove and replace defective and non-conforming Work.
- .5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .6 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.
- .7 Provide heating and hoarding as needed to carry out Work in winter conditions.
- .8 Cut rigid materials using masonry saw or core drill. Pneumatic or impact tools not allowed on masonry work without prior approval.
- .9 Restore work with new products in accordance with requirements of Contract Documents.
- .10 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.
- .11 Conceal pipes, ducts and wiring in floor, wall and ceiling construction of finished areas except where indicated otherwise.

1.07 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 00.06 – Special Procedures for Traffic Control.
- .2 Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 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. Remove waste material and debris from site at end of each working day. Do not burn waste materials on site.
- .3 Clear snow and ice accordance with Section 01 35 00.06 – Special Procedures for Traffic Control.
- .4 Keep roadway clean in accordance with Section 01 35 31 – Special Procedures for Traffic Control.
- .5 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 Provide on-site bear proof containers for collection of waste materials and debris.
- .7 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .8 Dispose of waste materials and debris off site.
- .9 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .10 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .11 Provide adequate ventilation during use of volatile or noxious substances.
- .12 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .13 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.
- .14 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.

- .15 Maintain excavations and trenches free of debris and waste.
- .16 Interim site cleaning required if project work is discontinued for the winter season - nothing will be left on site without Departmental Representatives written approval.

1.04 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, and leave Work clean and suitable for occupancy.
- .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 Remove stains, spots, marks and dirt from walls and doors.
- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Clean equipment and fixtures to sanitary condition.
- .9 Remove dirt and other disfiguration from exterior surfaces.
- .10 Sweep and wash clean paved areas.
- .11 Clean roofs, downspouts, and drainage systems.
- .12 Remove snow and ice from access to building.

1.05 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 34 43 – Environmental Procedures.
- .3 Section 01 74 11 – Cleaning.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 REFERENCES

- .1 Definitions:
 - .1 **Approved/Authorized recycling facility:** waste recycler approved by applicable provincial authority or other users of material for recycling approved by the Departmental Representative.
 - .2 **Class III:** non-hazardous waste - construction renovation and demolition waste.
 - .3 **Construction, Renovation and/or Demolition (CRD) Waste:** Class III solid, non-hazardous waste materials generated during construction, demolition, and/or renovation activities
 - .4 **Inert Fill:** inert waste - exclusively asphalt and concrete.
 - .5 **Waste Source Separation Program (WSSP):** implementation and co-ordination of ongoing activities to ensure designated waste materials will be sorted into pre-defined categories and sent for recycling and reuse, maximizing diversion and potential to reduce disposal costs.
 - .6 **Recyclable:** ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
 - .7 **Recycle:** process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
 - .8 **Recycling:** process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
 - .9 **Reuse:** repeated use of product in same form but not necessarily for same purpose. Reuse includes:
 - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
 - .2 Returning reusable items including pallets or unused products to vendors.
 - .10 **Salvage:** removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
 - .11 **Separate Condition:** refers to waste sorted into individual types.
 - .12 **Source Separation:** act of keeping different types of waste materials separate beginning from the point they became waste.

1.04 DOCUMENTS

- .1 Post and maintain in visible and accessible area at job site, one copy of following documents:
 - .1 Waste Source Separation Program.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following minimum fourteen (14) working days prior to mobilization:
 - .1 One (1) electronic copy of Waste Source Separation Program (WSSP).

1.09 WASTE SOURCE SEPARATION PROGRAM (WSSP)

- .1 Prepare WSSP prior to project start-up.
- .2 WSSP will detail methodology and planned on-site activities for separation of reusable and recyclable materials from waste intended for landfill.
- .3 Provide list of locations that will be made available for sorting, collection, handling and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide sufficient on-site facilities and containers for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .5 Locate containers to facilitate deposit of materials without hindering daily operations.
- .6 Provide training for sub-contractors and workers in handling and separation of materials for reuse and/or recycling.
- .7 Locate separated materials in areas which minimize material damage.
- .8 Clearly and securely label containers to identify types/conditions of materials accepted and assist sub-contractors and workers in separating materials accordingly.
- .9 Monitor on-site waste management activities by conducting periodic site inspections to verify: state of signage, contamination levels, bin locations and condition, personnel participation, use of waste tracking forms and collection of waybills, receipts and invoices.
- .10 On-site sale of salvaged materials is not permitted.

1.10 USE OF SITE AND FACILITIES

- .1 Execute Work with minimal interference and disturbance to normal use of premises.

1.11 WASTE PROCESSING SITES

- .1 Contractor is responsible to research and locate waste diversion resources and service providers. Salvaged materials are to be transported off site to approved and/or authorized recycling facilities or to users of material for recycling.

1.13 STORAGE, HANDLING AND PROTECTION

- .1 Store materials to be reused, recycled and salvaged in accordance with Section 01 34 43 – Environmental Procedures.

- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility.
- .5 Protect structural components not removed and salvaged materials from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Protect surface drainage, mechanical and electrical from damage and blockage.
- .8 Provide on-site facilities and containers for collection and storage of reusable and recyclable materials.
- .9 Separate and store materials produced during project in designated areas.
- .10 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated processing facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to offsite processing facility for separation.

1.14 DISPOSAL OF WASTES

- .1 Dispose of waste in accordance with Section 01 34 43 – Environmental Procedures.
- .2 Do not bury rubbish or waste materials.
- .3 Do not dispose of waste or foreign substances into waterways, storm, or sanitary sewers.
- .4 Remove waste materials from site as Work progresses.

1.15 SCHEDULING

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 APPLICATION

- .1 Do Work in compliance with WSSP.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.02 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.
- .3 Waste Management: separate waste materials for reuse and recycling in accordance with this Section.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
 - .2 Source separate materials to be reused/recycled into specified sort areas.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Not used.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
 - .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 Substantial Performance Inspection.
 - .2 Departmental Representative's Substantial Performance Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
 - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Work: complete and ready for Construction Completion Inspection.
 - .4 Construction Completion Inspection:
 - .1 When completion tasks are finished, request final inspection of Work by Departmental Representative and Contractor.
 - .2 When Work is deemed incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
 - .6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.
 - .7 Final Payment:
 - .1 When Departmental Representative considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.
 - .8 Payment of Holdback: after issuance of Certificate of Substantial Performance of Work,

submit application for payment of holdback amount in accordance with contractual agreement, less the value of noted deficiencies, as agreed upon by Departmental Representative and Contractor.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

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

1.03 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .3 Provide evidence, if requested, for type, source and quality of products supplied.
- .4 Submit Project Record Documents and Maintenance Materials with application for Substantial Performance.

1.04 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings.
 - .1 Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.

1.05 CONTENTS - PROJECT RECORD DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data.

1.06 AS -BUILT DOCUMENTS AND SAMPLES

- .1 Maintain, at site for Departmental Representative, one record copy of:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Change Orders and other modifications to Contract.
 - .5 Reviewed shop drawings, product data, and samples.
 - .6 Field test records.
 - .7 Inspection certificates.
 - .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.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.07 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

- .1 Record information on set of black line opaque drawings, and in copy of Project Manual.
- .2 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: mark each item to record actual construction, including:
 - .1 Measured depths of elements of foundation in relation to finish first floor datum.
 - .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
 - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
 - .4 Field changes of dimension and detail.
 - .5 Changes made by change orders.
 - .6 Details not on original Contract Drawings.
 - .7 References to related shop drawings and modifications.
- .4 Specifications: mark each item to record actual construction, including:
 - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
 - .2 Changes made by Addenda and change orders.
- .5 Other Documents: maintain manufacturer's certifications, inspection certifications and field test records, as required by individual specification sections.

1.08 MATERIALS AND FINISHES

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Moisture-protection and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specifications sections.

1.09 MAINTENANCE MATERIALS

- .1 Spare Parts, Extra Stock Materials and Special Tools:
 - .1 Provide spare parts, maintenance and extra materials and special tools in quantities specified in individual specification sections.
 - .2 Provide items of same manufacture and quality as items in Work.
 - .3 Provide special tools with tags identifying their associated function and equipment.
 - .3 Deliver to site; place and store.
 - .4 Receive and catalogue items.
 - .1 Submit inventory listing to Departmental Representative.
 - .2 Include approved listings in Maintenance Manual.
 - .5 Obtain receipt for delivered products and submit prior to final payment.

1.10 DELIVERY, STORAGE AND HANDLING

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Store paints and freezable materials in a heated and ventilated room.
- .5 Remove and replace damaged products at own expense and for review by Departmental Representative.

1.11 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.

2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 31 11 00 – Clearing and Grubbing.
- .2 Section 31 05 16 – Aggregate Materials.
- .3 Section 01 35 43 – Environmental Procedures.

1.02 DESCRIPTION

- .1 This item consists of grading, excavating and filling existing fill material within the work area and use/disposal of all materials in conformity with the lines, grades and dimension indicated in the Contract Documents and as directed by the Departmental Representative and includes:
 - .1 Rough grading, excavating and filling of existing roadbed material within existing disturbed roadway limits.
 - .2 Screening of excess excavated roadbed material for use as trail surfacing.
 - .3 Loading and hauling of suitable screened material to Sundance Trail, and placement, grading and compaction of suitable screened material over existing trail surface.
 - .4 Placement of screened oversize rock throughout the work area, as directed by the Departmental Representative⁷
 - .5 Finishing of top surfaces and slopes.
 - .6 Maintenance of the work set forth under this section in a finished condition until any portion thereof has been accepted as completed by the Departmental Representative.
 - .7 Reclamation of old trail after new trail has been accepted by Departmental Representative.
- .2 Stripping of topsoil is not required. No topsoil exists in areas of grading.

1.03 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Clearing and grubbing will be paid under “Lump Price Item 02 – Clearing and Grubbing”. Refer to Section 31 11 00 – Clearing and Grubbing for Measurement and Payment Procedures.
- .2 Rough Grading, Excavating and Filling
 - .1 Measure for payment for Rough Grading, Excavating and Filling will be the volume of in-situ material excavated, filled and rough graded in cubic metres, as calculated by comparing a preconstruction topographic survey of existing grades with a post construction topographic survey of as-built grades. Surveys will be done by a third-party surveyor, retained and paid by the Departmental Representative.
 - .2 Payment will be made under “Unit Price Item 01 – Rough Grading” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.

- .1 Measure for payment for Screening will be the volume of excess roadbed material excavated and screened in cubic metres, as calculated by the number of truckloads of material processed, verified by daily reports to be submitted by the Contractor. Temporary stockpiling and transport of screened materials will be considered incidental to the work.
- .2 Payment will be made under “Unit Price Item 02 – Screening” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .4 Loading, Hauling and Placement of Screened Material
 - .1 Measure for payment for Loading, Hauling and Placement of Screened Material will be the volume of suitable screened material loaded, hauled, placed, graded and compacted over the existing trail surface in cubic metres, as measured by the length, width and depth of placed trail surfacing material. Placement of oversize screened rock in the work area will be considered incidental to this work.
 - .2 Payment will be made under “Unit Price Item 03 – Screened Material Placement” and the price(s) bid shall be full compensation for the cost of furnishing all labour, materials, equipment, tools and incidentals necessary to complete the work as specified in the Contract Documents.
- .5 Reclamation
 - .1 Measurement for payment for Reclamation will be made at unit price per square meter of actual surface measurements as measured by survey, hand measurements, or Global Positioning System (GPS)
 - .2 Payment will be made under “Unit Price Item 07 – Reclamation of Old Road” and the price(s) bid include all other labour, equipment and material required to satisfactorily complete this item of work as described in PART 3.
- .6 Items considered incidental to Earthwork include, but are not limited to:
 - .1 The transport and placement of common excavation to embankment fill, including temporarily stockpiling, placement and compaction.
 - .2 Over-excavation beyond the limits shown on the Contract Documents or directed by the Departmental Representative.
 - .3 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - .4 Finishing of top surfaces and slopes.
 - .5 Maintenance of the work until acceptance by the Departmental Representative.
 - .6 Heating and hoarding to conduct work in cold temperatures.

1.04 REFERENCES

- .1 ASTM International
 - .1 ASTM C117-03, Standard Test Method for Material Finer Than 0.075 mm (No.200) Sieve in Mineral Aggregates by Washing.

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- .2 ASTM C136-01, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
- .3 ASTM D422-63(2002), Standard Test Method for Particle-Size Analysis of Soils.
- .4 ASTM D1557-02e1, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³) (2,700 kN-m/m³).
- .5 ASTM D4318-00, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

1.05 DEFINITIONS

- .1 Common excavation: excavation of deposits of whatever character encountered in Work.
- .2 Topsoil:
 - .1 Material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
 - .2 Material reasonably free from subsoil, clay lumps, brush, objectionable weeds, and other litter, and free from cobbles, stumps, roots, and other objectionable material larger than 100 mm in any dimension.
- .3 Waste material: excavated material unsuitable for use in Work or surplus to requirements.
- .4 Borrow material: material obtained from locations outside area to be graded, and required for construction of fill areas or for other portions of Work.
- .5 Unsuitable materials:
 - .1 Weak, chemically unstable, and compressible materials.
 - .2 Frost susceptible materials:
 - .1 Fine grained soils with plasticity index less than 10 when tested to ASTM D 4318, and gradation within limits specified when tested to ASTM D 422 and ASTM C 136: Sieve sizes to CAN/CGSB-8.2.
 - .2 Table:

Sieve Designation	% Passing
2.00 mm	100
0.10 mm	45 - 100
0.02 mm	10 - 80
0.005 mm	0 - 45
 - .3 Frozen materials.

1.06 TESTS AND INSPECTIONS

- .1 Testing of materials and compaction of backfill will be carried out by testing laboratory designated by Departmental Representative.
- .2 Onsite material to be used for backfilling or filling will not be tested.
- .3 Not later than two (2) working days before backfilling or filling with approved material, notify Departmental Representative so that compaction tests can be carried out by designated testing agency.

2 PRODUCTS

2.01 MATERIALS

- .1 In accordance with Section 31 05 16 – Aggregate Materials.

3 EXECUTION

3.01 EXAMINATION

- .1 Evaluation and Assessment:
 - .1 Before commencing work establish locations of buried services on and adjacent to site.
 - .2 Arrange with appropriate authority for relocation of buried services that interfere with execution of work. Pay costs of relocating services.
 - .3 Before commencing work, conduct, with Departmental Representative, condition survey of existing structures, trees and plants, lawns, fencing, service poles, wires, rail tracks and paving, survey bench marks and monuments which may be affected by work.

3.02 PREPARATION

- .1 Temporary erosion and sedimentation control:
 - .1 Provide temporary erosion and sedimentation control measures in accordance with Section 01 35 43 – Environmental Procedures.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- .2 Protection of in-place conditions:
 - .1 Protect excavations from freezing.
 - .2 Keep excavations clean, free of standing water, and loose soil.
 - .3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Departmental Representative's approval.
 - .4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction, protect existing trees from damage.
 - .5 Protect buried services that are required to remain undisturbed.
- .3 Removal:
 - .1 Remove trees, stumps, logs, brush, shrubs, bushes, vines, undergrowth, rotten wood, dead plant material, exposed boulders and debris within areas designated on drawings, and in accordance with Section 31 11 00 – Clearing and Grubbing.
 - .2 Remove stumps and tree roots below footings, slabs, and paving, and to 600 mm below finished grade elsewhere.
 - .3 Remove obsolete buried services within 2 m of foundations: cap cut-offs.
 - .4 Remove obstructions, ice and snow, from surfaces to be excavated within limits indicated.

3.03 EXCAVATION

- .1 Advise Departmental Representative at least 7 days in advance of excavation operations for survey of existing grades to be taken.
- .2 Excavate to lines, grades, elevations and dimensions as indicated, and as directed by

- .3 Excavate as required to carry out work.
 - .1 Do not disturb soil or rock below bearing surfaces.
 - .2 Notify Departmental Representative when excavations are complete.
 - .3 If bearings are unsatisfactory, additional excavation will be authorized in writing and paid for as additional work.
 - .4 Excavation taken below depths shown without Departmental Representative's written authorization to be filled with concrete of same strength as for footings at Contractor's expense.
- .4 Do not disturb soil within branch spread of trees or shrubs that are to remain.
 - .1 If excavating through roots, excavate by hand and cut roots with sharp axe or saw.
- .5 Do not obstruct flow of surface drainage or natural watercourses.

3.04 FIELD QUALITY CONTROL

- .1 Fill material and spaces to be filled to be inspected and approved by Departmental Representative.

3.05 BACKFILLING

- .1 Use types of fill as indicated on Drawings and in accordance with Section 31 05 16 – Aggregate Materials. Compaction densities are percentages of maximum densities obtained from ASTM D 698 and ASTM D 1557.
- .2 Start backfilling only after inspection and receipt of written approval of fill material and spaces to be filled from Departmental Representative.
- .3 Areas to be backfilled to be free from debris, snow, ice, water and frozen ground.
- .4 Do not use backfill material which is frozen or contains ice, snow or debris.
- .5 Place backfill material in uniform layers not exceeding 150 mm compacted thickness up to bottom of gravel trail or topsoil. Compact each layer before placing succeeding layer.
- .6 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.
- .7 Under seeded and sodded areas: use site excavated material to bottom of topsoil except in trenches and within 600 mm of foundations.
- .8 Blown rock material, not capable of fine grading, is not acceptable, imported material must be placed on this type of material.
- .9 Use hand operated plate type vibratory or other suitable hand tampers in areas not accessible to rollers or compactors.
- .10 Compact each layer to:
 - .1 Landscape areas: minimum 85% SPD (Standard Proctor Density), ASTM D698-12e2.
 - .2 Trail beds: minimum 90% SPD (Standard Proctor Density), ASTM D698-12e2.
- .11 Add water or dry as required to bring moisture content of materials to the specified level required to achieve specified compaction.

3.06 GRADING

- .1 Grade so that water will drain away and off of trail surfaces , to catch basins, water bars and other disposal areas approved by Departmental Representative.

3.07 RECLAMATION

- .1 Reclamation of old trail bed to include:
 - .1 Ripping/decompaction of soil and coarse materials to a depth of 150mm (where possible) across the effective trail and vegetated ground cover.
 - .2 Excavation and backfilling to match micro topography of trail bed to adjacent landforms
 - .3 Grading so that water will drain away from trail center.
 - .4 Spreading of local material (topsoil, overburden) from adjacent wind-row onto re-graded and decompacted trail surface. Material to be spread loosely and not compacted.
- .2 Grading of materials (berms) at old trail entrance and exit to reduce trail use, as directed by Departmental Representative.
 - .1 Contour to match natural features
 - .2 Incorporate woody debris
 - .3 Ensure access is completely blocked
 - .4 Ensure any removed topsoil or vegetative materials are redistributed over berms

3.08 CLEANING

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

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 31 00 00 – Earthwork.
- .2 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Aggregate materials will not be measured separately for payment. Refer to Section 31 00 00 – Earthwork for Measurement and Payment Procedures.

1.03 REFERENCES

- .1 ASTM International
 - .1 ASTM D 4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.
 - .2 ASTM C136, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
 - .3 ASTM C117, Standard Test Method for Material Finer Than 0.075mm (No.200) Sieve in Mineral Aggregates by Washing.
 - .4 ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
 - .5 ASTM C127, Standard Test Method for Relative Density (Specific Gravity) and Absorption of Coarse Aggregate.
 - .6 ASTM D1557, Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000ft-lbf/ft³) (2,700kN-m/m³).

1.04 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Transportation and Handling: handle and transport aggregates to avoid segregation, contamination and degradation.

2 PRODUCTS

2.01 MATERIALS

- .1 Aggregate materials to be used for the following applications, and as shown on Drawings:
 - .1 Screened Roadbed Material
 - .1 Gravel trail topcoat for Sundance Canyon Trail.
- .2 Aggregate quality: sound, hard, inert, clean, tough, durable particles of crushed rock, gravel, sand and fines capable of withstanding the deleterious effects of exposure to water, freeze/thaw, handling, spreading and compacting and design traffic loading. The aggregate particles shall be

uniform in quality and free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for the use intended.

- .3 Flat and elongated particles of coarse aggregate: to ASTM D 4791.
 - .1 Greatest dimension to exceed 5 times least dimension.
- .4 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:
 - .1 Natural sand.
 - .2 Manufactured sand.
 - .3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.
 - .4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:
 - .1 Crushed rock.
 - .2 Gravel and crushed gravel composed of naturally formed particles of stone.
 - .3 Light weight aggregate, including slag and expanded shale.
- .5 Aggregates for trail surfacing shall meet the requirements of Table 31 05 16 – A.

Table 31 05 16 – A: Aggregate Properties

Test	Screened Roadbed Material – 75 mm Open-Graded Crushed Base Course
Sand Equivalent	≥ 40
Micro-Deval loss factor	≤ 17%
Fractured Faces Method “A”	≥ 50 ¹
Plasticity	n/a

1 - Value for total sample.

- .6 Aggregate shall be determined in accordance with ASTM C117 (Wash Test). Gradations shall fall within the limits shown in Table 31 05 16 – B.

Table 31 05 16 – B: Aggregate Gradation

Sieve Designation	Screened Roadbed Material – 75 mm Open-Graded Crushed Base Course (Percent Passing Sieve Size)
75 mm	100
50 mm	70 - 100
37.5 mm	50 - 85
19 mm	15 - 55
6.3 mm	0.20
2.36 mm	0.10
0.300 mm	0.8
0.075 mm	0.5

2.02 SOURCE QUALITY CONTROL

- .1 Aggregate will be screened from existing excess roadbed material to be removed from construction road. No aggregate is to be imported for this contract.
- .2 Review laboratory test result certificates from a certified testing agency of the proposed source
- .3 If, in the opinion of the Departmental Representative, materials from the proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, the Departmental Representative reserves the right to modify the quality control requirements for the screened roadbed material.

3 EXECUTION

3.01 PREPARATION

- .1 Processing:
 - .1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.
 - .2 Blend aggregates, as required, including reclaimed materials that meet physical requirements of specification is permitted in order to satisfy gradation requirements for material and, percentage of crushed particles, or particle shapes specified.
 - .3 Where necessary, screen, crush, wash, classify and process aggregates with suitable equipment to meet requirements.
- .2 Stockpiling:
 - .1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Departmental Representative. Do not stockpile on completed pavement surfaces.
 - .2 Stockpile aggregates in sufficient quantities to meet project schedules.
 - .3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.
 - .4 Separate different aggregates by strong, full depth bulkheads, or stockpile far enough apart to prevent intermixing.
 - .5 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Departmental Representative within two (2) working days of rejection.
 - .6 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as required to prevent segregation.
 - .7 Do not cone piles or spill material over edges of piles.
 - .8 Do not use conveying stackers.
 - .9 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.02 SEQUENCE OF OPERATION

- .1 Placing:
 - .1 Construct trail surfacing to depth and grade in areas indicated.
 - .2 Ensure no frozen material is placed.
 - .3 Place material only on clean unfrozen surface, properly shaped and compacted and free from snow and ice.
 - .4 Place material using methods which do not lead to segregation or degradation of

- aggregate.
- .5 For spreading and shaping material, use spreader boxes having adjustable templates or screeds which will place material in uniform layers of required thickness.
- .6 Shape each layer to smooth contour and compact to specify density before succeeding layer is placed.
- .7 Remove and replace that portion of layer in which material becomes segregated during spreading.
- .8 Place material in uniform layers not to exceed 75 mm compacted thickness.
- .2 Compaction Equipment:
 - .1 Compaction equipment to be capable of obtaining required material densities.
 - .2 Efficiency of equipment not specified to be proved at least as efficient as specified equipment at no extra cost and written approval must be received from the Departmental Representative or the Designated Representative before use.
 - .3 Equipped with device that records hours of actual work, not motor running hours.
- .3 Compaction:
 - .1 Compact to density not less than 90% Standard Proctor in accordance with ASTM D 698, unless otherwise noted.
 - .2 Shape and roll alternately to obtain smooth, even and uniformly compacted base.
 - .3 Apply water as necessary during compacting to obtain specified density. If material is excessively moist, aerate by scarifying with suitable equipment until moisture content is suitable for compaction.
 - .4 In areas not accessible to rolling equipment, compact to specified density with mechanical tampers approved by the Departmental Representative.

3.03 SITE TOLERANCES

- .1 Finished base surface to be within plus or minus 10 mm of established grade and cross section but not uniformly high or low.
- .2 Finished high fines surfacing aggregate surface to have no irregularities exceeding 10 mm when checked with a 3 m straight edge placed in any direction.
- .3 Correct surface irregularities by loosening and adding or removing material until surface is within specified tolerance.

3.04 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day (including adjacent Sundance Rd; to be free of all debris)
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 31 00 00 – Earthwork.
- .2 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Quantity of clearing and grubbing for which payment will be made shall be by lump sum, and shall include all labour, equipment and material required to satisfactorily complete this item of work, including measures necessary to conduct work in cold temperatures. Payment will be under “Lump Sum Price Item 02 – Clearing and Grubbing”.
- .2 Minimal grubbing and no clearing is expected through project delivery.

1.03 DEFINITIONS

- .1 Clearing consists of cutting off trees and brush vegetative growth to not more than specified height above ground and disposing of felled trees, previously uprooted trees and stumps, and surface debris.
- .2 Close-cut clearing consists of cutting off standing trees, brush, scrub, roots, stumps and embedded logs, removing at, or close to, existing grade and disposing of fallen timber and surface debris.
- .3 Clearing isolated trees consists of cutting off to not more than specified height above ground of designated trees, and disposing of felled trees and debris.
- .4 Underbrush clearing consists of removal from treed areas of undergrowth, deadwood, and trees smaller than 50 mm trunk diameter and disposing of fallen timber and surface debris.
- .5 Grubbing consists of excavation and disposal of stumps and roots, boulders and rock fragments of 300 mm or more in diameter to not less than specified depth below existing ground surface. Grubbed logs and woody debris will be substantially buried by soil prior to applying hydro seed.

1.04 STORAGE AND PROTECTION

- .1 Prevent damage to fencing, trees, landscaping, natural features, bench marks, existing buildings, existing pavement, utility lines, site appurtenances, water courses and root systems of trees which are to remain.
 - .1 Repair damaged items to approval of Departmental Representative.
 - .2 Replace trees designated to remain, if damaged, as directed by Departmental Representative.

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures in accordance with Section 01 35 43 – Environmental Procedures.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.02 PREPARATION

- .1 Inspect site and verify with Departmental Representative, items designated to remain.
- .2 Locate and protect utility lines: preserve in operating condition active utilities traversing site.
 - .1 Notify Departmental Representative immediately of damage to or when unknown existing utility lines are encountered.
- .3 Notify utility authorities before starting clearing and grubbing.
- .4 Keep roads and walks free of dirt and debris.

3.03 CLEARING

- .1 Remove any woody debris from the work area (underbrush clearing). Retain for final site reclamation.
- .2 Cut off branches and cut down trees overhanging area cleared as directed by Departmental Representative.
- .3 Cut off unsound branches on trees designated to remain as directed by Departmental Representative.
- .4 Do not fall any trees without written approval from the Departmental Representative and the Environmental Surveillance Officer.

3.04 GRUBBING

- .1 Remove roots larger than 7.5 cm in diameter, matted roots, and designated stumps from indicated grubbing areas.
- .2 Grub out stumps and roots to not less than 200 mm below ground surface.
- .3 Grub out visible rock fragments and boulders, greater than 300 mm in greatest dimension.
- .4 Fill depressions made by grubbing with suitable material and leave surface “rough and loose” (100mm-300mm undulations) as directed by Departmental Representative.

3.05 REMOVAL AND DISPOSAL

- .1 Stockpiled woody debris shall be replaced and partially buried into subsoil within the identified “Revegetation Areas” in project drawings; prior to application of hydro mulch.
- .2 Rocks and boulders grubbed from work area will be retained and distributed throughout the work

area and adjacent forest as directed by the Departmental Representative.

3.06 FINISHED SURFACE

- .1 Leave ground surface "rough and loose" (100mm - 300mm undulations) as directed by Departmental Representative

3.07 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 31 00 00 – Earthwork.
- .2 Section 32 92 19.13 – Mechanical Seeding.
- .3 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Topsoil stripping has been completed under previous contracts and is not part of the work of this contract.
- .2 Quantity of engineered soil medium for which payment will be made shall be measured in cubic meters as determined by number of truckloads applied at specified application rate, and shall include supply and installation, specialized application equipment, cleaning and restoration, and all other labour, equipment and material required to satisfactorily complete this item of work. Payment will be made under “Unit Price Item 04 – Engineered Soil Medium”.
 - .1 All areas indicated on AP12 as “revegetation” will require engineered soil medium application as prescribed in this section.
 - .2 Hydromulch application (Section 32 9219-13) is required immediately after engineered soil medium application to ensure it does not erode.
 - .3 If “combination” product (soil medium, seed and hydro mulch in one application) will be used (Section 32 9219-13) payment will be made under “Unit Price Item 04 – Engineered Soil Medium” OR “Unit Price Item 05 – Hydro mulching”
- .3 Items considered incidental to the Work include, but are not limited to:
 - .1 Decompanction of surfaces identified in drawings to 150mm
 - .2 Preparation of sub-grade for placing of engineered soil medium.
 - .3 Screening of stripped material.
 - .4 Loading and hauling from stockpiles.
 - .5 Placing and finish grading.
 - .6 Supply of specialized equipment (including via 3rd party) for application of engineered soil medium.
 - .7 Incorporation and application of seed mix with engineered soil medium.
 - .8 Cleaning of over-spray from areas not intended to receive engineered soil medium.
 - .9 Restoration of stockpile location(s).
 - .10 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - .11 Measures necessary to conduct work in cold temperatures.

1.03 SUBMITTALS

- .1 Engineered soil medium: Prior to ordering material, submit manufacturer’s product data, including product specifications and installation instructions for review and approval in accordance with Section 01 33 00 Submittal Procedures.

1.04 REFERENCES

- .1 Agriculture and Agri-Food Canada
 - .1 The Canadian System of Soil Classification, Third Edition, 1998.
- .2 Canadian Council of Ministers of the Environment
 - .1 PN1340-2005, Guidelines for Compost Quality.

1.05 DEFINITIONS

- .1 Compost:
 - .1 Mixture of soil and decomposing organic matter used as fertilizer, mulch, or soil conditioner.
 - .2 Composed bio-solids to: CCME Guidelines for Compost Quality, Category (A).

1.06 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Divert unused soil amendments from landfill to official hazardous material collections site approved by Departmental Representative.
- .3 Do not dispose of unused soil amendments into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

2 PRODUCTS

2.01 ENGINEERED SOIL MEDIUM

- .1 Engineered soil medium: biotic-active hydraulically or pneumatically applied mulch and growing medium consisting of organic material and soil amendments, which can be mixed with seed to be applied simultaneously (integrated seeding). Addition of tackifier (bonded fiber matrix or equivalent) may also be applied simultaneously with seed (combination product) to adhere to "hydromulching" detailed in Section 32 92 19.13 - Mechanical Seeding.
 - .1 Reference products:
 1. Proganics DUAL (biotic media and bonded fiber matrix) as manufactured by Profile Products, 750 W. Lake Cook Rd, Suite 440, Buffalo Grove, IL 60089, Erosion & Vegetative Solutions: 1-800-508-8681.
 - a. As per manufacturers application rates based on slopes
 - b. Would not require a hydromulch application (32 92 19.13)
 - c. "Combination" product
 2. ProGanics Biotic Soil Media as manufactured by Profile Products, 750 W. Lake Cook Rd, Suite 440, Buffalo Grove, IL 60089, Erosion & Vegetative Solutions: 1-800-508-8681.
 - a. As per manufacturers application rates based on slopes
 3. Verdyol Biotic Earth (+tack), as manufactured by ECB Verdyol, Highway 8 & RD 136N Riverton, Manitoba R0C 2R0, 1-866-280-7327.
 - a. As per manufacturers application rates based on slopes
 4. EcoBlanket, as manufactured by Rexius and supplied by Denbow, 40874 Yale Road West, Chilliwack, BC V2R 4J2, 1-888-933-6269.
 - a. 2-inch application thickness.
 5. Or approved equivalent.

2.02 SOIL AMENDMENTS

- .1 Fertilizer:
 - .1 Fertilizer is not approved for use in native seeding areas.

3 EXECUTION

3.01 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to Section 01 35 43 – Environmental Procedures.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.02 CLEANING AND OPERATION OF EQUIPMENT

- .1 Clean and operate equipment in accordance with Section 01 35 43 – Environmental Procedures.

3.03 PREPARATION OF EXISTING GRADE

- .1 Verify that grades are correct.
 - .1 If discrepancies occur, notify Departmental Representative and do not commence work until instructed by Departmental Representative.
- .2 Grade soil, eliminating uneven areas and low spots, ensuring positive drainage.
- .3 Maintain structure (i.e., rocks, roots, woody debris) in topsoil.
- .4 Remove soil contaminated with calcium chloride, toxic materials and petroleum products.
 - .1 Dispose of removed material off site.
- .5 Cultivate (decompact) entire area which is to receive soil medium to minimum depth of 10 mm.
 - .1 Cross cultivate those areas where equipment used for hauling and spreading has compacted soil.

3.04 APPLICATION OF ENGINEERED SOIL MEDIUM

- .1 Follow manufacturer's recommendations for installation thickness and/or application rate.
- .2 Incorporate seed mix into engineered soil medium for simultaneous application. Refer to Section 32 92 19.13 Mechanical Seeding for further information.
- .3 Contractor to supply water required for application of engineered soil medium. Water shall not be extracted from the Bow River or any other waterway in Banff National Park.

3.05 FINISH GRADING

- .1 Grade to eliminate rough spots and low areas and ensure positive drainage.
- .2 Prepare loose friable bed by means of cultivation and subsequent raking.
- .3 Consolidate topsoil to required bulk density using equipment approved by Departmental Representative.
- .4 Leave surfaces smooth, uniform and firm against deep footprinting.

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- .5 Hydromulch application (Section 32 9219-13) is required immediately after engineered soil medium application (if not using a combination product) to ensure it does not erode.

3.07 ACCEPTANCE

- .1 Departmental Representative will inspect and test topsoil in place and determine acceptance of material, depth of topsoil and finish grading.

3.08 SURPLUS MATERIAL

- .1 All existing stockpiled topsoil is to be used within the work area.

3.09 CLEANING

- .1 Proceed in accordance with Section 01 74 11 - Cleaning.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 32 91 19.13 – Soil Medium Placement and Grading.
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 35 43 – Environmental Procedures.

1.02 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for hydromulching will be made at unit price per square meter of actual surface measurements as measured by survey, hand measurements, or Global Positioning System (GPS) for each application and shall include installation to meet acceptance requirements as described in PART 3, and all other labour, equipment and material required to satisfactorily complete this item of work. Payment will be made under “Unit Price Item 05 – Hydromulching”.
 - 1. All areas indicated on AP12 as “revegetation” will require hydromulch application as prescribed in this section or as a combination product in Section 32 91 19.13 – Soil Medium Placement and Grading).
- .2 Payment for seed incorporated in engineered soil medium will be measured as kilograms of seed supplied and shall include the supply, watering and maintenance of seed to meet acceptance requirements as described in PART 3, and all other labour, equipment and material required to satisfactorily complete this item of work. Payment will be made under “Unit Price Item 8– Seed Supply”.
- .3 Any additional mechanical and/or broadcast seeding in areas of poor growth will be incidental to the works.
- .4 Items considered incidental to the Work include, but are not limited to:
 - 1. Removal of weeds in preparation for seeding.
 - 2. Re-seeding areas of poor growth.
 - 3. Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures.
 - 4. Measures necessary to conduct work in cold temperatures.

1.03 REFERENCES

- .1 Government of Canada
 - .1 Seeds Act, R.S.C. 1985, c. S-8 (current to January 31, 2017).
 - .2 Seeds Regulation, C.R.C., c. 1400 (current to January 31, 2017).
- .2 Province of Alberta
 - .1 Weed Control Act, Weed Control Regulation, Alberta Regulation 19/2010 (with amendments up to and including Alberta Regulation 125/2016).

1.04 ACTION AND INFORMATIONAL SUBMITTALS

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

- .1 Submit to the Departmental Representative for approval in advance of purchasing seed. Seed certificate must be submitted for each specified seed species and approved substitution.
- .2 Seed certificates shall meet the following requirements and/or include the following information:
 - .1 Name and address of testing laboratory.
 - .2 Testing shall be conducted by a qualified seed testing laboratory as required by the Canada Seeds Regulations.
 - .3 Seed analysis must be conducted within 2 years of submittal of seed certificate. Indicate date of analysis on seed certificate.
 - .4 Species of seed, including common name, varietal, and scientific name, using the CANADENSYS nomenclature system.
 - .5 Indicate if the seed is a cultivar, ecovar or wild native.
 - .6 Geographic origin (seed source).
 - .7 Date of collection.
 - .8 Method of seed storage.
 - .9 Grade of seed (for commercial seed lots).
 - .10 Lot number (for commercial seed lots).
 - .11 Germination percentage.
 - .12 Purity analysis of seed mixture, including percentage of pure seed, variety, agronomic species and weeds.
 - .13 Contact information for seed supplier.
- .3 Do not purchase seed until written approval for each individual lot is obtained.
- .4 Where a specified species is not available, or is unavailable in the quantity required, submit proposed substitution(s) and revised seed mix composition in writing to Departmental Representative for approval prior to purchasing seed.
- .3 Product Data:
 - .1 Submit manufacturer's instructions, printed product literature and data sheets for mulch and tackifier.
 - .2 Submit 2 copies of WHMIS MSDS.
- .4 Submit in writing 5 days prior to commencing work:
 - .1 Volume capacity of hydraulic mulcher in litres.
 - .2 Amount of material to be used per tank based on volume.
 - .3 Number of tank loads required per hectare to apply specified slurry mixture per hectare.

1.05 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with seed supplier's written instructions.

- .2 Use all means necessary to protect all materials before, during and after installation. Provide adequate protection to materials that may deteriorate if exposed to weather.
- .3 Seed, hydro-mulch and tackifier to be stored in dry weatherproof place and shall be protected from damage by heat, rodents and other causes. Deliver and store grass seed in original packages with label indicating:
 - .1 Analysis of seed mixture;
 - .2 Percentage of pure seed by weight;
 - .3 Year of production;
 - .4 Net mass, and
 - .5 Date tagged and location.
- .4 Retain package labels for inspection by Departmental Representative.

1.06 WARRANTY

- .1 For seeding, 12 months warranty period is extended to 1 full growing season.
- .2 Contractor hereby warrants that seeding and hydromulch application will remain free of defects in accordance with General Conditions, but for 1 full growing season.
- .3 End-of-warranty inspection will be conducted by Departmental Representative.

2 PRODUCTS

2.01 GRASS SEED

- .1 Seed shall be Certified Canada No. 1 Grade quality seed varieties, in accordance with the Canadian Seeds Act and Regulations, and having a minimum purity of 97% and germination of 75%. Seed shall be free of impurities and disease.
- .2 Seed mix for all applications to be the following, by weight:

Species	Common Name	% of Mix by Weight
<i>Achillea millefolium</i>	Yarrow (white)	2%
<i>Agropyron trachycaulus var. subsecundus</i>	Awne d wheat grass	10%
<i>Bromus ciliates</i>	Fringed brome	10%
<i>Elymus glaucus</i>	Smooth Wild Rye	20%
<i>Elymus innovates</i>	Hairy Wild Rye	20%
<i>Koeleria macrantha</i>	June Grass	15%
<i>Lolium multiflorum</i>	Italian Ryegrass	18%
<i>Poa alpina</i>	Alpine Blue Grass	5%

Seeding Rate = 200 kg/ha (or
manufactures recommendation) for
terraseding

100%

- .1 Percent of mix by weight to be adjusted after submission of seed certificates indicating % purity and % germination.
- .3 Seed certificate to be approved by the PCA ESO prior to ordering.
- .4 Seed mix shall be free of noxious weed seeds as per the Alberta Weed Control Act.

2.02 WATER

- .1 Free of impurities that would inhibit germination and growth and in accordance Section 01 35 43 – Environmental Procedures.

2.03 HYDRO-MULCH

- .1 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green colouring, free of germination and growth inhibiting factors with following properties:
 - .1 Made from wood cellulose fibre.
 - .2 Organic matter content: >93% plus or minus 0.5%.
 - .3 Value of pH: 6.0 – 7.1 ± 2.
 - .4 Water holding capacity: 900 – 1,200%.
- .2 Tackifier: water soluble vegetable carbohydrate powder.
- .3 Product must be suitable for slopes/grades identified within the drawings.

3 EXECUTION

3.01 GENERAL

- .1 Contractor shall advise Departmental Representative prior to the start of hydromulch operations.
- .2 Contractor shall mechanically remove any weeds prior to seeding. Weed removal method to be approved by Departmental Representative prior to commencement. This will be incidental to the work.
- .3 Contractor shall ensure that equipment is steam cleaned, free of soil and seed from previous project to prevent site contamination.
- .4 Do not perform work under adverse field conditions such as wind speeds over 10 km/h, frozen ground or ground covered with snow, ice or standing ice.
- .5 Hydromulching and seeding shall be done to ensure a catch satisfactory to the Departmental Representative's approval. In areas where seed fails to germinate for whatever reason, the Contractor shall re-cultivate and reseed until acceptable germination takes place.
- .6 Contractor shall carry out hydromulching and seeding in locations as per the Contract Documents or, as directed by Departmental Representative.
- .7 Hydromulch will be applied immediately after engineered soil medium placement (Section 32 91 19.13 – Topsoil Placement and Grading) – unless combination product is used (engineered soil medium, seed and hydro mulch) in which case hydromulch is not required over applied combination product.

3.02 SEED BED PREPARATION

- .1 Remove and dispose of weeds; debris; stones 100 mm in diameter and larger; soil contaminated by oil, gasoline and other deleterious materials; off site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Verify that grades are correct. If discrepancies occur, notify Departmental Representative and commence work when instructed by Departmental Representative.
- .3 Fine grade surface free of humps and hollows to smooth, even grade, surface draining naturally.
- .4 Cultivate fine graded surface approved by Departmental Representative to 25 mm depth immediately prior to seeding.
- .5 The seedbed will be scarified if seeding takes place more than 7 days after final grading or if there has been a rainfall between final grading and the seeding date.
- .6 The cleats of a tracked vehicle or a harrow device will be used, where possible, to prepare an adequate seedbed with seedling safe-sites (microsites) substantially free of soil crusts.
- .7 Align cleat marks at right angles on slopes (track walk) to trap seed and sediment and reduce erosion.

3.03 SEED PLACEMENT

- .1 Seed and hydro-mulch bare areas as soon as possible after disturbance, preferably as soon as a significant area is graded and finished and before the next rain event. If there is a risk of seedling mortality as a result of fall frost, stabilize until appropriate growing conditions exist.
- .2 Apply a seed mixture which is appropriate for the climate, soil, and drainage conditions of the site.
- .3 Apply seed at a rate appropriate to the seed mixture, seeding method and existing vegetation conditions.
- .5 Seeding shall be carried out during periods when seasonal conditions are best for the successful germination and continued growth of all species in the seed mix.
- .4 Conduct broadcast seeding under calm wind conditions.
- .6 Conduct seeding only on soil that is free of ground frost, snow and standing water. Do not seed during periods of moderate to heavy rainfall.
- .7 Do not increase the seeding rate to compensate for poor seedbed conditions.
- .8 Ensure seed is placed under supervision of certified Landscape Planting Supervisor.
- .9 For manual seeding:
 - .1 Use manually operated drop seeder ("Cyclone" type or equivalent).
 - .2 Use manually operated, water ballast, landscaping type, smooth steel drum roller. Ballast as directed by Departmental Representative.
 - .3 Use equipment and method acceptable to Departmental Representative.
- .10 Blend applications 150 mm into adjacent grass areas and previous applications to form uniform surfaces.
- .11 Sow half of required amount of seed in one direction and remainder at right angles as applicable.
- .12 Incorporate seed into topsoil by light raking in cross directions.

- .13 Consolidate mechanically seeded areas by rolling area if soil conditions warrant or if directed by Departmental Representative with equipment approved by Departmental Representative immediately after seeding.
- .14 Do not seed areas which cannot be mulched on the same day.

3.04 HYDRO-MULCHING

- .1 Apply hydro-mulch to area with applied engineered soil medium (with incorporated seed)
- .2 Preparation of slurry
 - .1 Prepare slurry according to manufacturer's recommendations.
 - .2 Measure quantities of materials by weight or weight-calibrated volume measurement satisfactory to Departmental Representative. Supply equipment required for this work.
 - .3 Charge required water into hydro-mulching equipment. Add material into hydraulic seeder under agitation. Pulverize mulch and charge slowly into seeder.
 - .4 After materials are in hydro-mulching equipment and well mixed, charge tackifier into seeder and mix thoroughly to complete slurry.
- .3 Hydraulic seeding equipment:
 - .1 Slurry tank.
 - .2 Agitation system for slurry to be capable of operating during charging of tank and during application, consisting of recirculation of slurry and/or mechanical agitation method. Slurry must be maintained in a homogeneous state until it is applied.
 - .3 Capable of applying mulch slurry uniformly by 50 m hand operated hoses and appropriate nozzles.
 - .4 Slurry tank volume shall be certified by identification plate or sticker affixed in plain view on equipment. Do not remove or alter label.
 - .5 Equipment shall be thoroughly cleaned prior to any and all hydro-mulch applications.
- .4 Hydro-mulch mixture applied per hectare as per product specification; generally as;
 - .1 Slopes up to 3:1 (33% gradient): 3,000 kg/ha
 - .2 Slopes from 3:1 to 2.5:1 (40% gradient): 3,500 kg/ha
 - .3 Slopes from 2.5:1 to 2:1 (50% gradient): 4,000 kg/ha
 - .4 Slopes exceeding 2:1 are not recommended for seeding.
- .5 Apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed.
 - .1 Using correct nozzle for application.
 - .2 Using hoses for surfaces difficult to reach and to control application.
 - .3 Slurry should not be left in tank for more than 4 hours unless required for specific purposes of application.
- .6 Re-apply where application is not uniform.
- .7 Remove slurry from items and areas not designated to be sprayed (trees, fence, trail or logs/coarse woody debris).

3.05 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Leave Work area clean at end of each day.
 - .2 Keep pavement and area adjacent to site clean and free from mud, dirt, and debris at all times.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
 - .1 Clean and reinstate areas affected by Work.

3.06 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Establishment period is a minimum of four months of continuous growing season. Growing season shall not be divided by winter.
- .2 The Contractor shall repair and reseed dead or bare spots, as directed in the Contract Documents, to Departmental Representative's satisfaction, to allow establishment of seed prior to acceptance. Any bare areas with a 20 cm diameter or larger in any direction will be top dressed and over-seeded. In the case of erosion, the Contractor shall be compensated at the specified unit rates for reseeding.
- .3 For areas of poor seed germination and growth, as determined by the Departmental Representative, the soil shall be scarified or re-cultivated as directed by the Departmental Representative, and seeding undertaken as specified. This work is incidental to the Contract.
- .4 Weed control shall be undertaken by mechanical methods, or as determined by the Departmental Representative. Hand pulling of weeds may be required. This work is incidental to the Contract.
- .5 Areas of poor hydromulch application or establishment (indicated by sloughing hydromulch), as determined by the Departmental Representative, shall be hydromulched again with corrected specifications. The contractor will remove all dislodged hydromulch from site. This work is incidental to the Contract.

3.07 CONSTRUCTION COMPLETION ACCEPTANCE

- .1 Seeded areas will be accepted by the Departmental Representative provided that all areas are uniformly established and turf is not eroded or rutted and relatively free of weeds. Seeded areas to be growing for a minimum of four continuous months prior to construction completion acceptance inspection.
- .2 Areas seeded in fall will be accepted in following spring, a minimum of four months after start of growing season, provided acceptance conditions are fulfilled.
- .3 Minimum 75% growth by area of coverage of specified seed mixture must be present in order to be acceptable.
- .4 No plants defined as "Noxious" in the Alberta Weed Control Act are permitted to remain alive in the seeded areas.

3.08 MAINTENANCE DURING WARRANTY PERIOD

- .1 Maintenance shall occur for one full year from Construction Completion Acceptance. The estimated period of maintenance within one calendar year shall be from project completion. The Contractor will be required to employ all of the necessary measures to establish and maintain all seeding in an acceptable, vigorous and healthy growing condition.
- .2 The Contractor shall repair and reseed dead or bare spots, as directed in the Contract Documents, to Departmental Representative's satisfaction, to allow establishment of seed prior to acceptance. In the case of erosion, the Contractor shall be compensated at the specified unit rates for reseeding.
- .3 For areas of poor seed germination, or as determined by the Departmental Representative, the soil shall be scarified or re-cultivated as directed by the Departmental Representative, and seeding undertaken as specified. This work is incidental to the Contract.
- .4 Weed control shall be undertaken by mechanical methods, or as determined by the Departmental Representative. Hand pulling of weeds may be required. This work is incidental to the Contract.

West Sulphur Entrance Trail Redevelopment

- .5 Areas of poor hydromulch application or establishment (indicated by sloughing hydromulch), as determined by the Departmental Representative, shall be hydromulched again with corrected specifications. The contractor will remove all dislodged hydromulch from site. This work is incidental to the Contract.

END OF SECTION

Appendix A

Standard CMS Translations – Rev 1









July 2018











	English Version							French Version								
1	C	O	N	S	T			A	T	T	!					
	A	H	E	A	D			T	R	A	V	A	U	X		
2	C	O	N	S	T			A	T	T	!					
	A	H	E	A	D			T	R	A	V	A	U	X		
	S	L	O	W				R	A	L	E	N	T	I	R	
3	E	X	P	E	C	T		C	I	R	C	.		A	U	
	D	E	L	A	Y	S		R	A	L	E	N	T	I		
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4	C	H	A	N	G	E	D	S	C	H	É	M	A			
	T	R	A	F	F	I	C	D	E		C	I	R	C	.	
	P	A	T	T	E	R	N	M	O	D	I	F	I	É		
5	D	E	T	O	U	R		A	T	T	!					
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6	T	R	A	F	F	I	C	A	T	T	!					
	L	I	G	H	T	S		F	E	U	X		D	E		
	A	H	E	A	D			C	I	R	C	.				
7	C	O	N	S	T			T	R	A	V	A	U	X		
	F	O	R		N	E	X	T	S	U	R					
	#	#		K	M			#	#		K	M				
8	P	R	E	P	A	R	E	P	R	É	P	A	R	E	Z	
	T	O						V	O	U	S		À			
	S	T	O	P				A	R	R	Ê	T	E	R		
9	P	L	E	A	S	E		O	B	É	I	S	S	E	Z	
	O	B	E	Y		A	L	L	A	U	X					
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10	E	N	D					F	I	N		D	E	S		
	C	O	N	S	T			T	R	A	V	A	U	X		
11	B	L	A	S	T	I	N	G	A	T	T	!				
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12	W	O	R	K				F	I	N		D	U			
	Z	O	N	E				C	H	A	N	T	I	E	R	
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13	R	E	S	U	M	E		R	E	P	R	I	S	E		
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14	D	R	I	V	E			P	R	U	D	E	N	C	E	
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								R	O	U	T	E	S			











Appendix B







Construction Signage Translation – Rev 1

July 2018

Source	Sign Reference	Construction Sign English	Equivalent French Translation
BC MoTI TMM 2015	C-005-A		DÉVIATION
AT TAWZ	WD-A-10		
BC MoTI TMM 2015	C-018-1A		CONSTRUCTION
AT TAWZ	WD-101		
BC MoTI TMM 2015	C-029		PRÉPAREZ-VOUS À ARRÊTER
AT TAWZ	WD-111		
BC MoTI TMM 2015	C-030-8		CIRC. SUR UNE SEULE VOIE
AT TAWZ	WD-106		
BC MoTI TMM 2015	C-031		VÉHICULES EN SENS INVERSE
BC MoTI TMM 2015	C-032		RALENTIR
BC MoTI TMM 2015	C-033		<u>DYNAMITAGE</u> ÉTEINDRE ÉMETTEURS RADIO
BC MoTI TMM 2015	C-034		FIN ZONE DE DYNAMITAGE

Source	Sign Reference	Construction Sign English	Equivalent French Translation
BC MoTI TMM 2015	C-045-2A		VÉHICULES LENTS
BC MoTI TMM 2015	C-046		MARQUAGE ABSENT
BC MoTI TMM 2015	C-047-2		MARQUAGE TEMPORAIRE
BC MoTI TMM 2015	C-050-2		OUVRIERS EN AVAL
BC MoTI TMM 2015	C-063		SCHÉMA DE CIRCULATION MODIFIÉ
BC MoTI TMM 2015	C-067-T		À XXX M
BC MoTI TMM 2015	C-069		BARRIÈRE ENLEVÉE
BC MoTI TMM 2015	C-080-T		CONSTRUCTION RALENTIR
AT TAWZ	WD-154		FIN ZONE DE CONSTRUCTION
BC MoTI TMM 2015	C-135-Ta		UNE SEULE VOIE

Source	Sign Reference	Construction Sign English	Equivalent French Translation
BC MoTI TMM 2015	C-172-T		INTERDIT DE DÉPASSER SUR 150 M
BC MoTI TMM 2015	C-185-1Ta		BRÛLAGE DIRIGÉ
BC MoTI TMM 2015	C-202		TROTTOIR FERMÉ
BC MoTI TMM 2015	C-203-L/R		TROTTOIR FERMÉ TRAVERSER ICI
BC MoTI TMM 2015	B-C-004-Ta		SUR 2 KM
AT TAWZ	WD-A-41-T		
BC MoTI TMM 2015	B-C-020		RALENTIR
BC MoTI TMM 2015	B-C-020-T		ATTENTION PIÉTONS
BC MoTI TMM 2015	R-001		ARRÊT
BC MoTI TMM 2015	R-012		ROUTE FERMÉE
BC MoTI TMM 2015	R-025-L/R		LIGNE D'ARRÊT

BC MoTI TMM 2015	R-056-1		AUX VÉHICULES EN SENS INVERSE
Source	Sign Reference	Construction Sign English	Equivalent French Translation
AT TAWZ 2008	ID-503		AMENDES POUR EXCÈS DE VITESSE DOUBLÉES
AT TAWZ 2008	ID-503A		DÉBUT
AT TAWZ 2008	ID-5038		FIN
AT TAWZ 2008	RB-24		CIRCULATION À DEUX SENS
AT TAWZ 2008	WD-101B		PONT EN CONSTRUCTION