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Drawings:

To be advised.

Reference Documents:

Parks Canada National Best Management Practices Roadway, Highway, Parkway and Related Infrastructure

8 Mile Pit Plan (Oct 2015)R1

Drawing 17 - Milling to tie from existing to new overlay

Asphalt Aggregate Resource Assessment (DRAFT), January 2015

Marmot Pit Year End Survey Oct 2015 R1

Part 1 General**1.1 PRECEDENCE**

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

1.2 DEFINITIONS

- .1 British Columbia Ministry of Transportation and Infrastructure is referred to as “BC MoTI”.
- .2 Alberta Transportation is referred to as “AT”.
- .3 “JNP” shall refer to Jasper National Park, respectively. “The Park” shall refer to any National Park.
- .4 Any reference to “Parks Canada Agency”, “Parks Canada”, “PCA” or “The Owner”, shall refer to Parks Canada Agency and shall include any affiliate or sub group of Parks Canada.
- .5 “Highway 93N”, “Hwy 93N”, “Icefields Parkway” shall refer to Highway 93 North, within both Jasper and Banff National Parks.
- .6 AT specifications specified for the work can be found at the following AT website address:
 - .1 http://www.transportation.alberta.ca/images/Standard_Specifications_for_Highway_Construction_2013.pdf
- .7 Changes in Definition, - The following changes in definitions have been made to the “AT Specifications”:
 - .1 Consultant – The word “Consultant” shall mean Departmental Representative or his duly appointed representative.
 - .2 Department – The word “Department” shall mean Parks Canada Agency.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

- .1 In preparation for, and during construction of this project, the Contractor shall review the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. The Departmental Representative and Parks Canada’s Environmental Surveillance Officer (ESO) will refer to Section 01 35 43 – Environmental Procedures in determining compliance.
- .2 All requirements noted within the Contract Documents shall be completed by the Contractor unless specifically stated otherwise.
- .3 Where material and construction specifications for work covered under the Contract, including any Change Orders are not available, **Alberta Transportation Standard Specifications for Highway Construction** (Latest Edition) shall apply unless directed by the Departmental Representative.
- .4 Without limiting the scope of work, the work of this Contract generally comprises the following:
 - .1 Extraction of gravels and production in 8 Mile Pit of AT Designation 1 Class 16 asphalt aggregate (16mm). Approved crushed material to be stockpiled at Mile 8

- pit at locations as noted in the drawings or as directed by the Departmental Representative.
- .2 Extraction of gravels and production in 8 Mile Pit of 12.5mm Winter Abrasives. Approved crushed material to be loaded, hauled and stockpiled in Marmot Pit at locations as noted in the drawings or as directed by the Departmental Representative.
 - .3 The supply, mixing, and installation of AT Asphalt Concrete Pavement Mix Type H1 (EPS) along the Highway 93N at locations as shown on the IFC drawings or as directed by the Departmental Representative in accordance with AT Specification 3.50.
 - .4 Asphalt pavement removal by milling for surface and profile improvement and crack repair by slot milling as detailed in the IFC drawings. Stockpile and / or utilize millings as directed by the Department Representative.
 - .5 **The use of Recycled Asphalt Pavement (RAP) is permitted for this project at a maximum rate of 10% for the bottom lift only.**
 - .6 Perform mix designs for AT Asphalt Concrete Pavement Mix Type H1 using 150-200A asphalt binder. Mix design is subject to acceptance by the Departmental Representative.
 - .7 Perform two mix designs for AT Asphalt Concrete Pavement Mix Type H1 using Asphalt Binder 150-200A penetration grade and Designation 1 Class 16 Asphalt Aggregate. First mix design will be without the use of RAP for the top lift only, and second mix design will include use of RAP for the bottom lift. Mix design is subject to acceptance by the Departmental Representative.
 - .8 ACP thickness to be in accordance with the IFC drawings or as directed by the Departmental Representative. Maximum and minimum lift depths shall be in accordance with AT specifications and depths shall be approved by Departmental Representative prior to the start of paving.
 - .9 The Contractor will be permitted to set up Asphalt and Crushing plants at 8 Mile Pit, Jasper NP as directed by the Departmental Representative
- .1 The crushing plant to be used for this project, regardless of location, shall have a minimum combined Horse Power of 200 HP. All aggregate which will pass through 375 mm x 450 mm slotted screen openings shall be used for the production of crushed aggregate using a jaw crusher. Rocks which will not pass through these openings shall be stockpiled at locations in the pit as directed by the Departmental Representative. No portion of the products of crushers or screening plants that can be used shall be wasted, but shall be stockpiled or used as directed by the Departmental Representative.
 - .2 The asphalt plant to be used on this project, regardless of location, shall be a minimum of 200 tonnes per hour production, equipped with a dry bag system for pollution control, in addition to, or in replacement of standard cyclone dust collectors, to effectively eliminate emissions of dust and smoke pollutants into the atmosphere.
 - .3 There is no power or phone at 8 Mile Pit.
 - .4 Water can be obtained from Parks Canada compound or from digging a hole at the pit below the water table upon acceptance from the Departmental Representative

- .10 Shouldering with a blended recycled asphalt pavement and Contractor supplied aggregate mix, as directed by the Departmental Representative.
- .11 Preparation of 8 Mile Pit including, among other items, grubbing and stripping as directed by the Departmental Representative.
- .12 Ditch regrading as indicated on the IFC drawings or as directed by the Departmental Representative.
- .13 Hydraulic Seeding with an approved seed mix.
- .14 Supply and installation of traffic control and other temporary construction facilities required for completion of the Work of the Project.
- .15 Installation of rumble strips in JNP, as indicated on the IFC drawings or as directed by the Departmental Representative.
- .16 Painting and reinstatement of roadway paint lines and other pavement markings indicated on the design IFC drawings.
- .17 Miscellaneous Additional Work as directed by the Departmental Representative.

1.4 PROJECT LOCATION

- .1 The project is located in Jasper National Park, Alberta on Highway 93N. The following are key locations relative to the project:
 - .1 Hwy 93N Km 0: TCH and 93N Intersection BNP
 - .2 Hwy 93N End: Hwy 16 and 93N Intersection JNP (Km 227.4)
 - .3 8 Mile Pit JNP: Hwy 93N Km 215.05

1.5 CONTRACT METHOD

- .1 The Contractor shall construct Work under a combined price contract.

1.6 WORK BY OTHERS

- .1 Other contractors may be working within the Highway 93N corridor. The Contractor shall coordinate his operations with others. No claims for any delays, lost profit or inconvenience will be entertained. The current known projects for the 2016 season include, but are not limited to:
 - .1 Line painting at various locations. Anticipated contract completion Fall 2016.
 - .2 It is anticipated that a contractor will be performing safety improvements on Highway 93N including intersection upgrades and paving. Anticipated contract completion Fall 2016.
 - .3 It is anticipated that a contractor will be performing pavement rehabilitation and drainage improvements on Highway 93N at approximately Km 110 – 121. Anticipated contract completion Fall 2016.
- .2 Where it is necessary that work is to proceed in areas of the Contract common to both the Contractor and forces of others, the Contractor shall cooperate with the other contractors and the Owner in reviewing their construction schedules, sharing their work space, and shall coordinate their operations with the other Contractors, including traffic management and construction staging.

- .3 The work area is an operational site used by many contractors and PCA. If access is required the Contractor shall gain authorization from the Departmental Representative prior to entrance and use of the pit, and shall cooperate with the other users of the pit.

1.7 WORK SEQUENCE

- .1 The Contractor shall schedule work progress to allow the Owner / Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 The Contractor shall maintain fire and emergency access on the roadways at all times.
- .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 one (1) week prior to commencement of any work, including:
 - .1 **Complete all asphalt concrete pavement work by October 21, 2016.**
 - .2 **Complete all Works by November 30, 2016. (Contract Completion Date).**
- .4 The Contractor shall not be permitted to close sections of any roadway to the general visiting public during paving operations unless approved by the Departmental Representative.

1.8 CONTRACTOR USE OF PREMISES

- .1 The Contractor has unrestricted use of site, subject to Section 01 14 00 and Section 01 29 01, until the Contract Completion date.
- .2 The Contractor shall limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Work by other Contractors.
- .3 The Contractor shall coordinate use of premises with the acceptance of the Departmental Representative.
- .4 The Contractor shall obtain additional storage or work areas needed for operations under this Contract with the acceptance of the Departmental Representative.
- .5 The Contractor and each sub-contractor shall purchase a business license from the Parks Canada office in Banff or Lake Louise, prior to commencement of the contract.
- .6 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 Parks Canada Environmental Surveillance Officer or as directed by the Departmental Representative.

1.9 OWNER FURNISHED ITEMS

- .1 None.

1.10 OWNER OCCUPANCY

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

1.11 CONSTRUCTION SIGNAGE

- .1 No signs or advertisements, other than warning signs and alternate traffic movement signs, are permitted on site.
- .2 Signs and notices for safety and instruction shall be in both official languages. Signs shall be diamond grade and shall conform to CAN3-Z321.
- .3 The Contractor shall supply, install and maintain two (2) portable Changeable Message Signs with a minimum of three (3) lines with eight (8) characters per line, for the duration of the project.
- .4 The Contractor shall maintain approved signs and notices in good condition for duration of project, and remove or dispose the signs off-site upon completion of project or earlier as directed by the Departmental Representative.
- .5 All temporary traffic control signs that are used for longer than one day shall be mounted on wood or metal posts.
- .6 Signage shall be coordinated with other Contractors where necessary.

1.12 SETTING OUT OF WORK

- .1 The Departmental Representative will establish control points and provide:
 - .1 Complete set of construction Drawings.
 - .2 Alignment notes showing curve data and control point coordinates.
 - .3 Provide a list of control monuments including coordinates and elevations on request.
 - .4 Measurements for payment (Quantity surveys).
- .2 The Contractor shall:
 - .1 Not permanently mark any infrastructure or feature during their setting out of the work. They shall fully remove any set out marks, markers, or other identifiers that they installed, prior to demobilizing from the Work Sites.
 - .2 Set additional control points as necessary.
 - .3 Set all work stakes necessary to complete work.
 - .4 Allow sufficient time for Departmental Representative to take measurements for payment.
 - .5 Not damage geodetic benchmarks or control monuments unless authorized by Departmental Representative.
- .3 The Departmental Representative will identify location of all work sites. The Contractor shall be responsible for all other survey or layout of work.
- .4 At all work sites, the Contractor shall mark accurately, at regular intervals, the location and type of existing concrete barriers and painted lines, including start and ends of passing lanes and intersections, with a stake at the side of the roadway and make a written record of markings in a book, in order that painted lines can be accurately re-established after work is completed. If no lines are present, the Contractor shall mark **accurately (+ or – 20 mm)** and at regular intervals in accordance with the Section 2.2.1 of the **“BC MoTI Traffic Control Manual for Work on Roadways”** (latest edition).

- .5 The Contractor is responsible for the accurate layout of all temporary and final lines at all work sites in this contract.
- .6 Temporary Pavement Marking, including layout and removal shall be considered incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”**. The Contractor will not be permitted to remove the temporary pavement marking until the final pavement markings have been installed to the satisfaction of the Contract and Departmental Representative.

END OF SECTION

Part 1 General**1.1 PRECEDENCE**

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

1.2 EXISTING SERVICES

- .1 Provide for pedestrian, bicycle, railway and vehicular traffic for the duration of the construction.

1.3 USE OF THE WORK SITE

- .1 The Work Sites specified in these specifications shall only be used for the purposes of the Work.
- .2 The Work Site will be made available by the Owner to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents. The Contractor shall include in the tender, payment to taxes properly levied by law (Federal, Provincial and Municipal) including the cost of any collection of permits and business licenses.
- .3 The Contractor will not be permitted to camp in the National Parks. Parks Canada regulations prohibit anyone working within the Park from using public campground facilities. Campsites are available outside of the park boundary, but must be coordinated privately between the Contractor and the campground.
- .4 Office-tool trailers as well as a Laydown area and Contractor vehicle parking will be permitted at 8 Mile Pit. No water is available in 8 Mile Pit either directly or through exposing the submerged water table. Water is available at the Parks Canada compound in Jasper upon acceptance by the Departmental Representative and the ESO but will require the Contractor to obtain a Restricted Access Permit (RAP) and to adhere to all conditions contained therein.
- .5 The Contractor will be allowed up to two (2) RVs for security at 8 Mile Pit.
- .6 The Contractor will be permitted to set up a mobile asphalt plant or use a stationary asphalt plant for this Project and to set up a crushing plant at 8 Mile Pit in Jasper National Park. The Contractor's asphalt and crushing plants shall be set up in accordance with governing regulations and the Environmental Procedures for this project and as directed by the Departmental Representative. No other sites are available in the National Parks to set up a plant.
- .7 Any pit or quarry provided, once entered and developed, shall be used to its full potential. For the production of all aggregates, the contractor shall provide crushing equipment capable of utilizing all the material in the pit.
- .8 Bleeding off of oversize materials or intermediate round material will not be allowed. All natural material must be utilized for processing purposes. No portion of the existing material in the Pit will be rejected or wasted. All material must be utilized in the product being produced.
- .9 Prior to any aggregate production, the Contractor shall submit a written proposal to the Departmental Representative, detailing aggregate processing procedures intended to be used.

These proposed procedures will require the approval of the consultant. Any aggregates produced prior to this approval will not be accepted.

- .10 The Contractor shall not store material other than stripping or clearing debris or park equipment along the Right-of-way outside the normal hours of work.
- .11 The Contractor shall maintain adequate drainage and siltation control at the Worksite.
- .12 The Contractor shall keep the Worksite clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary and at his cost for the performance and inspection of the Work.
- .13 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and the Environmental Procedures for this project. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .14 Any damage to the Worksite caused by the Contractor shall be repaired by the Contractor at its expense.

1.4 WORKING TIMES

- .1 **Work is permitted during daylight hours, from 07:00 to 19:00 hours, six days per week (Monday – Saturday), subject to the other restrictions.**
- .2 **No Work shall occur on Sundays unless prior written approval is granted by the Departmental Representative.**
- .3 The Contractor is obliged to address and accommodate reasonable mitigations in regard to, environmental disturbances including impact to wildlife, road user and worker safety, and other factors impacted by night work.
- .4 No hauling of material during inclement weather will be permitted.
- .5 The Contractor will not be permitted to work on Civic Holidays or long weekends unless prior written approval is granted by the Departmental Representative. The Contractor shall at minimum be required to cease operations on long weekends commencing Thursday evening at 19:00 hours till Tuesday morning at 07:00 hours.
- .6 The following is a list of Statutory and Civic Holidays:
 - .6 Labour Day long weekend: From 09:00. Thursday, September 1, 2016 to 07:00 Tuesday, September 6, 2016.
 - .7 Thanksgiving Day weekend: From 19:00 Thursday, October 6, 2016 to 07:00 Tuesday, October 11, 2016.
- .7 The Contractor shall not be permitted, unless otherwise approved by the Departmental Representative, to work the day before the start of a high traffic event, during the event, or the day after the event. The Contractor shall ensure that two-way traffic is maintained during the work stoppage, and that no traffic be made to run over tack oil.
- .8 The Contractor will not be permitted to adversely impact wildlife or vegetation during critical life stages (breeding, nesting, rearing, and migration) unless prior written approval is granted by the Departmental Representative. The Contractor shall consult with the Departmental Representative and the Parks ESO regarding any localized wildlife concerns.

1.5 WORK CONDUCTED OVER OR ADJACENT TO WATERWAYS

- .1 All components of the Work shall be conducted in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, or streams. Refer to Section 01 35 43 - Environmental Procedures, for details.
- .3 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project. One "Bear Proof" garbage container will be provided by PCA at the 8 Mile pit. The Contractor shall be responsible to provide any additional containers as needed.

1.6 ACCESS TO ADJACENT PROPERTIES

- .1 Construction operations shall be conducted so as to cause minimal inconvenience to the public and to owners of adjoining property. Existing access to property shall be maintained as required and if new access must be provided, coordination with the landowner shall be required before the existing access is removed.
- .2 The Contractor is responsible for the development and supply of all construction access to the Work as approved by the Departmental Representative.

1.7 UTILITIES

- .1 **The Contractor shall become familiar with all utilities and services adjacent to the Work and shall safeguard all infrastructure. The Contractor shall be responsible for cost of repair of any damage resulting from his 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 co-operate 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 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 in a manner that is acceptable to the utility owner, using hand labour if required.
- .5 The Contractor shall assess the possible impact of its operations on all Utilities that may be affected by its operations, and shall, in consultation with Utility owner(s), protect, divert, temporarily support or relocate, or otherwise appropriately treat such Utilities to ensure that they are preserved.
- .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.

1.8 SURVEY OF EXISTING PROPERTY CONDITIONS

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

- .2 The Contractor shall regularly monitor the condition of the Work Site and of property on / and adjoining the Work Site throughout the construction period, and shall immediately notify the Owner if any deterioration in condition is detected. Such monitoring shall cover all pertinent features and property including, but not limited to, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.
- .3 The Departmental Representative may, but shall not be obligated to, survey and record the condition of the Work Site and of property on or adjoining the Work Site prior to the commencement of construction by the Contractor. If requested, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.
- .4 Whenever supplied with survey records, the Contractor shall satisfy itself as to the accuracy and completeness of the survey records provided by the Departmental Representative for any area before commencing construction in that area.
- .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.

1.9 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall 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.
- .2 The Contractor shall comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .3 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Sites.
- .4 The Contractor shall promptly take such measures as are required to repair, replace or compensate for any loss or damage caused by the Contractor to any property or, if Parks Canada so directs, shall promptly reimburse to Parks Canada the costs resulting from such loss or damage.

1.10 USE OF PUBLIC AREAS

- .1 Off-road construction equipment will not be allowed on the existing roadway. Steel tracked equipment with cleats will not be allowed on pavement designated for future use. Asphalt, granular, embankment and excavation materials may be hauled on existing highway but this shall be by standard highway trucks not exceeding legal highway load limits.
- .2 Certified Flag persons shall be provided during mobilization and demobilization of construction site and when work vehicles are entering or exiting the work site or at any time when the existing access gate is not closed. Additional barricades shall be required to prevent public vehicles from entering the closed sections of the Roadway.
- .3 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Sites 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 Sites and transporting materials shall be loaded in a manner which will prevent dropping of materials or debris on the roadways, and where contents may otherwise be blown off during transit such loads shall be covered by tarpaulins or other suitable covers. Spills of 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 USE OF PITS AND QUARRIES

- .1 When the Contractor is operating in a PCA pit or quarry, the Contractor shall utilize the pit or quarry in accordance with the Departmental Representative's authorization. Under no circumstances will waste of useable material be permitted, and excavations shall be continued to depths below water level if suitable material is available.
- .2 No separate payment will be made for clearing, grubbing, disposal or relocation of stockpiles, debris or contaminated materials, or for any other costs of site preparation, pit development, or access, or for any delay or other cost arising from the use of pits by others, and all costs thereof shall be covered in the prices for the Items under which payment is provided for the applicable materials.

1.12 SUPERVISORY PERSONNEL

- .1 Within five (5) days after award notification, the Contractor shall submit to the Departmental Representative confirmation of the names of the supervisory personnel and other key staff designated for assignment on the Contract.
- .2 At a minimum the following personnel shall be included in the list:
 - .1 Project Superintendent.
 - .2 Safety Representative.
 - .3 Quality Control Manager.
 - .4 Environmental Representative.
 - .5 Traffic Representative.
- .3 The above personnel shall perform the following duties:
 - .1 The Project Superintendent shall be employed full time and shall be present on the Work Site each and every workday that Work is being performed, from the commencement of Work to Total Performance of the Work.
 - .2 The Project Superintendent shall nominate a Deputy Project Superintendent or Project Coordinator who shall have the authority of the Project Superintendent during the Project Superintendents absence.
 - .3 The Quality Control Manager shall be responsible for implementation and record keeping for all aspects of project quality control. The Quality Control Representative shall be the Departmental Representative's single point of contact for project quality control.
 - .4 The Environmental Representative shall be responsible for ensuring compliance with the environmental requirements as detailed in Section 01 35 43 from commencement of Work until the Total Performance of the Work.
 - .5 The Traffic Representative shall oversee the implementation of the Traffic Management plan as identified in Section 01 35 00.06. Duties shall encompass

all matters of traffic activities from commencement of Work until the Total Performance of the Work.

1.13 MEETINGS

- .1 The Work includes attending regularly scheduled meetings between the Contractor and the Departmental Representative. All project meetings will be called and facilitated by the Departmental Representative as required. The Contractor shall be represented at such meetings to the satisfaction of the Departmental Representative.
- .2 The Departmental Representative will schedule an initial project kick off meeting to be held at a location to be determined by the Departmental Representative after award and subsequent notification. Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors, supervisors and Utility Companies (if required) are to be in attendance.
- .3 The Contractor shall assemble site staff and sub-contractors for an environmental briefing to be conducted by the Owner. The duration of the briefing shall reflect the information to be shared by the Owner's staff to adequately convey the importance of the information and shall be held at initial project start-up. The Contractor shall ensure that all current project staff are in attendance. The Departmental Representative and the Contractor will co-operate in setting the most appropriate time and place for the briefing. Subsequent to the initial environmental briefing, additional briefings will be arranged for new project staff and sub-contractors within 48 hours of reporting for duty on the project.
- .4 Cost of attending the above meetings shall be considered incidental to the Unit Price items and no additional payment will be made.

1.14 WASTE DISPOSAL

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

1.15 WORK STOPPAGE

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

Part 2 Products

- .1 Not Used

Part 3 Execution

- .1 Not Used

END OF SECTION

Part 1 General**1.1 PRIME COST SUM**

- .1 Include in Contract Price a total **Prime Cost Sum of \$500,000.00**.
- .2 Do not include in the Contract Price, additional contingency allowances for products, installation, overhead or profit.
- .3 Prime Cost Sum provided for in the lump sum table is not a sum due the Contractor. Rather, payment will be made against it for miscellaneous work not included in the unit price table under the General Conditions of the Contract.
- .4 No interpretation of the work as noted below shall indicate that work will be included under the Prime Cost Sum. Items, tasks, and activities included in the Works elsewhere in the Contract shall be paid as indicated in those sections.
- .5 Any and all additional work must be approved in writing by the Departmental Representative prior to commencement.
- .6 All expenditures must be substantiated with verified invoices and/or approved daily extra work reports as noted below.
- .7 Such work may include, but not be limited to:
 - .1 Additional supply, delivery and installation of bituminous materials including asphalt binder, asphalt prime, asphalt tack, anti-stripping agent, and warm mix A/C admixtures;
 - .2 Additional excavation, loading, hauling, crushing, or stockpiling of aggregate materials.
 - .3 Supply and installation of aggregates from outside of the National Parks.
 - .4 Brushing, clearing and grubbing as directed by the Departmental Representative.
 - .5 Stripping and excavation as directed by the Departmental Representative.
 - .6 Additional hydroseeding.
 - .7 Additional roadside shouldering.
 - .8 Additional milling, asphalt crack filling and / or overlay paving.
 - .9 Road structure repairs.
 - .10 Additional ditching.
 - .11 Supply and installation or otherwise cleaning and repairing of culverts and additional drainage.
 - .12 Construction of asphalt spillways.
 - .13 Supply and installation of geotextiles.
 - .14 Supply and installation of riprap.
 - .15 Supply and installation of permanent signs (not construction signs).
 - .16 Supply and installation of permanent raised reflective road markers, barrier reflectors and / or guide posts

- .17 Supply and installation of additional pavement markings and / or rumble strips
 - .18 Additional survey resulting from changes made by the Departmental Representative.
 - .19 Additional remediation or removal and replacement of unsuitable or contaminated soils not described in the contract documents.
 - .20 Guardrail removal and replacement including provision of end treatments.
 - .21 Supply and installation or remove and replace concrete barrier.
 - .22 Removal and disposal of roadway signs.
 - .23 Utility relocations.
 - .24 Restoration and reclamation work in the Pits.
 - .25 Installing manhole risers / installing or raising catch basins
 - .26 EPS Unit Price Adjustments.
 - .27 Miscellaneous work as directed by the Departmental Representative.
- .8 The Contract Price, and not prime Cost Sum, includes Contractor overhead and profit in connection with the work.

1.2 MEASUREMENT PROCEDURES

- .1 Payment for Work under the **“Lump Sum Price Item 3 - Prime Cost Sum”** will be made using negotiated rates or by material, labour and equipment rates as per the following:
- .2 For work in JNP:
 - .1 Rental rates will be in accordance with current Alberta Roadbuilders Rate schedule (All Found rates), and will be all inclusive and fully operated.
 - .2 Hourly rental of equipment will be measured in actual working time and necessary travel time within project limits.
 - .3 Transportation time to and from site will be reimbursed only for equipment used exclusively for additional work.
 - .4 Equipment paid on standby will be paid on 50% of the relevant Less Operator rates to a maximum of 10hrs per day.
 - .5 The Prime Contractor may apply a 10% mark-up to subcontractor or supplier invoices only, as approved by the Departmental Representative. No mark-up will be allowed on relevant equipment and labour rates.
 - .6 A claim for additional payment will not be considered submitted until all required documentation has been received, reviewed, and approved by the Departmental Representative

Part 2 Products

- .1 Products shall be in accordance with the current edition of AT –Standard Specifications for Highway Construction, or as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be in accordance with the current edition of AT –Standard Specifications for Highway Construction, or as directed by the Departmental Representative.

END OF SECTION

Part 1 General**1.1 DESCRIPTION**

- .1 Mobilization and Demobilization consists of preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, buildings, shops, offices, supplies and incidentals to and from the project sites.
- .2 Any protective measures or movement of Contractor trailers necessitated by animal interactions and required by Parks Canada will be paid by the Departmental Representative, and are not to be anticipated in the Lump Sum Contract Price for Mobilization and Demobilization.

1.2 MEASUREMENT PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 Payment will be made under **“Lump Sum Price Item 1 – Mobilization / Demobilization”**
 - .2 50% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
- .2 The remainder of the Lump Sum Price for Mobilization and Demobilization to be paid when work is complete and all materials, equipment, buildings, shops, offices, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.
- .3 Payment of only **5%** of the total price tendered will be scheduled as outlined above. If the amount bid for mobilization and demobilization is greater than **5%** of the total price tendered, payment of the remainder of the amount will be authorized when the contract has been completed.

Part 2 Products

- .1 Not Used

Part 3 Execution

- .1 Not used

END OF SECTION

Part 1 General

1.1 PRECEDENCE

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

1.2 DEFINITION OF OCCUPANCY

- .1 The Contractor shall be permitted to lease and occupy sites where working in JNP, free of charge from the date of award of the contract up to and including the Contract Completion Date.
- .2 The Contractor's occupancy of the sites identified in Contract will be deemed to have ended, when all of the following conditions are met to the satisfaction of Parks Canada:
 - .1 All of the work identified under this Contract has been completed.
 - .2 Any site clean-up or outstanding deficiencies for the work identified under this Contract have been addressed to the satisfaction of the Departmental Representative.
 - .3 Contractor has removed from the park all trailers and equipment and all sites have been cleaned-up to the satisfaction of the Departmental Representative.

Part 2 Products

- .1 Not Used

Part 3 Execution

- .1 Not used

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 COORDINATION

- .1 Perform coordination of progress schedules, submittals, use of site, temporary utilities, construction facilities, and construction Work, with progress of Work of other Contractors, and Work by Owner, under instructions of the Departmental Representative.
- .2 Coordinate field engineering and layout work with the Departmental Representative.
- .3 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.

1.3 PROJECT MEETINGS

- .1 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.
- .2 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.
- .3 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.
- .4 Comply with Departmental Representative's allocation of mobilization areas off site; for field offices and sheds, for access, traffic, and parking facilities.
- .5 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.

1.4 CONSTRUCTION ORGANIZATION AND START-UP

- .1 Within seven (7) days after award of Contract, the Contractor shall request a meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. The meeting is to be chaired by the Departmental Representative who will record the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Agenda to include following:
 - .1 Appointment of official representative of participants in Work.
 - .2 Schedule of Work, progress scheduling in accordance with Section 01 32 16.07.

- .3 Schedule of submittals in accordance with Section 01 33 00.
- .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.
- .5 Site safety and security in accordance with Sections 01 14 00, 01 52 00 and 01 35 43.
- .6 Quality Control in accordance with Section 01 45 00.
- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
- .8 Owner-furnished materials.
- .9 Monthly progress claims, administrative procedures, photographs, and holdbacks.
- .10 Close out procedures and submittals in accordance with Sections 01 77 00 and 01 78 00.
- .11 Insurances and transcript of policies.
- .12 Other business.

1.5 ON-SITE DOCUMENTS

- .1 The Contractor shall maintain at job site, one copy each of the following:
 - .1 Contract Drawings if part of tender.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings and mix designs.
 - .5 Change Orders.
 - .6 Other modifications to Contract.
 - .7 Traffic Management Plan.
 - .8 Safety Plan.
 - .9 WHMIS and associated MSDS.
 - .10 Environmental Protection Plan.
 - .11 Quality Control Plan and Field test reports.
 - .12 Copy of approved Work schedule and most recent updated schedule.
 - .13 Labour conditions and wage schedules.
 - .14 Applicable current editions of municipal regulations and by-laws.
 - .15 Equipment rate schedule and applicable versions of the relevant rate guides.
 - .16 A set of Red Line / marked up drawings - to form the basis of As-Built drawings to be developed at construction completion.

1.6 SUBMITTAL SCHEDULE

- .1 Contractor is to prepare a schedule of the required submissions and the date the submissions will be made. Include columns for Actual Date of Submission, Review Comments Received, Final Submission and Final Acceptance Received. Provide this schedule to the Departmental Representative in Excel format.
- .2 The Owner and/or Departmental Representative will not be responsible for any construction delays resulting from delays in submission acceptance if the submittal dates shown in the Submittal Schedule are not achieved.

1.7 PROJECT SCHEDULES

- .1 The Contractor shall submit preliminary construction progress schedule in accordance with Section 01 32 16.07 to Departmental Representative coordinated with Owner's project schedule.
- .2 After review by the Departmental Representative, the Contractor shall revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work, the Contractor shall revise and resubmit the schedule as directed by the Departmental Representative.

1.8 CONSTRUCTION PROGRESS 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.

1.9 SUBMITTALS

- .1 The Contractor shall submit product data to Section 01 33 00 for review for compliance with Contract Documents.
- .2 The Contractor shall submit requests for payment for review, and for transmittal to Departmental Representative. Payment request on last day of the month.
- .3 The Contractor shall submit requests for interpretation of Contract Documents, and obtain instructions through Departmental Representative.
- .4 The Contractor shall process substitutions through Departmental Representative.
- .5 The Contractor shall process change orders through Departmental Representative.
- .6 The Contractor shall deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative.

1.10 CLOSEOUT PROCEDURES

- .1 The Contractor shall notify the Departmental Representative when the Work is considered ready for Substantial Performance.
- .2 The Contractor shall accompany the Departmental Representative on a preliminary inspection to determine items listed for completion or correction (deficiencies).

- .3 The Contractor shall comply with the Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance.
- .4 The Contractor shall notify the Departmental Representative of completion of the deficiencies list when the work as determined in the Departmental Representative's final inspection has been completed.

Part 2 Products

- .1 Not Used

Part 3 Execution

- .1 Not Used

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 PRECEDENCE

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

1.3 DEFINITIONS

- .1 Activity: An element of Work performed during course of Project. An activity normally has an expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (Gantt chart): A graphic display of schedule-related information. In 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, plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Sunday, inclusive, 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 an activity or other Project element. Usually expressed as workdays or work weeks.
- .6 Master Plan: A summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: A significant event in Project, usually completion of a major deliverable.
- .8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: Overall system operated by Departmental Representative to enable monitoring of project work in relation to established milestones.

1.4 REQUIREMENTS

- .1 The Contractor shall ensure the Project Schedule is practical and remains within specified Contract duration.
- .2 The Contractor shall ensure all the Work required for the Contract is identified in the Project Schedule. Refer to Section 01 11 00 – Summary of Work for a potential list of activities.

- .3 The Contractor shall include an allowance in the schedule for Work performed and paid for as Prime Cost Sum. Refer to Section 01 21 00 – Allowances for a list of activities.
- .4 The Contractor shall plan to complete Work in accordance with prescribed Project Schedule.
- .5 The Contractor shall limit activity durations to maximum of approximately 14 working days, to allow for progress reporting.
- .6 The Contractor shall ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.
- .7 The Contractor shall include the requirements of Section 01 14 00 - Work Restrictions and Section 01 35 43 – Environmental procedures.

1.5 SUBMITTALS

- .1 The Contractor shall submit to the Departmental Representative within 10 working days of Award of Contract, Bar (GANTT) Chart as a Master Plan for planning, monitoring and reporting of project progress.
- .2 The Contractor shall submit a Project Schedule to the Departmental Representative within 10 working days of receipt of acceptance of the Master Plan.

1.6 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule. Completion of each Stage of Construction:
 - .1 **Complete all asphalt concrete pavement work by October 21, 2016.**
 - .2 **Complete all Works by November 30, 2016. (Contract Completion Date).**

1.7 MASTER PLAN

- .1 The Contractor shall structure the schedule to allow orderly planning, organizing and execution of the Work as a Bar Chart (GANTT).
- .2 The Departmental Representative will review and return revised schedules within 5 working days.
- .3 The Contractor shall revise impractical schedule and resubmit within 5 working days.
- .4 The accepted revised schedule will become Master Plan and be used as baseline for updates.

1.8 PROJECT SCHEDULE

- .1 The Contractor shall develop a detailed Project Schedule derived from Master Plan.
- .2 The Contractor shall ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .3 Award.
 - .4 Permits.
 - .5 Pre mobilization submittals

Parks Canada Agency

Jasper National Park, Alberta

- .6 Mobilization
- .7 Grubbing
- .8 Stripping
- .9 Aggregate production
- .10 Excavation
- .11 Drainage works
- .12 Asphalt Concrete Pavement placement
- .13 Hydroseeding
- .14 Shouldering
- .15 Line painting (temporary and permanent)
- .16 Additional Work as and when requested
- .17 Interim Inspection
- .18 Remediation of any noted deficiencies
- .19 Site Clean-up / De-mobilization
- .20 Final Completion

1.9 PROJECT SCHEDULE REPORTING

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

1.10 PROJECT MEETINGS

- .1 The Contractor shall discuss the 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.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 ADMINISTRATIVE

- .1 The Contractor shall submit to the Departmental Representative all submittals listed for review. The submissions shall be prompt and in orderly sequence so as to not cause a delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Work affected by submittals shall not proceed until review is complete and approval has been given by the Departmental Representative.
- .3 The Contractor shall present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 The Contractor shall 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 co-ordinated with requirements of the Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .6 The Contractor shall notify the Departmental Representative in writing at the time of submission, identifying any deviations from requirements of the Contract Documents stating reasons for deviations.
- .7 The Contractor shall verify the field measurements and affected adjacent Work is consistent.
- .8 The Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 The Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 The Contractor shall keep one reviewed copy of each submission on site.

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

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

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

- .13 Submit one (1) electronic copy of the product data sheets or brochures for requirements requested in the Specification Sections and as requested by the Departmental Representative where shop drawings will not be prepared due to standardized manufacture of the product.
- .14 Delete information not applicable to project.
- .15 Supplement standard information to provide details applicable to project.
- .16 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .17 The review of shop drawings and mix designs by Departmental Representative is for the sole purpose of ascertaining conformance with general concept. There review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting all requirements of construction and Contract Documents. Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of all sub-trades.

1.4 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, The Contractor shall submit their Workers' Compensation Board status.
- .2 The Contractor shall submit transcription of insurance immediately after award of Contract.

1.5 REQUIRED CONTRACTOR SUBMITTALS

- .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on site and during the construction phase.
- .2 **Pre-Mobilization Submittals:**
- .3 The Contractor shall submit the following plans and programs to the Departmental Representative for review a minimum of twenty (20) days prior to mobilization to the project site:
 - .1 Project schedule, detailing the schedule of the workdays required from Contractor, subcontractors, suppliers and consultants to complete each activity of the project by road segment or location in order to meet stages specified in Section 01 11 00. In addition, for each activity critical elements that could impact on the schedule are to be identified. Submission shall include both a paper copy of the schedule and an electronic copy in Microsoft Projects format.
 - .2 List of subcontractors, suppliers and consultants, their role and their key personnel, including names and positions, addresses, telephone, cellular telephone and/or pager numbers.
 - .3 Contractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone, cellular telephone and/or pager numbers. The list shall include the names and telephone/cellular

telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.

- .4 Work Plan, describing in detail for each activity by road segment and location, the Contractor's intended methods of construction, and materials, equipment and manpower use to meet stages specified in Section 01 11 00. The Work Plan has to be linked to the Project Schedule.
 - .5 Quality Control Plan in accordance with Section 01 45 00 – Quality Control.
 - .6 Traffic Management Plan, in accordance with the requirements of Section 01 35 31 - Special Procedures for Traffic Control.
 - .7 Environmental Protection Plan (EPP) and Environmental Construction Operations Plans (ECO Plans), in accordance with Section 01 35 43 – Environmental Procedures
 - .8 Materials Purchase Plan describing the Contractor's intended methods of getting materials required for this project in a timely fashion in order to meet stages specified in Section 01 11 00.
 - .9 Contractor shall develop an "Emergency Procedures Protocol" in consultation with Parks Canada.
 - .10 Survey Plan describing the Contractor's intended methods of surveying during this project.
 - .11 Submit a copy of the filed Notice of Project with Provincial authorities.
 - .12 Health And Safety Plan - The Contractor shall have a **Certificate of Recognition (COR)** and 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.
- .4 Health and Safety Plan must include:
- .1 Contractor's safety policy.
 - .2 Identification of applicable compliance obligations.
 - .3 Definition of responsibilities for project safety/organization chart for project.
 - .4 Site specific hazard assessment.
 - .5 General safety rules for project.
 - .6 Job specific safe work procedures.
 - .7 Inspection policy and procedures.
 - .8 Incident reporting and investigation policy and procedures.
 - .9 Occupational Health and Safety meetings.
 - .10 Occupational Health and Safety communications and record keeping procedures.
 - .11 Results of safety and health risk or hazard analysis for site tasks and operation.
 - .12 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.

- .13 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
- .5 The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of the submittals in writing.
- .6 The Contractor shall not construe the Departmental Representative's authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Provincial regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.
- .7 Construction Phase Submittals**
- .8 The Contractor shall submit the following documents on an ongoing basis during the project as required:
 - .1 Monthly Progress Reports in accordance with Section 01 32 16.07.
 - .2 Weekly Progress Reports that outline the detailed Work (Contractor, subcontractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed for the following week on a day-by-day basis. Work to be linked to activities by road segment or location identified in project schedule and to provide information on materials, equipment and manpower. Also, alternate Work to be identified if Work or a portion of, proposed cannot be done due to weather, equipment breakdown, delays in delivery, etc.
 - .3 Quality Control Inspection Reports - The Contractor shall maintain a daily inspection report that itemizes the results of all Quality Control inspections conducted by the Contractor. The reports shall be made available for review by the Departmental Representative upon request. A summary of all Quality Control inspections conducted to date shall be submitted by the Contractor with each request for payment.
 - .4 "Design and Build" documents, Shop Drawings and Mix Designs - The Contractor shall submit all design drawings, shop drawings and mix designs required to fabricate and / or conduct the work a minimum 30 days prior to fabrication / production.
 - .5 Progress Photographs:
 - .1 Format: Electronic: .jpg files, minimum three (3) mega pixels.
 - .2 Submission requirements: one (1) set of electronic files.
 - .3 Identification: Name and number of project, description of photograph and date.
 - .4 Viewpoints: viewpoints determined by Construction Manager or Departmental Representative.
 - .5 Submission Frequency: prior to commencement of Work and weekly thereafter with progress statement, or as directed by Construction Manager or Departmental Representative.
 - .6 Submit CD with all electronic pictures as part of closeout package.

- .9 The Contractor shall submit an electronic copy of Contractor's authorized representative's work site health and safety inspection reports to the Departmental Representative and authority having jurisdiction, weekly.
- .10 The Contractor shall submit copies of reports or directions issued by Federal and Provincial health and safety inspectors to the Departmental Representative.
- .11 The Contractor shall submit copies of incident and accident reports to the Departmental Representative.
- .12 **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.
 - .2 Quality Control Records: The Contractor shall submit an itemized electronic .pdf file containing all project quality control documentation.

Part 2 Products

- .1 Not Used

Part 3 Execution

- .1 Not Used

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations.
- .2 Health Canada/Workplace Hazardous Materials Information System. (WHIMS)
 - .1 Material Safety Data Sheets (MSDS).
- .3 Province of Alberta, Occupational Health and Safety Act

1.3 SUBMITTALS

- .1 The Contractor shall make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Contractor shall submit site-specific Health and Safety Plan: Within seven (7) days after date of Notice to Proceed and prior to commencement of Work.
- .3 The Departmental Representative will review the Contractor's site-specific Health and Safety Plan and provide comments to Contractor within ten (10) days after receipt of plan. The Contractor shall revise the plan as appropriate and resubmit the plan to the Departmental Representative within five (5) days after receipt of comments from the Departmental Representative.
- .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.

1.4 FILING OF NOTICE

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

1.5 SAFETY ASSESSMENT

- .1 The Contractor shall perform a site specific safety hazard assessment related to project.

1.6 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work. This meeting may be combined with the Organization and Start-Up meeting identified elsewhere.
- .2 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

- .3 A copy of the “Attestation and Proof of Compliance with Occupational Health and Safety (OHS)” form is included in the Invitation to Tender package. And is to be submitted to PCA upon Contract Award.
- .4 PCA recognizes that federal Occupational Health and Safety legislation places specific responsibilities upon PCA as owner of the work place. In order to meet those requirements, PCA 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 PCA work places, including on PCA property.

1.7 REGULATORY REQUIREMENTS

- .1 The Contractor shall do Work in accordance with National Parks Act.

1.8 PROJECT/SITE CONDITIONS

- .1 Work at site will involve contact with Alberta Occupational Health and Safety.

1.9 GENERAL REQUIREMENTS

- .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 The Contractor shall develop written site-specific Health and Safety Plan based on the hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce the plan until final demobilization from site. The Contractor’s Health and Safety Plan must address project specifications.
- .3 The Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with corrections of deficiencies or concerns.

1.10 RESPONSIBILITY

- .1 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.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.11 COMPLIANCE REQUIREMENTS

- .1 The Contractor shall comply with the Alberta Occupational Health and Safety Act and all General Safety Regulations required in the Province of Alberta.
- .2 The Contractor shall comply with Canada Labour Code, and Canada Occupational Safety and Health Regulations.

1.12 UNFORESEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or conditions occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in

accordance with Acts and Regulations of Province having jurisdiction and advise Departmental Representative verbally and in writing.

1.13 HEALTH AND SAFETY COORDINATOR

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

1.14 POSTING OF DOCUMENTS

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

1.15 CORRECTION OF NON-COMPLIANCE

- .1 The Contractor shall immediately address health and safety non-compliance issues identified by any party or by the Departmental Representative.
- .2 The Contractor shall provide the Departmental Representative with written report of action taken to correct non-compliance of health and safety issues identified.
- .3 The Departmental Representative may stop Work if non-compliance of health and safety regulations is not corrected.

1.16 POWER ACTUATED DEVICES

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

1.17 WORK STOPPAGE

- .1 The Contractor shall give precedence to safety and health of public and site personnel and protection of the environment over cost and schedule considerations for Work, as shall be included in the Contractor's Health and Safety Plan.

END OF SECTION

Part 1 General

1.1 PRECEDENCE

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

1.2 MEASUREMENT PROCEDURES

- .1 The Cost of Traffic Control, including temporary signs, temporary pavement marking and layout, described in this Section 01 35 31 and Section 01 74 11, shall be considered incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”**, and no additional payment will be made for the duration of this contract.
- .2 The Contractor shall receive payment for traffic management on a monthly basis prorated by the number of months working on site divided by the number of months on site identified on Contractor schedule, not to exceed the total lump sum bid price for Traffic Management.
- .3 Cost of keeping existing highway either side of construction limits clean and free from potholes while the Contractor is on site shall be considered incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”**, and no additional payment will be made for the duration of the Contract.
- .4 Cost of snow removal for Contractor to do the work identified in the Contract while Contractor is on site shall be considered incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”**, and no additional payment will be made for the duration of the Contract. This excludes snow removal on Public roads.

1.3 REFERENCES

- .1 The Contractor shall provide traffic control in accordance with current edition of:
 - .1 AT – Traffic Accommodation in Work Zones, latest edition
 - .2 AT – Traffic Control Standards, latest edition
 - .3 Manual of Uniform Traffic Control Devices for Canada, (MUTCD) distributed by Transportation Association of Canada.

1.4 QUALITY CONTROL

- .1 All Quality Control by the Contractor.

1.5 GENERAL

- .1 At all work sites where a pavement marking design is not provided, the Contractor shall mark accurately, at regular intervals, the location and type of existing painted lines prior to their removal or covering, including start and ends of passing lanes and intersections, with a stake at the side of the roadway and make a written record of markings in a book, in order that painted lines can be accurately re-established after work is completed. If no lines are present the Contractor shall mark accurately (+ or – 20 mm) and are regular intervals in accordance with the Section 2.2.1 of the current edition of **BC MoTI – Traffic Control Manual for Work on Roadways**.

- .2 The Contractor shall develop and implement a Traffic Management Plan in accordance with the current edition of **AT - Traffic Accommodation in Work Zones**, except where specified otherwise in these specifications. The Traffic Management Plan will include plans specific to each roadway for this project.
- .3 The Traffic Management Plan must duly consider the traffic volumes associated with the direction volume increases typically experienced on the lead up to weekends and/or special events. Adjustments to the TMP may be required at the request of the Departmental Representative to mitigate delays in excess of the stipulated maximum 20 minutes.
- .4 The Contractor shall design, supply, erect, move and maintain all traffic control devices, 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.
- .5 All traffic and warning signs shall be either bilingual or of a symbolic or pictorial type. If bilingual signs are used, the English and French message shall be of equal letter size and at same elevation, with English on left and French on right. Assistance in translation of construction and warning signs to French may be obtained from Parks Canada.
- .6 All speed limits, traffic control and warning signs shall have an “NPC” adhesive sticker added to bottom right-hand corner. These stickers will be supplied by Parks Canada following the acceptance by the Departmental Representative of the Contractor’s traffic management plan.
- .7 Temporary pavement marking used shall be acceptable to the Departmental Representative. These temporary pavement markings shall be in accordance with Section 2.2.1 of the current edition of **BC MoTI Traffic Control Manual for Work on Roadways**.
- .8 All temporary markings and other associated markings will be removed at the contractor’s expense prior to completion of the Contract but not before the final pavement markings have been installed to the satisfaction of the Departmental Representative.
- .9 Contractor shall have appropriate traffic control measures in place so that one lane of highway traffic is maintained through the work zone at all times throughout the construction.
- .10 Contractor shall have appropriate traffic control measures in place so that one lane of highway traffic is maintained through the work zone at all times throughout the construction.
- .11 In consideration of the number of grading, paving and bridge construction projects in the corridor this season the Contractor must make a concerted effort to coordinate their traffic management strategies with other stakeholders. The Contractor must also be prepared to attend traffic management and construction staging coordination meetings as requested by the Departmental Representative.
- .12 The Contractor shall supply, install and maintain two Changeable Message Signs (CMS) to inform the traffic of construction delays. Exact installation locations of the CMS to be agreed on site with the Departmental Representative. All cost associated with the supply, installation, maintenance and removal of the two CMS will be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”**. Text for the two CMS will be directed by the Departmental Representative. Removal of the two CMS will only be permitted upon completion of the Works.

1.6 PROTECTION OF PUBLIC TRAFFIC

- .1 The Contractor shall 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 When working on existing travelled way:
 - .1 Place equipment in a position presenting a minimum of interference and hazard to traveling public.
 - .2 Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
 - .3 Do not leave equipment on travelled way overnight.
- .3 Do not close any lanes of road without approval of Departmental Representative.
- .4 The Contractor shall carry out traffic regulation in accordance with AT – Traffic Accommodation in Work Zones, latest edition, except where specified otherwise.
- .5 The Contractor shall develop and have in place a completed Traffic Control Plan taking into account all hazards associated with paving operations on a busy highway and minimize risks to motorists prior to beginning Work. This plan shall be updated regularly in response to any incidents or changes in conditions, be they weather, work, traffic, or otherwise.
- .6 **A minimum of one travelling lane 4 m wide shall be maintained by the Contractor at all times to provide for safe movement of traveling public through the work area.** The Contractor shall submit a Traffic Management Plan prior to commencement of work. Short closures may be allowed by the Departmental Representative for some activities such as asphalt removal as long as the delay to motorists does not exceed **20 minutes**.
- .7 Contractor to provide 2-way traffic during non-working hours.
- .8 Regardless of type of traffic control being used, **maximum period of delay to public traffic shall be 20 minutes**. Emergency vehicles (i.e., ambulance, RCMP, Park Warden) must be granted immediate passage at all times. The Departmental Representative reserves the right to reduce delay time for public traffic at times when specified delay results in excessive backup of public traffic.
- .9 The Contractor shall provide competent flag persons, properly equipped, and certified and registered as a Traffic Control Person (TCP) in Alberta.
- .10 The Contractor shall also provide competent supervision and/or contract personnel as required during non-working hours to ensure that safety flares, flashing beacons, signs, lights, etc. are in proper working order.
- .11 The Departmental Representative will monitor the traffic control measures, and may require modifications of these measures from time to time to achieve satisfactory traffic flow, safety of traveling public and coordination with adjacent contracts. The Contractor shall bear the costs of implementing these requirements so as to ensure the traffic control specifications and associated performance standards are met.
- .12 The Contractor shall maintain a dust free construction zone by means of cleaning and watering when required.

1.7 INFORMATIONAL AND WARNING DEVICES

- .1 The Contractor shall provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.
- .2 The Contractor shall supply and erect signs, delineators, barricades and miscellaneous warning devices as specified in the Traffic Management Plan submitted by the Contractor and approved by the Departmental Representative. **All temporary signs that are used for longer than one day shall be mounted on wood or metal posts, other than changeable message signs that must be secured and stabilized at all times.**
- .3 The Contractor shall supply, install and maintain two (2) portable Changeable Message Signs with a minimum of three (3) lines with eight (8) characters per line, for the duration of the project. The Contractor may utilize alternative sign mounting devices or posts provided that they are equivalent in performance and approved by the Departmental Representative prior to their installation.
- .4 The Contractor shall place signs and other devices to standards and in locations recommended in the AT Traffic Accommodation in Work Zones Manual. The Contractor shall provide intermittent signage if work zones exceed 2.0 km in length.
- .5 Signs, as an installed unit, shall be wind resistant in accordance with the use of 4818 WindMaster Sign Stands or equivalent.
- .6 As situations on site changes, the Contractor shall update the Traffic Management Plan outlining signs and other devices required for the project and submit for the approval of the Departmental Representative.
- .7 The Contractor shall continually inspect and maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location and shall record this information on a sign log.
 - .2 Cleaning, repairing or replacing signs as required ensuring clarity and reflectance.
 - .3 Removing or covering signs which do not apply to conditions existing from day to day or time to time.

1.8 CONTROL OF PUBLIC TRAFFIC

- .1 Contractor shall provide competent flag persons, trained in accordance with, and properly dressed and equipped in accordance with the AT Standard Specifications in Work Zones:
 - .1 When public traffic is required to pass working vehicles or equipment, which block all or part of travelled roadway.
 - .2 When vehicles are entering or exiting Worksite 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.
 - .8 At each end of restricted sections where pilot cars are required.
- .2 Delays to public traffic due to Contractor's operators shall be a maximum of 20 minutes where the roadway has not been closed.
 - .3 No stoppage of traffic will be allowed for the periods listed in Section 01 14 00 – Work Restrictions, pertaining to Statutory Holiday or long weekends.
 - .4 During hours of darkness, the Contractor shall determine requirements but as a minimum, flag persons shall be additionally equipped with a red signal hand-light of sufficient brightness to be clearly visible to approaching traffic and flagging stations shall be illuminated by overhead lighting. Signs indicating hazardous conditions and signs requiring increased attention shall be marked with flashers.
 - .5 When night shift operations are implemented on 2-lane undivided sections, the public traffic must be escorted through the work zone by pilot cars in both directions.

Part 2 Products

- .1 Not used.

Part 3 Execution

- .1 Not used.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

- .1 Preparation and implementation of an Environmental Protection Plan 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.

1.2 REFERENCES

- .1 Parks Canada National Best Management Practices

1.3 SUBMITTALS

- .1 The Contractor shall describe environmental mitigation measures to implement to ensure that all work is in compliance with this Section 01 35 43 – Environmental Procedures in his Environmental Protection Plan (EPP). The EPP document will be reviewed and accepted for use on the project by the Departmental Representative in collaboration with the Parks Canada designated ESO.
- .2 The Contractor shall allow no less than 2 weeks for the review of their EPP and shall address and respond to all comment raised during the review.

1.4 NATIONAL PARK REGULATIONS

- .1 The Contractor shall ensure that all work is performed in accordance with the ordinances, laws, rules and regulations set out in the Canada National Parks Act and Regulations.
- .2 The Contractor and any sub-Contractors shall obtain a business license from the Parks Canada Administration Office in Banff or Lake Louise prior to commencement of the contract.
- .3 All Contractor's vehicles are required to display a vehicle work pass from Parks Canada. These permits may be obtained free of charge from the Departmental Representative, or PCA Environmental Surveillance Officer (ESO), or at the Park Gate.

1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act (CEAA) Guidelines Order of 2003 and subsequent amendments.
- .2 **The BMPs shall take precedence over requirements detailed in this section and the contractor is obliged to implement all recommendations and mitigations in the BMP and this section. The Contractor's EPP is to include these requirements as a minimum.**
- .3 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.

1.6 START-UP AND ENVIRONMENTAL BRIEFING

- .1 All staff employed at the construction site will be subject to an approximately half hour briefing regarding their individual and collective responsibilities to ensure avoidable adverse environmental impact do 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 hard hat. All Employees must attend this briefing before beginning work at the site. It is recognized new employees may join the Contractors' work force after the initial round of "environmental briefing". In that case and as required, subsequent "environmental briefings" can be presented as numbers warrant, by arrangement with the ESO through the Departmental Representative. Also, some sub-trades may be present at the site for a short time, to perform once-only duties. In these cases, the "environmental briefing" will be replaced by the Contractor explaining the environmental sensitivity of the work location to the sub-trade worker(s), and reviewing highlights of personal conduct expected, with reference to a one-page briefing summary to be provided to the Contractor by the ESO. A copy of this summary will be provided to each sub-trade worker joining the work force at the site.
- .2 Parks Canada will have an ESO attending the site to monitor the construction activity for conformance with these specifications. 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 Prior to commencing any activity not expressly covered or allowed in the project BIA the Contractor may be required to first obtain a Restricted Activity Permit (RAP) in consultation with the ESO and Departmental Representative.

1.7 CONSTRUCTION SITE ACCESS AND PARKING

- .1 Points of access from Highway 93N to the various construction sites will be required. The Contractor shall review both short and long term construction access requirements with the Departmental Representative, both at start-up and on an ongoing basis. In consultation with the Departmental Representative, the Contractor shall formulate an agreement for worker transportation to and from the work sites and where workers shall park their private vehicles. 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.

1.8 PROTECTION OF WORK LIMITS

- .1 The Contractor shall ensure that workers and equipment do not trespass outside the project limits to the satisfaction of the Departmental Representative and the ESO.

1.9 EROSION CONTROL

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

- .2 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating activities associated with the asphalt plant, the paving, excavation and grading and any other works. The Contractor shall prepare an Erosion Control Plan to the satisfaction of the Departmental Representative and the ESO.
- .3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively they are to be repaired. The Departmental Representative and ESO also will monitor erosion control performance.
- .4 The Contractor shall ensure that the site be secured against erosion during any periods of construction inactivity or shutdown.

1.10 POLLUTION CONTROL

- .1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres from water.
- .2 A Spill Response Plan will be prepared by the Contractor 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 Plan shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement and sand blasting agents.
- .3 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous or toxic products shall be stored no closer than 100 metres from streams, wetlands, water bodies or waterways.
- .4 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berms shall be capable of holding 110% of tank storage volumes and shall be to the satisfaction of the Departmental Representative and the ESO before start-up. Measures such as collection/drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double-lined fuel tanks can prevent spills into the environment.
- .5 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads and on-site work by methods that are approved by the Departmental Representative or ESO.
- .6 The Contractor shall provide spill kits at re-fueling, lubrication, and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The ESO and Departmental Representative prior to project start-up must approve these spill kits. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.
- .7 Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative and the ESO shall be notified immediately of any spill. If not available, Banff Dispatch will be contacted at

(403) 762-4506. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.

- .8 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .9 The costs involved in a spill incident (the control, clean up, disposal of contaminants and site remediation to pre-spill conditions), shall be the responsibility of the Contractor. The site will be inspected to ensure completion to the expected standard and to the satisfaction of the Departmental Representative and ESO.

1.11 EQUIPMENT MAINTENANCE, FUELING AND OPERATION

- .1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed outside the National Parks and that all equipment is clean and in good working order before delivery to the work site. Water Trucks shall arrive on site empty and shall be subject to inspection for invasive species prior to being permitted to be used on site.
- .2 Equipment fueling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Except for chain saws, any fueling closer than 100 metres from streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
- .3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from streams, wetlands, water bodies or waterways. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fueling personnel shall maintain presence at and immediate attention to the fueling operation.
- .4 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in 1.12.4 of Pollution Control above.
- .5 Equipment used on the project shall be fueled with E10, and low sulphur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
- .6 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations approved by the ESO or the Departmental Representative. Waste lubrication products (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc. anywhere within National Parks.
- .7 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
- .8 Fuel containers and lubricant products shall be stored only in secure locations specified by the Departmental Representative. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight in National Parks. Alternatively, the Contractor may hire a security person employed to prevent vandalism. The Contractor is to ensure that workers are briefed on proper 'daisy-chain' use of locks to ensure no other contractor or Parks Canada Highways Dept. staff are locked out.

1.12 OPERATION OF EQUIPMENT

- .1 Equipment movements shall be restricted to the 'footprint' of the construction area. The work limits shall be identified by stake and ribbon or other methods approved by the Departmental Representative. Unless authorized by the Departmental Representative, activities beyond the work limits are not permitted. No machinery will enter, work in or cross over streams, rivers, wetlands, water bodies or watercourses, nor damage aquatic and riparian habitat or trees and plant communities. Some of the construction shall require working close to creeks and other watercourses or water bodies. In these instances, the Contractor is to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals and sediment) do not enter any watercourses, to the satisfaction of the Departmental Representative and ESO.
- .2 The Contractor shall instruct workers to prevent pushing, placement, raveling, storage or stockpiling of any materials (e.g. slash, rock, fill or topsoil) in the trees bordering the right-of-way or into watercourses or water bodies.
- .3 When, in the opinion of Parks Canada, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at the Contractor's expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative and the ESO.
- .4 The Contractor shall restrict vehicle movements to the work limits.
- .5 Workers private vehicles shall remain within the construction footprint, or as directed by the Departmental Representative.

1.13 FIRE PREVENTION AND CONTROL

- .1 A fire extinguisher shall be carried and available for use on each machine and at locations within the plant in the event of fire. Basic firefighting equipment (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. Contractor's staff shall receive basic training in early response to wildfire events during the "environmental briefing".
- .2 A water truck may be necessary and will depend on the timing of the contract (e.g. – not required during winter or snow covered conditions).
- .3 Construction equipment shall be operated in a manner and with all original manufacturer's safety devices to prevent ignition of flammable materials in the area.
- .4 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented. Fires or burning of waste materials is not permitted.
- .5 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The ESO and the Departmental Representative shall be notified of any fire immediately. If not available, Banff Dispatch shall be contacted at (403) 762-4506.
- .6 Fires or burning of waste materials is not permitted.

1.14 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 bears, cougars, wolves, elk or moose display aggressive behavior or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times.
- .3 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. If the ESO or Departmental Representative is not available, Banff Dispatch will be contacted at (403) 762-4506.

1.15 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 National Parks are protected under the National Parks Act and Regulations and are the property of Parks Canada. The Contractor shall protect any articles found and request direction from the ESO or the Departmental Representative.

1.16 WASTE MATERIALS STORAGE AND REMOVAL

- .1 The Contractor 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 National Parks. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers, and disposed of at an appropriate waste landfill site located outside the park. Construction waste storage containers, provided by the Contractor, shall be emptied by the Contractor when 90% full. Waste containers will have lids, and waste loads shall be covered while being transported.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials.
- .5 All efforts to prevent wildlife from obtaining food, garbage or other domestic wastes shall be made by the Contractor and contract staff while undertaking their work in National Parks. Such wildlife attractants shall not be stored at the work site overnight. Lunches, coolers and food products, including waste food products, shall be securely stored away from access by animals. Daily removal of food scraps, food wrappers, pop cans or other attractive products to bear proof containers is mandatory. It is incumbent on the Contractor to notify Parks

Canada and make specific arrangements to have garbage collected by Parks Canada when using existing Parks Canada receptacles.

- .6 The Contractor and workers shall immediately report any circumstances related to food/garbage (e.g. overflowing container or strong smell) and wildlife to the ESO or the Departmental Representative. If neither can be reached, the Contractor/worker shall immediately contact Banff Dispatch at (403) 762-4506 and report the details.
- .7 Sanitary facilities, such as a portable container toilet, shall be provided by the Contractor and maintained in a clean condition.

1.17 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 The Contractor shall ensure trespass outside the project limits does not occur, to the satisfaction of the Departmental Representative and the ESO. **Do not drive vehicles on grass covered areas.**
- .2 A Contractor's office, equipment parking, and storage area will be permitted at 8 Mile Pit. Other locations may be approved by the Departmental Representative if requested.
- .3 The Contractor shall provide toilets and maintain them in a clean and sanitary condition at the work sites. These facilities shall not be used for the disposal of anything but human wastes.
- .4 Removal and storage of snow shall be arranged with the ESO and the Departmental Representative.
- .5 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.
- .6 Security services at the construction site may be desirable or necessary during the contract, especially during quiet times. Fuel tanks or other potentially deleterious substance containers must be secured by the Contractor to ensure they are tamperproof and cannot be drained by vandals at his own cost.
- .7 Pets shall not be brought to or maintained at the construction site.
- .8 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.

Part 2 Products

- .1 Not Used.

Part 3 Execution

3.1 ASPHALT PLANT OPERATION AND PAVING

- .1 Asphalt Plant shall be set up at 8 Mile Pit at the direction of the Departmental Representative.
- .2 Trucks for hauling asphalt mixture shall have tight, clean, smooth metal beds that have been sprayed with a minimum amount of thin oil to prevent the mixture from adhering and causing waste asphalt. The vehicle covers shall be securely fastened. Excess truck box lubricants

- such as light oil, detergent or lime solutions shall not be allowed to contaminate the mix, and shall be disposed of in an environmentally acceptable manner. Truck box lubricant application shall be carried out in a containment berm.
- .3 The asphalt plant must be equipped with pollution control devices in addition to, or in replacement of standard cyclone dust collectors, to effectively eliminate the emission of dust and smoke pollutants into the atmosphere. Use of secondary dust collection systems that require discharge of dust polluted water into natural drainage system will not be allowed. Regardless of requirements stated in above, asphalt plant operation must comply with all environmental pollution control regulations applicable in the plant area. NOTE: Alberta Environment may test dust collector's efficiency.
 - .4 Asphalt material shall be removed and stored at 8 Mile Pit at a location specified by the Departmental Representative.
 - .5 The Contractor shall be responsible for the purchase and the safe delivery / storage / handling of asphalt cement and emulsions to the asphalt plant site. Excess hot mix or reject asphalt shall be temporarily stored as directed by the Departmental Representative, and removed from the Park, prior to completion of the contract a later date. All costs for removal and disposal shall be the responsibility of the Contractor and no separate payment shall be made.
 - .6 The Contractor shall ensure that there is enough room between the stockpiles and the asphalt plant for a loader in the event of a spill at the asphalt plant. A containment berm with an associated liner made of occlusive material (e.g. plastic of a thickness approved by the Departmental Representative) and covered with absorbent sand or clay shall be installed under the asphalt storage tank to ensure containment of 110% of the tank's capacity.
 - .7 The Contractor may wish to protect containment/catchment areas and drip trays at the asphalt plant from rainfall since, if contaminated, all of the collected water will have to be disposed of at the expense of the Contractor at an approved disposal facility.
 - .8 Sites from which materials have been removed shall be restored to a neat and presentable condition upon the completion of the work.

3.2 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, fall or are eroded 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 meter 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

3.3 PAVEMENT MARKING AND GUARDRAIL PLACEMENT

- .1 Pavement marking shall be undertaken pursuant to standard methods applied in National Parks for control of paint products, both in transport and handling. The Contractor shall present a description of methods to be employed for transporting and controlling paint and hazardous products, application of paint, cleaning of equipment, containment and disposal of waste paint and cleaning products, etc. the satisfaction of the Departmental Representative.

3.4 SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION

- .1 The Contractor shall prepare an Erosion and Sedimentation Management Plan for the components of this contract that are undertaken in proximity to watercourses, wetlands or riparian environments. This plan shall be to the satisfaction of the Departmental Representative and ESO. If sediment ponds are required, they shall be designed to settle all sediment particles 0.02 mm or larger. The ponds shall also be designed to handle 1:5 year storm events, with overflow spill capacity for 1:10 year storm events and emergency spillway capacity for 1:100 year storm events.
- .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. The target is 0 mg/L of TSS over background levels. The threshold is a maximum instantaneous increase of 25 mg/L over background levels when background levels are <250 mg/L, or a maximum instantaneous increase of 10% over background levels when background levels are >250 mg/L. This threshold shall not be exceeded.

3.5 SPECIFIC CONCERNS RELATIVE TO SENSITIVE SITES AND ACTIVITIES

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

3.6 CLEARING AND GRUBBING

- .1 If clearing and grubbing is required:
- .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). The ESO or Departmental Representative will provide direction in the case of work occurring near any wetland area or watercourses.
- .3 The Contractor shall take all measures to ensure that trees do not fall into streams, rivers, wetlands or water bodies or outside the clearing limits as marked by colored flagging. Generally, work within a 30 metre buffer of watercourses, water bodies or wetlands requires the close oversight of the ESO or the Departmental Representative.
- .4 Trees inadvertently felled into streams, rivers, watercourses or outside the clearing limits shall be removed by means (e.g. winch) so as not to damage the substrate or any standing trees left outside the clearing limits. Machinery shall not go outside the clearing limits, or into streams, rivers, watercourses or water bodies to remove felled trees.
- .5 Logs and other salvage materials are to be conveyed 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.
- .6 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 transport to 8 Mile Pit.

- .7 No slash clearing, pickup or grubbing shall occur outside of the designated area or within 1 metre of the drip line of existing forest.
- .8 Existing areas of vegetation disturbed as a result of this contract shall be rehabilitated using approved topsoil from the park and a native grass seed mix as specified in Section 32 92 22 – Seeding.

3.7 STRIPPING

- .1 If stripping is required:
- .2 A contingency plan for control of dust generated from the construction site shall be prepared by the Contractor, with materials availability arranged in the event of their need. In the event of a work program shutdown during inclement weather (e.g. winter conditions unfavorable for construction) erosion control of bared soils or excavated materials stockpiles will be required. The Contractor's EPP will describe measures to be implemented in such a circumstance.
- .3 Stripping close to the any watercourse, water body or wetland shall employ methods to ensure materials are not pushed, fall or are eroded 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.
- .4 No stripping shall occur outside of the designated area or within 1 metre of the drip line of existing forest.
- .5 Stripped soil (including fine forest litter) materials shall be placed and stored at locations and in amounts and form as instructed by the Departmental Representative, for later reclamation use on graded slopes. Stripping piles may require erosion control, sedimentation protection or stabilization, depending on the location and anticipated duration of storage. At the Departmental Representatives direction, the Contractor shall prepare a plan for management of each stripping pile.

3.8 EXCAVATING AND PLACEMENT

- .1 Excavation will be undertaken according to the approved Grading Plan for the ROW, and approved Development Plans for the 8 Mile Pit.
- .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 rivers, water bodies, watercourses, and wetlands.
- .4 Special precautions may have to be taken during excavation in the vicinity of intermittent or active drainage channels. See Clause 3.12.
- .5 If sediments enter a river / stream 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 Clause 3.12.
- .6 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.

- .7 Fisheries protection windows shall be observed for the fish creeks, and any other watercourse in this contract and will guide the timing of the work so that stream disturbance is prevented. See Clause 3.12.
- .8 If a pump-out sump to dewater excavation sites will be required, the Contractor shall detail 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.

3.9 CULVERT INSTALLATION

- .1 All culverts shall be installed using best management practices for working in or near water that will result in a minimum amount of sedimentation and damage to the riparian area of the watercourse. The Contractor shall prepare a plan for the installation of each culvert, a minimum one (1) week prior to doing the work for approval by the Departmental Representative and ESO.
- .2 The culverts shall be installed using best management practices for placement, including consideration of aquatic ecology.
- .3 It is preferable to install the culvert during periods of low discharge (e.g. during the fall). The use of sediment control measures may be necessary to ensure that excessive amounts of sediments do not enter creeks.
- .4 It may be necessary to exclude fish from the immediate construction site while the culvert is being installed. If this practice is necessary, fish shall be salvaged from within the exclusion area, and construction should be carried out expediently to minimize the time spent working in the drainage.

3.10 CRUSHING

- .1 Refer to Clause 3.2.1.
- .2 The Contractor shall be prepared for potential spills of fuels, lubricants or hydraulic fluid from the crusher using containment berms with associated occlusive liner of adequate thickness to ensure that these materials do not penetrate underlying soil materials down to the water table and into streams, running water or wetlands. In the event of a spill, the Contractor shall ensure timely and effective spill response.
- .3 The Contractor shall provide drip and spill containment for the crusher, cone, generators and other components where spills may occur (e.g. plastic lined dirt berms, collection/drip trays, double-walled fuel tanks). Spill response in a timely and effective manner in the event of a spill is mandatory. The measure chosen by the Contractor shall ensure containment of 110% of the capacity of the fuel tank, crankcase, etc.
- .4 Excavation, hauling and placing materials associated with a crushing operation shall be conducted within the approved footprint of the total crushing operation. Crushed materials shall be placed at the designated storage site located within 8 Mile Pit as identified by the Departmental Representative without spillage or ravelling outside the limits of this location. Any material inadvertently falling outside the work limits is to be moved promptly to within the storage limits. Repair of damage outside the work limits will be at the complete expense of the Contractor.

- .5 There is minimal space for parking of workers' private vehicles in the vicinity of the crushing operation. If other Contractors are using the pit at the time of this contract, the Departmental Representative shall address any circulation or parking conflicts, should they arise.

3.11 FINE GRADING, TOPSOIL PLACEMENT, AND SEEDING

- .1 The Contractor shall perform the final shaping of cut slopes, fills and landscapes disturbed in the construction of the Works. These slopes will be covered by stripped soil and chip compost materials and seeded. Environmental concerns related to these activities largely focus on erosion prevention and sediment control. The Contractor is to present a plan for placement, spreading, and stabilization of reclamation materials that controls erosion and prevents sedimentation, to the satisfaction of the Departmental Representative and ESO.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCES

- .1 AT - Standard Specifications for Highway Construction, current edition
- .2 CAN/CSA-A23.2-04, Methods of Test and Standard Practices for Concrete

1.3 QUALITY CONTROL PLAN

- .1 Contractor's quality control plan shall be in accordance with the current edition of AT - Standard Specifications for Highway Construction, current edition

1.4 TESTING BY THE CONTRACTOR

- .1 The Contractor shall perform all Quality Control testing required to assure that the Work strictly complies with the Contract requirements. This shall include, but not be limited to:
 - .1 Testing all structural concrete, grout, reinforcing steel, asphalt concrete pavement, structural backfill, corrugated steel culverts, miscellaneous metals, concrete barriers, and all source acceptance testing; and
 - .2 All testing specified in the Contract Documents;
- .2 Any other testing required as a condition for deviation from the specified Contract procedures;
- .3 Testing shall be in accordance with the current edition of AT - Standard Specifications for Highway Construction and subsequent updates.
- .4 The Contractor shall be fully responsible and bear all costs for all quality control testing and shall conduct such testing in the following manner:
 - .1 Provide testing facilities and personnel for the tests and inform the Departmental Representative in advance to enable the Departmental Representative to witness the tests if it so desired;
 - .2 Notify the Departmental Representative when sampling will be conducted;
 - .3 Within one Day after completion of testing, submit test results to the Departmental Representative; and
 - .4 Identify test reports with the name and address of the organization performing all tests, and the date of the tests.
- .5 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.
- .6 Testing agencies, their inspectors, and their representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the Contract Documents, nor to approve or accept any part of the Work.

- .7 The minimum frequency for Quality Control field density testing of culverts will be two per 300 mm lift per culvert, spaced through the length and depth of the culvert backfill.

1.5 INSPECTION

- .1 The Contractor shall allow the Departmental Representative access to the Work. If part of Work is in preparation at locations other than Place of Work, the Contractor shall allow access to such Work whenever it is in progress.
- .2 The Contractor shall give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by the Departmental Representative's instructions, or law of Place of Work.
- .3 If the Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such an inspection is made, the Contractor shall uncover such Work, have inspections or tests satisfactorily completed and make good such Work at the cost of the Contractor.
- .4 The Departmental Representative may order any part of Work to be examined if the Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, the Contractor shall correct such Work and pay the cost of examination and correction.

1.6 INDEPENDENT INSPECTION AGENCIES

- .1 Independent Inspection/Testing Agencies may be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by Departmental Representative.
- .2 Employment of inspection/testing agencies does not relax responsibility for the Contractor to perform Work in accordance with Contract Documents.
- .3 If defects are revealed during inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. The Contractor shall correct all defects and irregularities as advised by the Departmental Representative at no cost to the Departmental Representative.

1.7 ACCESS TO WORK

- .1 The Contractor shall allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 The Contractor shall co-operate to provide reasonable facilities for such access.

1.8 PROCEDURES

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

1.9 REJECTED WORK

- .1 The Contractor shall remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been

rejected by the Departmental Representative as failing to conform to Contract Documents.
Replace or re-execute in accordance with Contract Documents.

- .2 The Contractor shall make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Owner may deduct from the Contract Price the difference in value between Work performed and that called for by the Contract Documents, the amount of which shall be determined by the Departmental Representative.

1.10 REPORTS

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

1.11 TESTS AND MIX DESIGNS

- .1 The Contractor shall furnish test results and designs as may be requested.

1.12 MILL TESTS

- .1 The Contractor shall submit mill test certificates as required of specification sections.

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 INSTALLATION AND REMOVAL

- .1 The Contractor shall provide construction facilities in order to execute work expeditiously.
- .2 The Contractor shall remove from site all such work after use.

1.3 SITE STORAGE/LOADING

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

1.4 CONSTRUCTION PARKING

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

1.5 SECURITY

- .1 If required by the Contractor, the Contractor shall provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays. For extended shut-downs, the Contractor shall provide the level of security as required to protect the Work. The Contractor should be advised that isolated incidents of theft or vandalism have occurred in the past in the Park.
- .2 It is strongly advised that the Contractor consider the provision of security personnel.

1.6 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

1.7 SANITARY FACILITIES

- .1 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations, ordinances and these specifications.

- .2 The Contractor shall post notices and take such precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.8 CONSTRUCTION SIGNAGE

- .1 No other signs or advertisements, other than warning and traffic control signs, are permitted on site.
- .2 Signs and notices for safety and instruction shall be in both official languages Graphic symbols shall conform to CAN3-Z321.
- .3 The Contractor shall 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.

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

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

1.2 INSTALLATION AND REMOVAL

- .1 The Contractor shall provide temporary controls in order to execute Work expeditiously.
- .2 The Contractor shall remove from site all such work after use.

1.3 HOARDING

- .1 The Contractor shall provide barriers around trees and plants designated to remain. The Contractor shall protect from damage by equipment and construction procedures.

1.4 GUARDRAILS AND BARRICADES

- .1 The Contractor shall provide secure, rigid guard rails and barricades around deep excavations in accordance with the AT – Traffic Accommodation in Work Zones.

1.5 ACCESS TO SITE

- .1 The Contractor shall construct or maintain all access roads in good condition, as needed to access the Work.

1.6 PUBLIC TRAFFIC FLOW

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

1.7 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 The Contractor shall protect surrounding public property from damage during performance of Work.
- .2 The Contractor shall be responsible for damage incurred.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCE STANDARDS

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

1.3 QUALITY

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

1.4 AVAILABILITY

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

1.5 STORAGE, HANDLING AND PROTECTION

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

1.6 TRANSPORTATION

- .1 The Contractor shall pay costs for transportation of products required in the performance of the Work.

1.7 MANUFACTURER'S INSTRUCTIONS

- .1 Unless otherwise indicated in specifications, the Contractor shall install or erect products in accordance with manufacturer's instructions. The Contractor shall not rely on labels or enclosures provided with products, but shall obtain written instructions directly from manufacturers.
- .2 The Contractor shall notify the Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that the Departmental Representative may establish a course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental Representative to require the removal and re-installation at no increase in Contract Price or Contract Time.

1.8 QUALITY OF WORK

- .1 The Contractor shall ensure quality of the Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. The Contractor

- shall immediately notify the Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 The Contractor shall not employ anyone unskilled in their required duties. The Departmental Representative reserves right to require dismissal from site, workers deemed by the Departmental Representative to be incompetent or careless.
 - .3 Decisions as to standard or fitness of quality of the Work in cases of dispute rest solely with Departmental Representative whose decision is final.

1.9 CO-ORDINATION

- .1 The Contractor shall ensure cooperation of workers in laying out the Work. The Contractor shall maintain efficient and continuous supervision.
- .2 The Contractor shall 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 or other concealment. The Contractor shall notify the Departmental Representative a minimum of 24 hours before any pour or other concealment for inspection.

1.11 REMEDIAL WORK

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

1.12 FASTENINGS

- .1 The Contractor shall provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 The Contractor shall prevent electrolytic action between dissimilar metals and materials.
- .3 The Contractor shall 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.
- .4 The Contractor shall 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 The Contractor shall 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.

1.13 PROTECTION OF WORK IN PROGRESS

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

Part 2 Products

- .1 Materials shall be in accordance with the current edition of AT – Standard Specification for Highway Construction or as directed by the Departmental Representative.

Part 3 Execution

- .1 Work shall be completed in accordance with the current edition of AT – Standard Specification for Highway Construction or as directed by the Departmental Representative.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 REFERENCES

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

1.3 SURVEY REQUIREMENTS

- .1 The Departmental Representative shall identify the location of all work sites.
- .2 The Contractor shall be responsible for all other survey and layout work identified in the Contract documents and as required to complete the works including but not limited to:
 - .1 Establishing lines and levels, locate and layout, by instrumentation.
 - .2 Staking for grading, cut and fill.
 - .3 Staking for slopes and top of embankment, sub-base course, base course and centreline for paving.
 - .4 Establishing culverts, catch basin structures, invert elevations and locations.
 - .5 Layout for interim and final lane markings, including those for intersection treatments
 - .6 Re-establishing the start and finish of "No Passing Zones", Passing Lanes or at new limits as directed by the Departmental Representative
 - .7 Re-establishing Reference Survey Control Points that are in danger of being damaged or destroyed.
- .3 Survey Accuracy:
 - .1 All survey work shall be tied into the existing Control Monument Network with grid coordinates in UTM Zone 11 NAD 83. Departmental Representative will provide information on Control Points.
 - .2 All traverses will be closed and balanced. All level loops and traverses will be tied into the Control Monument Network.
 - .3 Secondary Control Points will be tied into and relative to Control Monument Network. Accuracy for Control Point surveys shall be to second order:
 - .4 Horizontal shall be less than $r = 5(d+0.2)$ where "r" is in cm and "d" is in km
 - .5 Vertical shall be less than $0.008 \times \sqrt{k}$ where k is distance in kilometres.
- .4 Staking accuracy shall be:
 - .1 In bush areas, all elevations shall be within 0.1m of correct elevation.
 - .2 In open ground, all elevations shall be within 0.05 m of correct elevation.
 - .3 On highway surface, all elevations shall be within 0.01 m of correct elevation.

- .5 The Contractor shall provide cut sheet reports to the Departmental Representative for all stages of road construction to demonstrate that the defined construction tolerances have been achieved.
- .6 The Departmental Representative will complete quality assurance construction survey measurements to verify grades and alignment, interim survey re-measurements for excavation limits and final neat line measurements to verify payment quantities for completed works.
- .7 Contractor to provide cut sheet reports for all layers of road template to prove they meet the contract specification tolerances. Departmental Representative to verify that they are correct by performing an audit.
- .8 Contractor to provide a stake out report as requested by the Departmental Representative.

1.4 RECORDS

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

1.5 SUBMITTALS

- .1 On request of Departmental Representative, submit documentation to verify accuracy of layout work.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 PROJECT CLEANLINESS

- .1 The Contractor shall maintain the Work in tidy condition, free from accumulation of waste products and debris, including that caused by the Owner, Departmental Representative, or other Contractors.
- .2 The Contractor shall remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. No burning of waste materials on site is permitted.
- .3 The Contractor shall clear snow and ice from access to work areas during active construction periods and when access to environmental protection facilities required outside active construction times.
- .4 The Contractor shall make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5 One bear proof container will be provided by Parks Canada. The Contractor shall provide any additional on-site bear proof containers required for collection of waste materials and debris.
- .6 The Contractor shall remove waste material and debris from site at end of each working day.
- .7 The Contractor shall dispose of waste materials and debris off site. Any landfill or waste disposal location or company must be approved by the Departmental Representative prior to the disposal of material.
- .8 The Contractor shall store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .9 The Contractor shall provide adequate ventilation during use of volatile or noxious substances.
- .10 The Contractor shall use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.
- .11 The Departmental Representative and Environmental Surveillance Officer may, at their total discretion, require the Contractor to suspend work activities until such a time as the Work Site is cleaned and debris, waste, and animal attractants are satisfactorily managed. The Contractor shall do as requested at their cost and no claim for time or additional costs will be accepted

1.3 FINAL CLEANING

- .1 When Work is Substantially Performed, the Contractor shall remove surplus products, tools, construction machinery and equipment not required for performance of the remaining Work.
- .2 Prior to final review, the Contractor shall remove surplus products, tools, construction machinery and equipment.
- .3 Remove waste products and debris including that caused by the Owner, Departmental Representative, or other Contractors.

- .4 The Contractor shall 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 The Contractor shall make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .6 The Contractor shall dispose of waste materials and debris off site. Any landfill or waste disposal location or company must be approved by the Departmental Representative prior to the disposal of material.
- .7 The Contractor shall inspect finishes, and ensure specified workmanship and operation.
- .8 The Contractor shall remove dirt and other disfiguration from exterior surfaces.
- .9 The Contractor shall sweep and wash clean paved areas.
- .10 The Contractor shall clean drainage systems.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 INSPECTION AND DECLARATION

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

Part 2 Products

- .1 Not Used.

Part 3 Execution

- .1 Not Used.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

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

1.2 AS-BUILTS AND SAMPLES

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

1.3 RECORDING ACTUAL SITE CONDITIONS

- .1 The Contractor shall record information on set of black line opaque drawings, or in a set of the Specifications depending what the information may be.
- .2 The Contractor shall record information concurrently with construction progress. The Contractor shall not cover or conceal Work until the required information is recorded.
- .3 The Contractor shall legibly mark each item to record actual construction on the Contract Drawings and shop drawings including but not limited to:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.
 - .3 Details not on original Contract Drawings.
 - .4 References to related shop drawings and modifications.

- .4 The Contractor shall legibly mark each item to record actual construction in the Specifications including but not limited to:

- .1 Changes made by Addenda and change orders

1.4 FINAL SURVEY

- .1 The Contractor shall submit a final site survey report in accordance with Section 01 71 00 - Examination and Preparation, certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.

1.5 WARRANTIES AND BONDS

- .1 The Contractor shall separate each warranty or bond with index tab sheets keyed to a Table of Contents listing.
- .2 The Contractor shall list subcontractors, suppliers, and manufacturers, with name, address, and telephone number of the responsible principal.
- .3 The Contractor shall 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 the Owner's permission, The Contractor shall leave the date of the beginning of the warranty until the Date of Substantial Performance is determined by the Departmental Representative.
- .5 The Contractor shall verify that documents are in proper form, contain full information, and are notarized.
- .6 The Contractor shall co-execute or seal submittals when required.
- .7 The Contractor shall retain warranties and bonds until time specified for submittal

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

- .1 Payment under **“Unit Price Item 1 – Asphalt Pavement Removal”** will include operations involved in milling, brooming, loading, hauling and stockpiling at locations identified herein, debris removal, and cleaning of remaining pavement surface.
- .2 **“Unit Price Item 1a – Asphalt Pavement Removal – Partial Depth Milling”** will be measured for payment in square metres of existing asphalt actually removed according to the drawings, or as directed by the Departmental Representative, and shall include all labour, equipment and material to satisfactorily complete the item of work.
- .3 **“Unit Price Item 1b – Asphalt Pavement Removal – Slot Milling”** will be measured for payment in linear metres of existing asphalt actually removed according to the Contract Documents, or as directed by the Departmental Representative, and shall include all labour, equipment and material to satisfactorily complete the item of work. Width of slot milling is to be minimum 500mm or as directed by the Departmental Representative.
- .4 Removed asphalt to be stockpiled in 8 Mile Pit or as directed by the Departmental Representative. Stockpiling of removed asphalt shall be considered incidental to the Works and no additional payment will be made.
- .5 Existing asphalt pavement thickness is not uniform and may vary from one location to the next.
- .6 No overhaul will be paid for **“Unit Price Item 1 - Asphalt Pavement Removal”**.
- .7 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 - Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”** and no additional payment will be made for remobilization of equipment if all milling work cannot be completed at once.
- .9 Environmental mitigations required in accordance with Section 01 35 43 –Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment shall be made to the Contractor.

1.2 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor shall separate waste materials for reuse in accordance with Section 01 35 43 - Environmental Procedures.

Part 2 Products**2.1 EQUIPMENT**

- .1 For Partial Depth Asphalt Removal, use cold milling, planning or grinding self-powered equipment with automatic grade controls capable of operating from string line, and capable of removing part of pavement surface to depths or grades indicated.
- .2 The Contractor is to ensure that maximum particle size of milled materials is less than 50 mm and shall sieve or otherwise separate/remove larger particles at their cost

Part 3 Execution**3.1 PREPARATION**

- .1 Prior to beginning removal operation, the Contractor shall inspect and verify with the Departmental Representative, all areas, depths and lines of asphalt pavement to be removed.
- .2 The Contractor shall have appropriate Traffic Control measures in place for this work.
- .3 Locations of slot milling shall be as determined and agreed upon by the Departmental Representative prior to commencing Work.

3.2 PROTECTION

- .1 The Contractor shall protect existing pavement not designated for removal, concrete deck, concrete curb and barriers, light units and structures from damage. In event of damage, the Contractor shall immediately replace or make repairs to the satisfaction of the Departmental Representative at no additional cost.

3.3 REMOVAL

- .1 To tie from existing pavement to new overlay, the Contractor shall remove existing asphalt pavement by milling to lines and grades established by the Departmental Representative.
- .2 At mill and fill locations, the Contractor shall remove existing asphalt to the depths, lengths and width specified and as established by the Departmental Representative in the field.
- .3 The Contractor shall use self-powered equipment and methods of removal and hauling which do not damage or disturb the underlying roadway structure.
- .4 The Contractor shall prevent contamination of removed asphalt pavement by topsoil, underlying gravel or other materials.
- .5 The Contractor shall provide for suppression of dust generated by removal process.
- .6 If applicable, full depth asphalt pavement removal shall be done as designated by the Departmental Representative.

3.4 STOCKPILING OF MATERIAL

- .1 The Contractor shall place milled asphalt material in a stockpile at 8 Mile Pit, or at other locations designated by the Departmental Representative. The material shall remain the property of Parks Canada.

3.5 FINISH TOLERANCES

- .1 Finished surfaces in areas where asphalt pavement has been removed shall be within +/-5 mm of the grade specified, and shall not be uniformly high or low.

3.6 SWEEPING

- .1 The Contractor shall sweep remaining asphalt pavement surfaces clean of debris resulting from removal operations using rotary power brooms and hand brooming as required. No extra payment will be made for sweeping or associated hand work.

END OF SECTION

Part 1 General**1.1 PRECEDENCE**

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

1.2 MEASUREMENT PROCEDURES

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

1.3 REFERENCES

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

1.4 DEFINITIONS

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

1.5 SUBMITTALS

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

1.6 STORAGE AND HANDLING

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

- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with current National Fire Code of Canada requirements.
- .4 All explosives must be mixed outside of the Park and delivered to the site. No storage of explosives shall be allowed within the National Parks.
- .5 Observe smoking regulations at all times. Smoking is prohibited in any area where hazardous materials are stored, used, or handled.
- .6 Abide by the following storage requirements for quantities of hazardous materials and wastes in excess of 5 kg for solids, and 5 litres for liquids:
 - .1 Store hazardous materials and wastes in closed and sealed containers which are in good condition.
 - .2 Label containers of hazardous materials and wastes in accordance with WHMIS.
 - .3 Store hazardous materials and wastes in containers compatible with that material or waste.
 - .4 Segregate incompatible materials and wastes.
 - .5 Ensure that different hazardous materials or hazardous wastes are not mixed.
 - .6 Store hazardous materials and wastes in a secure storage area with controlled access.
 - .7 Maintain a clear egress from storage area.
 - .8 Store hazardous materials and wastes in a manner and location which will prevent them from spilling into the environment.
 - .9 Have appropriate emergency spill response equipment available near the storage area, including personal protective equipment.
 - .10 Maintain an inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
- .7 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .8 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

1.7 TRANSPORTATION

- .1 Transport hazardous materials and wastes in accordance with federal Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .2 If exporting hazardous waste to another country, ensure compliance with federal Export and Import of Hazardous Waste Regulations.
- .3 If hazardous waste is generated on site:
 - .1 Coordinate transportation and disposal with Departmental Representative.

- .2 Ensure compliance with applicable provincial laws and regulations for generators of hazardous waste.
- .3 Use only a licensed carrier authorized by provincial authorities to accept subject material.
- .4 Prior to shipping material, obtain written notice from intended hazardous waste treatment or disposal facility that it will accept material and that it is licensed to accept the material.
- .5 Label containers with legible, visible safety marks as prescribed by federal and provincial regulations.
- .6 Ensure that only trained personnel handle, offer for transport, or transport dangerous goods.
- .7 Provide a photocopy of all shipping documents and waste manifests to Departmental Representative.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide a photocopy of completed manifest to Departmental Representative.
- .9 Report any discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.

Part 2 Products

2.1 Materials

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

Part 3 Execution

3.1 Disposal

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.
- .3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited. Dispose of hazardous wastes in timely fashion in accordance with applicable provincial regulations.
- .6 Minimize generation of hazardous waste to maximum extent practicable. Take necessary precautions to avoid mixing clean and contaminated wastes.
- .7 Identify and evaluate recycling and reclamation options as alternatives to land disposal.

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MATERIALS

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END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 Designation 1 Class 16 asphalt aggregate (16mm) shall be produced in accordance with AT - Standard Specifications for Highway Construction (latest edition).

1.2 MEASUREMENT PROCEDURES

- .1 **“Unit Price Item 4a – Production of Aggregates - AT Designation 1 Class 16 Asphalt Aggregate (16mm)”** payment will be made based on the number of cubic metres of asphalt aggregate accepted. Accepted aggregates are to be produced and stockpiled at 8 Mile pit in locations as shown in the drawings or as directed by the Departmental Representative.
- .2 **“Unit Price Item 4b – Production of Aggregates – 12.5mm Winter Abrasives”** payment will be made based on the number of cubic metres of winter abrasives produced and accepted. Accepted aggregates are to be produced and stockpiled at Marmot Pit JNP in locations as shown in the drawings or as directed by the Departmental Representative.
- .3 Payment will be full compensation for extraction, crushing, loading, hauling and stockpiling of aggregates; testing, maintaining and plowing access roads and areas in the Work areas; Clean-up; and all labour, equipment, tools and incidentals necessary to complete the Work.
- .4 Crushing, hauling and stockpiling of aggregates will be measured as the volume of the stockpiles, as determined by the Departmental Representative, taking survey measurements before and after stockpiling. The average end measurement or surface to surface composite method will be used in calculating surveyed stockpiled quantities.
- .5 Contractor is advised that it is their responsibility to allow for compaction shrinkage, of crushed materials, when placed in stockpiles and no allowance by Departmental Representative is calculated in survey quantity stockpile calculations for this shrinkage.
- .6 The multiplication factor of 1.5 shall be used when it is necessary to convert aggregate quantities measured in stockpile in cubic metres to the equivalent quantity in tonnes.
Example: 10,000 cubic metres = 15,000 tonnes.
- .7 Traffic Control when required for this Work shall be incidental to **“Lump Sum Item 2 - Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 Mobilization / Demobilization”** and no additional payment will be made.
- .9 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment shall be made to the Contractor.

1.3 QUALITY CONTROL

- .1 All Quality Control testing by the Contractor.

1.4 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures.

Part 2 Products**2.1 MATERIALS****.1 Asphalt aggregate:**

- .1 The Contractor is to produce asphalt aggregates consistent with the proportions of the final approved Job Mix Formula utilized for **“Unit Price Item 5a - Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”**.

.2 Winter Abrasives

- .1 12.5 mm Winter Abrasive shall have the following gradation:

Sieve Size	Percent Passing
12.5 mm	100
10 mm	80 – 92
5 mm	40 – 70
1.25 mm	20 – 45
315 µm	9 – 22
160 µm	5 – 15
80 µm	0 - 10

- .2 All crushed aggregates must pass the maximum size sieve; no tolerance will be permitted.
- .3 At least 40% of the material retained on the 5 mm sieve shall have two or more fracture faces. The plasticity index shall be between 0 to 8.

Part 3 Execution**3.1 CRUSHING PLANT**

- .1 The crushing plant to be used for this project, regardless of location, shall have a minimum combined Horse Power of 200 HP. All aggregate which will pass through 375 mm x 450 mm slotted screen openings shall be used for the production of crushed aggregate using a jaw crusher. Rocks which will not pass through these openings shall be stockpiled at locations in the pit as directed by the Departmental Representative. No portion of the products of crushers or screening plants that can be used shall be wasted, but shall be stockpiled or used as directed by the Departmental Representative.

3.2 STOCKPILING

- .1 Aggregate materials to be produced and stockpiled in accordance with the current edition of AT - Standard Specifications for Highway Construction Section 3, Specification 3.2 – Aggregate Production and Stockpiling.
- .2 No stockpiling by conveyor shall be permitted
- .3 Stockpile sites shall be prepared by clearing of all vegetation, trees, brush, rocks or other debris and constructing a uniform gravel surface prepared before the stockpile material is deposited on the stockpile site.

- .4 Stockpiles shall be constructed on the designated site and when completed shall be neat and regular in shape, occupying as small an area as is practicable. Spilling of material over the edges of the piles will not be permitted.
- .5 The Contractor shall ensure that stockpiles shall be built up in layers not to exceed 1m in thickness.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 AT - Standard Specifications for Highway Construction (Latest Edition).

1.2 MEASUREMENT PROCEDURES

- .1 Quantities for payment for grubbing will be paid under **“Unit Price Item 2 – Grubbing in 8 Mile Pit”** and will be measured based on horizontal measurements in hectares of land acceptably grubbed, processed, and debris disposed of, according to these specifications, and shall include all labour, equipment and material to satisfactorily complete this item of work.
- .2 Removal and disposal of previously felled timber to be incidental to **“Unit Price Item 2 – Grubbing in 8 Mile Pit”** and no additional payment will be made.
- .3 The extent of grubbing shall be as indicated on the IFC drawings and the Contractor shall not commence work on this activity until approval to proceed has been granted.
- .4 Additional miscellaneous clearing may be required due to field changes. Quantities for payment for flush cutting, clearing will be paid under **“Lump Sum Price Item 3 – Prime Cost Sum”**.
- .5 No overhaul will be paid for grubbing.
- .6 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”**, and no additional payment will be made.
- .7 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor
- .9 Bird surveys must be completed and current for all Works on previously felled timber and grubbing areas between April 1 – August 31, inclusive. Bird surveys must be completed by a Registered Professional Biologist and no additional payment will be made.
- .10 If the Contractor is requested to arrange for sale of merchantable timber. Any cost / credit for the sale of merchantable timber will be paid under **“Lump Sum Price Item 3 – Prime Cost Sum”**.
- .11 All clearing and grubbing to be completed in accordance with the relevant environmental procedures contained and referenced herein.

1.3 DEFINITIONS

- .1 Grubbing consists of excavation and disposal of stumps, roots and wood debris as described in Section 200, Clearing and Grubbing of the latest edition of **BC MoTI Standard Specifications for Highway Construction**.
- .2 Chipping consists of chipping wood debris, except merchantable timber, into wood chips. Finished wood chip material shall be able to pass through a 100 mm by 100 mm screen.

- .3 Merchantable timber is all timber with butt diameter in excess of 150 mm and top down to 100 mm.

1.4 QUALITY CONTROL

- .1 All Quality Control testing by the Contractor.

1.5 PROTECTION

- .1 The contractor shall prevent damage to trees, natural features, bench marks, existing pavement, water courses and root systems of trees that are to remain.
- .2 The contractor shall repair any damaged items to approval of Departmental Representative.
- .3 The contractor shall replace any trees designated to remain, if damaged, as directed by Departmental Representative.

Part 2 Products

- .1 Not used

Part 3 Execution

3.1 PREPARATION

- .1 Inspect site and verify with Departmental Representative, items designated to remain.

3.2 CLEARING

- .1 If required, clearing is to be as directed by Departmental Representative by cutting trees and vegetative growth.
- .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 All clearing shall be felled in such a manner that surrounding vegetation is preserved along the construction limits. Stumps remaining within 3.0 metres of cleared perimeter are to be cut flush with ground and vegetative mat left undisturbed.

3.3 GRUBBING

- .1 Grubbing ripper teeth depth shall be kept as shallow as possible to minimize contamination of topsoil with subsoils. This may require individual ripping of stumps in some locations. In addition, while removing stumps, roots or embedded logs, the Contractor shall shake them on site to remove as much soil as possible.

3.4 REMOVAL AND DISPOSAL

- .1 All cleared and grubbed wood and vegetative materials excluding merchantable timber shall be loaded, hauled and disposed of outside of the National Park at a disposal site as agreed with the Departmental Representative at the Contractor's expense.

- .2 Stumps and other grubbed material shall be ground using a suitable stump grinder onsite prior to removal by the Contractor.
- .3 Cut merchantable timber greater than 150 mm diameter at the base to suitable lengths and stockpile as directed by the Departmental Representative. Stockpiled timber becomes property of the owner.
- .4 Under no circumstances shall the Contractor burn any material within the Parks.

3.5 FINISHED SURFACE

- .1 In areas of grubbing, leave ground surface in condition suitable for stripping of topsoil to approval of Departmental Representative.
- .2 In areas of flush cutting, leave stumps cut flush with ground elevation and root structure undisturbed.

END OF SECTION

Part 1 General**1.1 DESCRIPTION**

- .1 This item consists of the excavation and disposal of all materials in conformity with the lines, grades and dimension indicated on the drawings and as directed by the Departmental Representative and includes:
 - .1 Stripping of organic material.
 - .2 Roadway, culvert, borrow and ditching excavation and regrading.
 - .3 Construction of roadway ditches, embankments, permanent access and connecting roads, approaches, entrances, day use areas, berms, approved haul roads and other earthworks necessary for the construction of the road.
 - .4 Removal and disposal of unsuitable materials from excavation, embankment and borrow areas.
 - .5 Excavation and placement elsewhere in the roadway or ditch of road base materials, or the removal offsite of excess road base material.
 - .6 Transportation of excavated materials.
 - .7 Finishing of top surfaces and slopes.
 - .8 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.

1.2 MEASUREMENT PROCEDURES

- .1 Stripping:
 - .1 The quantity of stripping materials for which payment will be made shall be the volume in cubic metres measured in its original position from cross-sections taken before and after stripping. Stripping depth is estimated to be on average 300 mm but will fluctuate from one location to another. Payment will be made under **“Unit Price Item 3a – Roadway Embankments – Stripping in 8 Mile Pit”** and will include cost to strip, load, haul, screen and dispose of waste outside of the Parks and stockpile suitable material at 8 Mile pit, or as directed by the Departmental Representative.
 - .2 Stripped materials shall not be contaminated by other materials. If contamination does occur the Department Representative at his discretion may require clean topsoil be imported from an approved source and contaminated materials be disposed of at the contractor’s expense.
 - .3 No overhaul will be paid for this work.
- .2 Ditch Cleanout:
 - .1 The quantity of ditch excavation that payment will be made for is the linear metre measured along the roadway alignment in areas of excavation as shown on the IFC drawings or as agreed upon by the Departmental Representative. Payment will be made under **“Unit Price Item 3b – Roadway Embankments – Ditch Cleanout”** and shall include cost of excavating, hauling, temporary stockpiling of material and disposing of material outside of the Parks.

- .2 Obtaining, maintaining, reclamation of a disposal site outside of JNP and all incidentals associated with the removal and disposal of waste material is incidental to this item and no separate payment will be made.
- .3 If approved by the Departmental Representative, excavated material may be stockpiled at 8 Mile Pit.
- .4 Average depth of ditch excavation is estimated at 100mm, but not uniform and no additional payment will be made where a deeper excavation depth is required.
- .5 Limits of ditch excavation to be as shown on the IFC drawings or as directed by the Departmental Representative.
- .6 Removal of existing stumps from ditches is to be considered incidental to **“Unit Price Item 3b – Roadway Embankments – Ditch Cleanout”** and no additional payment will be made.
- .7 No overhaul will be paid for this Work.
- .8 Only material acceptable to the Department Representative shall be used in the construction of embankments incorporated into the work.
- .3 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”**, and no additional payment will be made.
- .4 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .5 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor
- .6 No measurement or payment will be made for:
 - .1 Excavating unnecessarily beyond lines established by Departmental Representative, with exception of unavoidable slide material. Do not measure slide material, when such slides are attributable to the Contractor’s poor work management.
 - .2 Loading hauling, placing and compaction of boulders less than 1.5 cubic metres into large embankments.
 - .3 Scarifying or benching existing slopes or existing road surfaces.
 - .4 Removing non-compliant material previously placed by the Contractor.
 - .5 Watering, drying or compacting.
 - .6 Proof rolling.
 - .7 Compaction of material (150 mm) below subgrade horizon in areas of cut.
 - .8 Finishing.
 - .9 Material or other geotechnical testing (compaction testing).

1.3 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)

- .2 AT – Standard Specifications for highway Construction (current edition)

1.4 DEFINITIONS

- .1 Rock Excavation is excavation of:

- .1 Material from solid masses of igneous, sedimentary or metamorphic rock that, prior to removal, was integral with parent mass. Material that cannot be ripped with reasonable effort from Caterpillar D9L or equivalent to be considered integral with parent mass.
- .2 Boulder or rock fragments measuring 1.5 cubic metres or more in volume.

- .2 Excavation Common:

- .1 Excavation of materials that are not Rock Excavation or Stripping.

- .3 Borrow:

- .2 Suitable material obtained from locations outside the limits of the roadway cut and placed as embankment material.
- .3 Suitable material obtained from culvert foundation excavations used for the on-site production of granular material.

- .4 Stripping: Excavation of organic material covering original ground.

- .5 Embankment: Material derived from usable excavation and placed above original ground or stripped surface.

- .6 Waste Material: Material unsuitable for embankment, embankment foundation or material surplus to requirements.

- .7 Topsoil: Material passing a 100 mm sieve capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.

1.5 QUALITY CONTROL

- .1 Regulatory Requirements:

- .1 Adhere to Provincial and National Environmental requirements when potentially toxic materials are involved.
- .2 All Quality Control testing by the Contractor in accordance with AT – Standard Specifications for highway Construction where applicable.
- .3 Quality documentation to be provided to the Departmental Representative.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor shall separate and recycle waste materials in accordance with Section 01 35 43 - Environmental Procedures.
- .2 Waste shall be disposed of at a suitable offsite disposal facility.

Part 2 Products**2.1 MATERIALS**

- .1 Embankment materials require acceptance by Departmental Representative.
- .2 Material used for embankment must meet AT – Standard Specification for Highway Construction – latest edition.
- .3 If no on-site waste areas are designated, then the unsuitable material shall be removed and disposed outside of the National Parks at the Contractor's expense. Any such material subsequently placed in an embankment, without the approval of the Departmental Representative, shall be removed and disposed of, as directed by the Departmental Representative, and no payment will be made for the removal or haul of such unsuitable material from the embankment.

Part 3 Execution**3.1 WATER DISTRIBUTORS**

- .1 Apply water with equipment capable of uniform distribution.

3.2 STRIPPING OF TOPSOIL

- .1 Commence topsoil stripping of areas on acceptance by the Departmental Representative after clearing and grubbing debris have been removed from these areas.
- .2 Strip topsoil to depths as verified by the Departmental Representative. Do not mix topsoil with subsoil. Stripping depth is estimated to be on average 150 mm.
- .3 For topsoil stripped in 8 Mile Pit, the top 150 mm must be stripped and stored separately from any material below a depth of 150 mm. This material will not be screened.
- .4 Contractor to screen or rock pick stripping material brought to 8 Mile Pit, with the exception of material from the stripping of 8 Mile Pit, to 100 mm max size prior to placement in stockpile. Load, haul and place screen waste material in the designated Cells at 8 Mile Pit, as directed by the Departmental Representative.
- .5 Stockpile screened stripped materials adjacent to the Work zone as directed by the Departmental Representative. The Contractor is advised that there is limited storage area for this material and that surplus stripping materials shall be hauled along with materials requiring further processing as designated by the Departmental Representative to 8 Mile Pit.

3.3 EXCAVATING

- .1 General:
 - .1 Notify the Departmental Representative when waste materials are encountered and remove to depth and extent as approved by the Departmental Representative. Waste material is to be disposed of outside of the Parks.
 - .2 Subcut below subgrade elevation in cut sections only as approved by the Departmental Representative. Compact top 150 mm below subcut to a minimum of 100% of the Standard Proctor Density, ASTM D698 (AASHTO T99). Replace with acceptable embankment material and compact.

- .3 Treat ground slopes, where subgrade is on transition from excavation to embankment, at grade points in accordance with the Drawings.
 - .4 The dimensions of the excavations and embankments shall be, in accordance with the typical sections accompanying these specifications, but the dimensions of any or all excavations and embankments may be increased or decreased at any time by the Departmental Representative as conditions and circumstances may determine.
- .2 Drainage:
- .1 Maintain profiles, crowns and cross slopes to provide good surface drainage at all times.
 - .2 Provide ditches as work progresses to provide drainage.
 - .3 Ensure positive drainage is improved when completing ditch regrading work.
 - .4 Finished ditch regrading work shall maintain a consistent and parallel gradeline between the common excavation or embankment material and the organic material thereby achieving consistent depth of organic material.

3.4 SUBGRADE COMPACTION

- .1 Break material down to sizes suitable for compaction and mix for uniform moisture to full depth of layer.
- .2 Embankment material shall be placed in successive uniform layers over the entire area as follows:
 - .1 Material containing less than 25 percent by volume of stones larger than 100 mm shall be placed in 200mm compacted layers.
 - .2 Material containing 25 percent or more by volume of stones larger than 100 mm shall be placed in layers not exceeding the maximum size of the stones. Stones larger than 100 mm shall not be placed within 150 mm of the subgrade elevation.
- .3 In embankments composed principally of material obtained from rock cuts, the larger stones shall be carefully distributed and the interstices filled with smaller stones and other material to form a compact mass. Such embankments shall be constructed in layers not exceeding 1 metre. The placing of individual rocks and boulder exceeding 1.0 metres in least dimension will be permitted provided they are carefully distributed and the interstices filled with finer material to form a dense and compact mass. Each layer, before starting the next, shall be levelled and smoothed with suitable equipment. Hauling and spreading equipment shall be operated over the full width of each layer.
- .4 Each layer shall be brought to its required degree of compaction throughout its entire width before successive layers are placed.
- .5 Compact each layer to minimum 95% maximum dry density, ASTM D698 (AASHTO T99). Top 300 mm of subgrade to be compacted to 100% of the Standard Proctor Density, ASTM D698 (AASHTO T99).
- .6 Add water or dry as required to bring moisture content of materials to level required to achieve specified compaction.

- .7 For rock placed as fill, compact with large steel wheeled or tracked equipment of sufficient size to break larger particles. Compact until rock fill is stable under compaction equipment and all voids are filled.

3.5 FINISHING

- .1 Shape entire roadbed to within +/- 15 mm of design elevations but shall not be either uniformly high or low of the design elevation.
- .2 Remove rocks over 150 mm in dimension from slopes and ditch bottoms.
- .3 Trim between constructed slopes and edge of clearing to provide drainage.

3.6 PROTECTION

- .1 Maintain finished surfaces in condition conforming to this section until acceptance by the Departmental Representative.
- .2 Prevent damage to trees, natural features, bench marks, existing pavement, water courses and root systems of trees that are to remain.
- .3 Repair any damaged items to approval of Departmental Representative.
- .4 Protect any trees designated to remain, if damaged replacement and environmental compensation to be at Contractor's expense, as directed by Departmental Representative.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

- .1 The quantity of supplied and placed Class 1M Riprap that will be measured for payment, shall be the number of cubic metres measured in place and accepted in the completed work, and shall include all labour, equipment and material to satisfactorily complete this item as specified. Payment for the supply and placement of Riprap will be made under **“Lump Sum Item 3 – Prime Cost Sum”**.
- .2 Material will meet the gradations as defined in this section.
- .3 No overhaul will be paid for this Work.
- .4 The supply and installation of Geotextiles will not be measured directly for payment and shall be considered incidental to the unit price items.
- .5 Excavation, preparation of Riprap base, hauling and any other related materials shall be considered incidental to the unit price items.
- .6 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”**, and no additional payment will be made.
- .7 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

1.2 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate and recycle waste materials in accordance with Section 01 35 43, Environmental Procedures.
- .2 Place materials defined as hazardous or toxic in designated containers.
- .3 Divert leftover geotextiles to recycling facility as approved by Departmental Representative.

Part 2 Products**2.1 STONE**

- .1 Hard, angular, dense with relative density not less than 2.65, free from seams, cracks or other structural defects.
- .2 The material provided for each class specified shall conform to AT Specifications for Bridge Construction Section 10, Heavy Rock Riprap.
- .3 Field stone will not be accepted.

Part 3 Execution**3.1 PLACING**

- .1 Contractor shall do the layout for placement of Riprap.
- .2 Where Riprap is to be placed on slopes, excavate trench at toe of slope to dimensions as indicated.
- .3 Fine grade area where Riprap is to be placed, to a uniform, even surface. Fill depressions with suitable material and compact to provide firm bed.
- .4 Place geotextile on prepared surface in accordance with Section 31 32 19.01- Geotextiles and as indicated. Avoid puncturing geotextile, punctured geotextile will be replaced at the contractor's expense. Vehicular traffic over geotextile not permitted.
- .5 Place Riprap (by machine or by hand) to thickness and details as indicated or as agreed to by the Departmental Representative.
- .6 Place stones in manner accepted by Departmental Representative to secure surface and create a stable mass or to match existing streambed. On slopes, place larger stones at bottom of slopes.
- .7 Hand placing riprap:
 - .1 Use larger stones for lower courses and as headers for subsequent courses.
 - .2 Stagger vertical joints and fill voids with rock spalls or cobbles.
 - .3 Finish surface evenly, free of large openings and neat in appearance.

END OF SECTION

Part 1 General**1.1 MEASUREMENT PROCEDURES**

- .1 The supply, delivery and application of tack coat will be will not be measured separately and shall be incidental to **“Unit Price Item 5 – Asphalt Concrete Pavement - EPS”**.
- .2 Preparation of asphalt surface for prime or tack application will be considered incidental to **“Unit Price Item 5 – Asphalt Concrete Pavement - EPS”**.
- .3 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 - Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .4 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”** and no additional payment will be made.

1.2 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM D140-01, Standard Practice for Sampling Bituminous Materials.
- .2 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB-16.2-M89, Emulsified Asphalts, Anionic Type, for Road Purposes.

1.3 SUBMITTALS

- .1 The Contractor shall submit samples in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Contractor shall submit two - 1 L samples of asphalt tack coat material proposed for use in new, clean, airtight, sealed, wide mouth bottles made with plastic to Departmental Representative, at least 2 weeks prior to beginning Work.
- .3 The Contractor shall sample asphalt tack coat material to ASTM D140.
- .4 The Contractor shall provide access on the tank truck for the Departmental Representative to sample the asphalt material to be incorporated into Work, in accordance with ASTM D140.

1.4 QUALITY CONTROL

- .1 Upon request by Departmental Representative, the Contractor shall submit the manufacturer's test data and certification that the asphalt tack coat material meets the requirements of this Section.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 The Contractor shall deliver, store and handle materials in accordance with ASTM D140.
- .2 The Contractor shall provide, maintain and restore asphalt storage area after the project.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 The Contractor shall separate waste materials for reuse and recycling in accordance with Section 01 35 43 - Environmental Procedures and with the Waste Reduction Work Plan.

- .2 The Contractor shall divert unused asphalt materials to a facility capable of recycling such materials.

Part 2 Products

2.1 MATERIALS

- .1 The Contractor shall use anionic emulsified asphalt to CAN/CGSB-16.2, grade SS-1.
- .2 Water shall be clean, potable, and free from foreign matter.

2.2 EQUIPMENT

- .1 The pressure distributor shall be designed, equipped, maintained and operated so that all requirements of the AT Standard Specifications are met, and asphalt material can be:
 - .1 Maintained at even temperature.
 - .2 Applied uniformly on variable widths of surface up to 5 m.
 - .3 Applied at readily determined and controlled rates from 0.2 to 5.4 L/m² with uniform pressure, and with an allowable variation from any specified rate not exceeding 0.1 L/m².
 - .4 Distributed in uniform spray without atomization at temperature required.
- .2 Equipped with meter, registering metres of travel per minute, visibly located to enable truck driver to maintain constant speed required for application at specified rate.
- .3 Equipped with pump having flow meter graduated in units of 5 L or less per minute passing through nozzles and readily visible to operator. Pump power unit to be independent of truck power unit.
- .4 Equipped with an easily read, accurate and sensitive device which registers temperature of liquid in reservoir.
- .5 Equipped with accurate volume measuring device or calibrated tank.
- .6 Equipped with nozzles of same make and dimensions, adjustable for fan width and orientation.
- .7 Equipped with nozzle spray bar, with operational height adjustment.
- .8 Cleaned if previously used with incompatible asphalt material.

Part 3 Execution

3.1 APPLICATION

- .1 The contractor shall adhere to all requirements of the AT Standard Specifications.
- .2 The Contractor shall obtain the Departmental Representative's approval before applying asphalt tack coat.
- .3 The Contractor shall apply asphalt tack coat only on clean and dry surface.
- .4 The Contractor shall dilute the asphalt emulsion with water at 1:1 ratio for application.

- .5 The Contractor shall mix thoroughly by pumping or other method accepted by Departmental Representative.
- .6 The Contractor shall apply the asphalt tack coat evenly to pavement surface at rate as directed by Departmental Representative, of 0.5 L/m² plus or minus 0.2 L/m².
- .7 The Contractor shall paint contact surfaces of curbs, gutters, headers, manholes and like structures with thin, uniform coat of asphalt tack coat material.
- .8 The Contractor shall apply asphalt tack coat only on unfrozen surface, where the surface temperature is greater than 2 degrees Celsius. The Contractor shall not apply asphalt tack coat when air temperature is less than 10 degrees Celsius or when rain is forecast within 2 hours of application.
- .9 The Contractor shall evenly distribute localized excessive deposits of tack coat by brooming as directed by Departmental Representative.
- .10 Where traffic is to be maintained, the Contractor shall treat no more than one half of width of surface in one application.
- .11 The Contractor shall keep traffic off tacked areas until asphalt tack coat has set.
- .12 The Contractor shall re-tack contaminated or disturbed areas as directed by the Departmental Representative.
- .13 The Contractor shall permit the asphalt tack coat to set before placing asphalt pavement.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 AT Standard Specifications for Highway Construction, latest edition

1.2 DESCRIPTION

- .1 Work shall consist of supplying, hauling and placing AT Mix Type H1 Asphalt Concrete Pavement Mix (EPS) using 150-200A asphalt binder at locations on Hwy 93N in JNP as shown on the IFC Drawings or as directed by the Departmental Representative.
- .2 Production of AT Designation 1 Class 16 (16mm) asphalt aggregate will be incidental to the Works.
- .3 End Product Specifications Unit Price adjustments will not be applied for leveling course or bottom course asphalt lifts.
- .4 Unit Price adjustments will be applied for the top lift of asphalt with a design thickness of 50mm or greater in accordance with AT - Standard Specifications for Highway Construction, Section 3.50 – Asphalt Concrete Pavement (EPS) latest edition, with the exception of Testing and Evaluation of Finished Pavement Surface Smoothness Using International Roughness Index (IRI) Criteria which shall be as defined in Alberta Transportation's Special Provision SP_S301.
- .5 Milled Rumble Strips shall be installed in accordance with AT Design Bulletin 18 –Rumble Strip Placement Practices. The Milled Shoulder Rumble Strips shall be Continuous SRS. The Milled Rumble Strips are to be installed as per the IFC drawings or as directed by the Departmental Representative.

1.3 MEASUREMENT PROCEDURES AND UNIT PRICE ADJUSTMENTS

- .1 Accepted asphalt concrete pavement will be measured in tonnes and payment shall be compensation in full for supply of asphalt concrete mix including all materials, processing, plant mixing, loading, hauling, supply and application of prime/tack coat, paver laying, compacting, finishing surface, raking, interim and final lane marking, quality control testing, safety, and maintenance. Payment shall be made under **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”**.
- .2 Applicable payment adjustments (additions or subtractions as applicable) shall be applied in accordance with AT – Standard Specifications for Highway Construction, Section 3.50 – Asphalt Pavement Construction (EPS) latest edition. Payments shall be under **“Lump Sum Price Item 3 – Prime Cost Sum”**.
- .3 Payment for paving of slot milled areas, pullouts, viewpoints and side roads shall be made under **“Unit Price Item 5a ii – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder – Hwy 93N Pullouts and Side Roads”**. Work is to be done as directed by the Departmental Representative and shall be compensation in full for supply of asphalt concrete mix including all materials, processing, plant mixing, loading, hauling, supply and application of prime/tack coat, paver laying and hand work, compacting, finishing surface, raking, interim and final lane marking, quality control testing, safety, and maintenance.

- .4 Supply, installation, maintenance, calibration of weight scales and a scale house, or alternatively electronic calibrated silo scales, at the plant by the Contractor shall be considered incidental to **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”** and no additional payment will be measured for payment. A scale person will be provided by the Departmental Representative if required.
- .5 The Contractor shall prepare and submit a mix design to the Departmental Representative a minimum of 14 days prior to commencing paving operations. Preparing an asphalt mix design (including anti-stripping test), by a qualified test laboratory licensed to practice in Alberta shall be considered incidental to **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”**.
- .6 Production of asphalt aggregates to be utilized for works under **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”** and shall be considered incidental to the Works and no additional payment will be made.
- .7 Use of processed Reclaimed Asphalt Pavement (RAP) material in hot mix asphalt construction is permitted to maximum 10% in accordance with AT Standard Specifications for Highway Construction Section 3.50 (latest edition) and as approved by the Departmental Representative. Any costs associated with this process including labour, equipment or materials shall be considered incidental to **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”**.
- .8 The movement of equipment and crew, shall be considered incidental to **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”** for the type of asphalt placed. A move is defined as the Contractor moving equipment and crew to the next section to pave after having completed, in its totality, the previous section.
- .9 No overhaul will be considered for payment under this contract.
- .10 Supply and Delivery of asphalt binder, and anti-stripping agent(s), if required and accepted by the Departmental Representative, will be considered incidental to **“Unit Price Item 5a – Asphalt Concrete Pavement – EPS – AT Mix Type H1 150-200 A Asphalt Binder”**.
- .11 Payment for the installation of the Milled Rumble Strips shall be under **“Unit Price Item 5b – Asphalt Concrete Pavement - EPS – Milled Rumble Strips”**. The Milled Rumble Strips are to be as per the IFC drawings or as directed by the Departmental Representative.
- .12 Payment for shouldering shall be measured per linear metre of work accepted and shall consist of blending RAP with Contractor supplied aggregates and placing as directed by the Departmental Representative. Payment to be made under **“Unit Price Item 5c – Asphalt Concrete Pavement - EPS – Shouldering”**. Any costs associated with this process including labour, equipment or materials shall be considered incidental.
- .13 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 - Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .14 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”** and no additional payment will be made.
- .15 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

Part 2 Products**2.1 MATERIALS**

- .1 Penetration grade 150-200A asphalt binder shall be used.
- .2 Asphalt Aggregate:
 - .1 Materials used shall be in accordance with the current edition of AT –Standard Specifications for Highway Construction, Section 3.50 – Asphalt Pavement Construction (EPS). 8 Mile Pit in JNP is available for Contractor’s use for aggregate sourcing and crushing, as directed by the Departmental Representative.
- .3 Reclaimed Asphalt Pavement
 - .1 Use of processed Reclaimed Asphalt Pavement (RAP) material in hot mix asphalt construction is permitted to maximum 10% in accordance with AT Standard Specifications for Highway Construction Section 3.50 (latest edition) and as approved by the Departmental Representative.
 - .2 Only RAP sourced from Highway 93N shall be considered. Only Classified RAP will be permitted.
 - .3 The Contractor shall fulfill or exceed the requirements of the BC MoTI Standard Specifications for Highway Construction SS 505 Appendix 1 – RAP Management Best Practices for the management of RAP materials from the time of collection through processing, mix design, and quality control practices during the production of asphalt mixtures containing RAP as confirmed through the Contractor’s Quality Control documentation.
 - .4 RAP testing is required in accordance with AT Standard Specifications for Highway Construction Section 3.50 (latest edition).
 - .5 The Contractor shall process and crush the RAP so as to ensure compliance with all gradation requirements of their approved Job Mix Formula.

Part 3 Execution**3.1 WORK METHODOLOGY**

- .1 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment shall be made to the Contractor.
- .2 ACP thickness to be in accordance with the IFC Drawings or as directed by the Departmental Representative. Base Repairs will be completed in accordance with the IFC Drawings or as directed by the Department Representative. The limits of overlay, mill and fill and base repair areas shall be reviewed and approved by the Department Representative following the survey layout of the project chainage and prior to the onset of the work.
- .3 ACP placement:
 - .1 Asphalt concrete mix shall not be placed when the air temperature is below 4°C, or when the weather is rainy.
 - .2 Asphalt concrete mix shall be placed only on clean, dry, and unfrozen surfaces.

- .3 Unless otherwise shown on the plans, the asphalt concrete mix shall be placed in the following lift thicknesses:
 - .1 In a single lift when the design compacted total thickness is 75 mm or less.
 - .2 In two or more lifts when the design compacted total thickness is greater than 75 mm. The lift thickness selection shall be determined by the Contractor except that:
 - .1 The maximum thickness of any lift shall be 75 mm.
 - .2 The minimum thickness of a final lift shall be 50 mm.
- .4 On widenings, the thickness of asphalt concrete mix up to 75 mm may be placed in one lift. Over 75 mm thickness, the asphalt concrete shall be placed in two lifts.
- .9 Milled Rumble Strips shall be installed in accordance with AT Design Bulletin 18 –Rumble Strip Placement Practices. The Milled Rumble Strips are to be installed as directed by the Departmental Representative.

3.2 EQUIPMENT, PLANT AND MIXING REQUIREMENTS

- .1 Execution of the Work shall be in accordance with the current edition of AT –Standard Specifications for Highway Construction, Section 3.50 – Asphalt Pavement Construction (EPS).
- .2 The Contractor will be permitted to setup a Mobile Asphalt Plant or use a Stationary Asphalt Plant for this Project. Asphalt plant shall be set up at 8 Mile Pit at the direction of the Departmental Representative.
- .3 Asphalt plant to be used on this project, regardless of location, shall be a minimum of 200 tonne per hour production plant, equipped with a dry bag system for pollution control, in addition to, or in replacement of standard cyclone dust collectors, to effectively eliminate emissions of dust and smoke pollutants into the atmosphere. Use of secondary dust collection systems, requiring discharge of dust polluted water into settling ponds or drainage system will not be permitted. Asphalt plant located outside the park must comply with all environmental pollution control regulations applicable in the asphalt plant area. The plant operator must make daily inspections of the emission control components, to ensure proper working order and provide the most recent stack monitoring results for viewing by the Departmental Representative or their designate.

END OF SECTION

Part 1 General**1.1 REFERENCES**

- .1 CAN/CGSB-1.5-M99 Low Flash Petroleum Spirits Thinner.
- .2 CGSB1-GP-12C-83 Standard Paint Colours.
- .3 CGSB1-GP-71-83 Method, of Testing Paints and Pigments.
- .4 CAN/CGSB 1.74-01 Alkyd Traffic Paint.
- .5 U.S. FED-STD-595B, 1989 – Colours Used in Government Procurement.
- .6 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
- .7 Material Safety Data Sheets (MSDS)
- .8 AT Design Bulletin #18/2003
- .9 AT Typical Drawings
 - .1 CB6-3.52M1
 - .2 CB6-3.52M3
 - .3 CB6-3.52M4

1.2 SAMPLES

- .1 The Contractor shall submit samples in accordance with Section 01 33 00 - Submittal Procedures. All samples shall be in accordance with CGSB1-GP-71.
- .2 The Contractor shall submit the following material sample quantities at least 4 weeks prior to commencing work to the Departmental Representative:
 - .4 Two samples of each type of paint.
 - .5 One sample of glass beads.
- .3 The Contractor shall label all samples with the name of project and its location, the paint manufacturer's name and address, the name of the paint, CGSB specification number and formulation number and batch number.

1.3 MEASUREMENT FOR PAYMENT

- .1 Temporary Pavement Marking including supply of paint and reflective glass beads in accordance with Section 01 35 00.06 - Special Procedures for Traffic Control shall be considered incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and will not be measured for payment.
- .2 Final line painting shall be measured in linear metres along the centre of the paint line regardless of width or line-gap ratio. Double center lines are to be measured as one line. Payment shall be considered full compensation for all equipment, labour, and materials required to complete the Work. Payment will be made under **“Unit Price Item 6a - Pavement Marking – Line Painting”**. Center line painting to be completed following rumble strip installation and no additional payment will be made.

- .3 Gore hatch and stop bar areas will be measured in metres squared of painted surface. Payment shall be considered full compensation for all equipment, labour, and materials required to complete the Work. Payment will be made under **“Unit Price Item 6b - Pavement Marking – Gore / Hatch and Stop Bars”**.
- .4 Gore area boundary lines shall be measured and paid for under **“Unit Price Item 6a - Pavement Marking – Line Painting”**.
- .5 Stop bars shall be paid for as though they formed painted gore markings (square metres).
- .6 Direction arrows will be measured per unit regardless of specific type. Payment shall be considered full compensation for all equipment, labour, and materials required to complete the Work. Payment will be made under **“Unit Price Item 6c - Pavement Marking – Arrows”**.
- .7 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .8 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”** and no additional payment will be made.
- .9 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

Part 2 Products

2.1 MATERIALS

- .1 Paint:
 - .1 To CGSB 1.74-2001-CAN/CGSB, alkyd traffic paint.
 - .2 Colour: to FED-STD-595B, yellow 33538 and white 37925.
- .2 Upon request, Departmental Representative will supply a qualified product list of paints applicable to work. Qualified paints may be used but Departmental Representative reserves right to perform further tests.
- .3 Thinner:
 - .1 To CAN/CGSB-1.4-2000.
- .4 Overlay type:
 - .1 to CGSB1-GP-74M.

2.2 SUPPLY, STORAGE AND HANDLING

- .1 Storage and handling shall meet the requirements of Section 01 35 43 - Environmental Procedures and Section 02 81 01 - Hazardous Materials.
- .2 The Contractor shall make all arrangements for the supply and delivery of paint and glass beads and shall provide the Departmental Representative with records of all materials received and/or returned, on a daily basis.
- .3 The Contractor shall provide, maintain and reclaim all material storage sites.

- .4 No paint formulation shall be diluted or mixed with a different formulation or with any other material, without the specific approval of the Departmental Representative.
- .5 The Contractor shall take all necessary steps to prevent contamination of the materials. Paint shall be protected from freezing.
- .6 The Contractor shall be responsible for the proper clean-up of waste or spilled material, and the proper disposition of containers.

Part 3 Execution

3.1 TEMPORARY MARKINGS

- .1 The Contractor shall supply and place temporary line markings on newly constructed hard surfaces (pavement, hot-in-place recycled pavement, sealcoat, etc.) throughout the project, re-establishing centreline and all lane-dividing lines prior to being opened to traffic, and shall maintain such markings until the earlier of the Actual Completion Date or the date permanent markings have been placed. Temporary line markings are not required for lane edge lines (fog lines) unless otherwise directed.
- .2 Temporary line markings must be placed on an offset from the permanent lane marking and must be removed once permanent markings are in place.
- .3 Centerline of undivided highway shall be marked throughout as “no passing” unless otherwise directed by the Departmental Representative.
- .4 Painted temporary lines are not permitted on the final surface.

3.2 PERMANENT MARKINGS

- .1 Prior to any work affecting existing pavement markings, the Contractor shall pick-up survey all key control points of existing markings at intersections, turn slots, exit tapers and similar features and, upon completion of the final hard surfacing, re-establish those points unless shown otherwise on the IFC drawings or directed by the Departmental Representative.
- .2 Further to the key control point pick-up, the Contractor shall also pick-up survey all Transverse and Chevron and Crosshatch Pavement Markings, upon completion of the final hard surfacing, re-establish those points unless shown otherwise on the IFC drawings or directed by the Departmental Representative.
- .3 All layout markings shall be done with white or yellow centreline paint which will be clearly visible after exposure to all Site conditions for a minimum period of two (2) months past the Actual Completion Date.
- .4 Key control points shall be marked at their design location within tolerances of ± 50 mm transversely and ± 100 mm longitudinally. Longitudinal tolerances for intermediate points, when required, are ± 10 m.
- .5 Equipment Requirements
 - .1 Paint applicator to be an approved pressure type mobile distributor capable of applying paint in single, double and dashed lines. Applicator to be capable of applying marking components uniformly, at rates specified, and to dimensions as indicated, and to have positive shut-off.

- .2 Distributor to be capable of applying reflective glass beads as an overlay on freshly applied paint.
- .6 Condition of Surfaces
 - .1 Pavement surface to be dry, free from ponded water, frost, ice, dust, oil, grease and other foreign materials.
- .7 Application
 - .1 Pavement markings to be laid out by Contractor after confirming with the Departmental Representative that there are to be no changes.
 - .2 Apply paint only when air temperature is above 10°C, wind speed is less than 60 km/h and no rain is forecast within next 4 h.
 - .3 Apply traffic paint evenly at rate of 3 m²/L.
 - .4 Do not thin paint.
 - .5 Paint lines to be of uniform colour and density with sharp edges.
 - .6 Thoroughly clean distributor tank before refilling with paint of different colour.
 - .7 Apply glass beads at rate of 200 g/m² of painted area immediately after application of paint.
- .8 Tolerance
 - .1 Paint markings to be within plus or minus 12 mm of dimensions indicated.
 - .2 Remove incorrect markings as directed by the Departmental Representative at Contractor's cost.

3.3 TRAFFIC CONTROL

- .1 In accordance with Section 01 35 00.06 and Contractor's approved Traffic Management Plan.

3.4 QUALITY CONTROL INSPECTION PLAN

- .1 The Contractor is responsible for quality control inspection throughout every stage of the work to ensure that materials and workmanship comply with the requirements of this specification.
- .2 The Contractor shall develop and submit a Quality Control Inspection Program (QCIP) that addresses all the elements that affect the quality of the line painting including, but not limited to:
 - .1 Paint Application Rates.
 - .2 Glass Bead Application Rates.
 - .3 Pavement Surface and Atmospheric Conditions.
 - .4 Line Widths, Line Lengths and Space Lengths.
- .3 The Contractor shall maintain records of QCIP data, complaints from the public, and other details relevant to the Work and shall provide these records to the Departmental Representative daily.

3.5 HIGHWAY OPERATION

- .1 Highway operation shall be in accordance with the Contractor's approved Traffic Management Plan and shall meet the following requirements:
 - .1 Painting shall be carried out during hours of daylight between ½ hour after sunrise and ½ hour before sunset. Generally, the Contractor may paint lines during any day of the week but is cautioned that traffic volumes are usually higher on all highways on Friday, Saturday and Sunday.
 - .2 Operation of the painting truck against the flow of traffic will not be permitted.
 - .3 Loading glass beads or paint onto the painting truck is not permitted on a roadway surface.
- .2 Operation of Companion Vehicles
 - .1 When the roadway to be painted is open to public traffic, the Contractor shall operate a crash attenuator vehicle and a pilot vehicle in conjunction with the painting truck during the painting of all longitudinal lines. Companion vehicle operators shall not attempt to control traffic from inside the vehicle.
 - .2 The actual operating parameters of the companion vehicles will be determined by the Contractor to safely accommodate traffic and will be based on site specific conditions such as sight distances, highway geometrics and traffic patterns and volumes. Typical operating parameters are as follows:
 - .1 The crash attenuator vehicle shall be equipped with a crash attenuator that meets National Cooperative Highway Research Program, Report 350 Test Criterion. Test Level 3 for 100 km/hr. The vehicle shall follow behind the painting truck at a distance of 50 to 400 m.
 - .2 The pilot vehicle shall be driven in the same travel lane as the paint machine, following it at a constant distance of approximately two kilometres.
 - .3 The crash attenuator vehicle, pilot truck and the painting truck are to display the same message at all times. The painting truck and the companion vehicles shall be equipped with a two-way radio for communication and overhead revolving beacon with an amber lens of a minimum 180 mm high and 180 mm wide.

3.6 PROTECTION OF COMPLETED WORK

- .1 The Contractor shall protect all pavement markings until dry.

END OF SECTION

Part 1 General**1.1 DESCRIPTION OF WORK**

- .1 The work covered by this specification shall consist of hydraulically seeding areas within the limits of construction, or as designated by the Departmental Representative.

1.2 MEASUREMENT FOR PAYMENT

- .1 Hydraulic Seeding will be measured by the square metre acceptably installed, complete with seed, and mulch, resulting in full grass growth, 75% germination and growth of specified seed mixture, within the dimensions indicated on the Drawings or as approved by the Departmental Representative. Payment for hydraulic seeding shall be full compensation for all labour, equipment, materials and incidentals required to place the materials in accordance with the requirements of the Specifications, IFC Drawings and direction of the Departmental Representative. **“Unit Price Item 7 – Hydraulic Seeding”**.
- .2 Areas of blending into existing landscape will not be measured for payment.
- .3 Maintenance is incidental and will not be paid for separately.
- .4 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”**, and no additional payment will be made.
- .5 Traffic Control required for this Work shall be incidental to **“Lump Sum Price Item 2 – Traffic Accommodation”** and no separate payment will be made to the Contractor.
- .6 Environmental mitigations required in accordance with Section 01 35 43 – Environmental Procedures, for the Work in this Section shall be incidental to the contract and no separate payment will be made to the Contractor.

1.3 SUBMITTALS

- .1 Submit product data in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Provide product data for:
 - .1 Seed
 - .2 Mulch
 - .3 Tackifier/Soil Stabilizer
 - .4 Gypsum
- .3 Submit in writing to Departmental Representative 14 days prior to commencing work:
 - .1 Volume capacity of hydraulic seeder 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.

1.4 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.

1.5 MATERIAL DELIVERY, HANDLING AND STORAGE

- .1 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.
- .2 Seed 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.

Part 2 Products

2.1 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 The Contractor shall confirm that the Seed mixture has not been modified prior to purchasing the seed with the Departmental Representative. Seed mix for all applications to be the following, by weight:
 - .1 50% Sand Grass *Calamovilfa Longifolia*
 - .2 30% Awned/Slender Wheatgrass *Elymus Trachycaulus*
 - .3 10% June Grass *Koeleria Macrantha*
 - .4 10% Tufted Hairgrass *Deschampsia Caespitosa*
- .3 Seeding rate to be 35 kg/ha for mechanical seeding and 100 kg/ha for hydraulic seeding.
- .4 **Seed certificate to be approved by the PCA ESO prior to application.**
- .5 Seed mix shall be certified free of Scentless Chamomile, Downy Brome and Canada Thistle.

2.2 WATER

- .1 Water shall be free of impurities that would inhibit germination and growth as available from JNP. The Contractor must apply for a Restricted Activity Permit (RAP) to withdraw water from any source(s) within the National Parks. Approval from Parks Canada Agency is required prior to any water being withdrawn and may or may not be granted depending on flows and/or species at risk.

2.3 MULCH

- .1 Wood fibre mulch shall be manufactured from virgin wood fibres and contain not less than 3% of an organic tackifier by volume. **Cellulose type products are not acceptable.** Acceptable product is: Eco Fibre Plus or approved alternate. Supplier: Professional Gardener, Phone: (403) 263-4200.

Part 3 Execution**3.1 GENERAL SEEDING**

- .1 Contractor shall advise Departmental Representative prior to the start of seeding 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 Seeding shall be done upon completion of stripped soil material/chip compost placement.
- .5 Contractor shall not perform work under adverse field conditions such as frozen soil, excessively wet or dry soil, or soil covered with snow, ice or standing water.
- .6 Contractor shall hydraulic seed only during dry weather conditions with no rain forecasted for the next 24 hours. Contractor shall check weather conditions to ensure soil stabilizer has sufficient time to cure prior to heavy rainfall.
- .7 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.
- .8 Contractor shall carry out seeding in locations as shown on Drawings or, as directed by Departmental Representative.

3.2 HYDRAULIC SEEDING

- .1 The following application rates are the minimum required for hydraulic seeding:

.1	Canada Parks Blend Seed:	100 kg/hectare
.2	Mulch:	500 kg/hectare
.3	Water:	30,000 L minimum
.4	Tackifier / Soil Stabilizer, as per manufacturers application rates	
- .2 The Contractor shall measure quantities of materials by weight, or weight calibrated Contractor to calculate and submit applicable area of coverage per tank load of slurry in accordance with Section 01 33 00 – Submittal Procedures
- .3 Contractor shall physically stake and identify limits of tank coverage prior to seeding to the satisfaction of Departmental Representative.
- .4 Each tank load of slurry shall be fully applied within the designated boundaries for each load as staked. Volume measurement, to the satisfaction of the Departmental Representative.
- .5 The Contractor shall fill the tank half full with required water and add mulch while continuing to fill with water. Seed mix is to be added. All material is to be added into the hydraulic seeder under agitation. The Contractor shall pulverize mulch with tackifier and charge slowly into seeder.
- .6 The Contractor shall use hydraulic seeding equipment with a minimum slurry tank capacity of 4500 litres.

- .7 The Contractor's equipment shall have an agitation system for slurry capable of operating during charging of tank and during seeding, consisting of recirculation of slurry and mechanical method:
 - .1 Pumps shall be capable of maintaining a continuous non-fluctuating flow of solution.
 - .2 Equipment shall be capable of seeding up to 150m distance from hydraulic seeder using hand operated hoses and appropriate nozzles.
- .8 The Contractor shall apply slurry when wind velocities will not affect the application and cause the mixture to be blown.
- .9 The Contractor shall apply slurry uniformly, at optimum angle of application for adherence to surfaces and germination of seed. Ensure good contact of slurry with soil with minimal air pockets.
- .10 The Contractor shall use the correct nozzle(s) for application and use hoses to access difficult to reach surfaces and to control application.
- .11 The Contractor shall ensure that the application is uniform and the surface is evenly covered. Contractor shall blend into retained landscape for approximately 1 metre.
- .12 The Contractor shall clean all structures, appurtenances and natural features not designated to be seeded of any overspray, to the satisfaction of the Departmental Representative.
- .13 The Contractor shall ensure that at all times during the seeding, that no vehicles are parked within the path of public travel and the Contractor shall provide warning devices as directed by the Departmental Representative to ensure safe operations.

3.3 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Establishment period is a minimum of four months of continuous growing season. Growing season shall not to be divided by winter.
- .2 The Contractor shall repair and reseed dead or bare spots, as directed in these specifications 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 and growth, as determined by the Departmental Representative, the soil shall be scarified or re-cultivated as directed by the Departmental Representative, and seeding and fertilizing undertaken as specified. This work is incidental to the contract.

3.4 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.

3.5 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 approximately April 1 to September 30. 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 these specifications 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 and fertilizing undertaken as specified. This work is incidental to the contract.
- .4 For small areas of poor seed germination or as determined by the Departmental Representative, the soil shall be scarified to a depth of 25mm and seeding and fertilizing shall be undertaken as specified. This work is incidental to the contract.
- .5 Weed control shall be undertaken as determined by the Departmental Representative. Hand pulling of weeds may be required. This work is incidental to the contract.

3.6 CLEANING

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION