

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section.

1.02 PROJECT DESCRIPTION

- .1 The project is to rehabilitate the source springs cisterns for the Miette Hot Springs, as described in the specifications and drawings for this project. The Miette Hot Springs is supplied by 3 springs. Spring #1 is located adjacent the foundation of the original pool ruins. Spring # 2 is located approximately 200 m upstream of spring #1 on the west bank of the stream, and Spring #3 is approximately 100 m upstream of spring #2, on the east bank of Sulphur Creek

1.03 PROJECT LOCATION

- .1 The project is located at the Miette Hot Springs Pools, in Jasper National Park, approximately 18 km south of the Pochantas Junction - Hwy 16, at the end of the Miette Hot Springs Road

1.04 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Work of this Contract comprises general reconstruction/repairs of the cisterns that collect the hot water at each spring for the Miette Hot Springs. The work covered under this contract includes but is not limited to the following:
 - .1 Repair of the cistern for Spring #1 as per the drawings and specifications.
 - .2 Removal and reconstruction of the existing cistern and piping for Spring #2 as per the drawings and specifications
 - .3 Minor repairs to the existing cistern for Spring #3 as per the drawings and specifications.

1.05 CONTRACT METHOD

- .1 Construct Work under unit price contract.

1.06 WORK SEQUENCE

- .1 All the Works are to be completed no later than December 30th, 2015
- .2 Schedule work progress to allow Departmental Representative unrestricted access to inspect all phases of the Work.

1.7 CONTRACTOR USE OF PREMISES

- .1 Unrestricted use of site.

- .2 Contractor shall limit uses of the premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy
- .3 Coordinate use of premises under the direction of the Departmental Representative.
- .4 Due to the limited access to the work areas and the location of historically and environmentally significant sites adjacent the work areas, the contractor will be restricted to using only the designated work areas for the execution of the Work. Any requirements to utilize areas outside the designated work areas must be approved in writing by the Departmental Representative prior to use.
- .5 The Contractor will be provided a designated laydown area for the duration of the works. If required, obtain and pay for use of additional storage or work areas needed for operations under this 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 the Administration Office for Jasper National Park or as directed by the Departmental Representative.
- .7 A business license is required by the Contractor and all subcontractors to work in Jasper National Park. The business license is available for purchase from the Administration Office for Jasper National Park.
- .8 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .9 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .10 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.08 OWNER OCCUPANCY

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

1.09 OWNER FURNISHED MATERIALS

- .1 Section not used

1.10 CONSTRUCTION SIGNAGE

- .1 No signs or advertisements, other than warning signs, are permitted on site.
- .2 Signs and notices for safety and instruction shall be in both official languages. Graphic symbols shall be diamond grade and shall conform to

CAN3-Z321.

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

1.11 EXISTING SERVICES

- .1 Notify the Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Establish location and extent of service lines in area of work before starting Work. The Contractor is responsible for all costs associated with doing locates for services within the work area.
- .3 Where unknown services are encountered, immediately advise the Departmental Representative and confirm findings in writing.
- .4 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.
- .5 Record locations of maintained, re-routed and abandoned service lines.
- .6 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.12 SETTING OUT OF WORK

- .1 Departmental Representative will establish control points and provide:
 - .1 Complete set of Construction Drawings
 - .2 Locations of control points
- .2 Contractor to
 - .1 Set additional control points as necessary
 - .2 Set all work stakes necessary to complete the work.
 - .3 Allow sufficient time to take measurements for payments. The Departmental Representative may need to verify the measurements for payment and the work will be coordinated with the Contractor.
 - .4 Not damage geodetic benchmarks unless authorized by Departmental Representative
- .3 All survey work required by the contractor to layout, monitor, and provide measurements for quantities for payment is considered incidental to the completion of the Works and will not be considered for separate payment.

1.13 DOCUMENTS REQUIRED

- .1 Maintain at job site, one copy each document as follows:
 - .1 Contract Drawings.
 - .2 Specifications.
 - .3 Addenda.
 - .4 Reviewed Shop Drawings.
 - .5 List of Outstanding Shop Drawings.

- .6 Change Orders.
- .7 Other Modifications to Contract.
- .8 Field Test Reports.
- .9 Copy of Approved Work Schedule.
- .10 Health and Safety Plan and Other Safety Related Documents.
- .11 Other documents as specified.

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

1.05 EXISTING SERVICES

- .1 Notify, Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 The locations of Utilities, if any, shown on the drawings are not necessarily exact nor is there any guarantee that all the Utilities in existence within the limits of the Work Site have been shown on the drawings.
- .3 If it is determined by the Departmental Representative that Utilities affected by the permanent Work will be relocated by Others, the Contractor shall co-operate and coordinate as required with Other Contractors engaged in Utility relocation operations on the Work Site.
- .4 The Contractor shall establish and maintain direct and continuous contact with the owners or operators of any Utilities which may interfere with the Work. The Contractor shall cooperate with them at all times and in all places of Work. The Contractor shall keep the Departmental Representative informed of all communications with the Utility companies and authorities.
- .5 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.
- .6 Whenever working in the vicinity of Utilities, the Contractor shall locate such Utilities and expose those that may be affected by the Work, using hand labour as required.
- .7 The Contractor shall assess the possible impact of its operations on all Utilities that may be affected by its operations, and shall protect, divert, temporarily support or relocate, or otherwise appropriately treat such Utilities to ensure they are preserved.
- .8 The Contractor shall Immediately report any damage to Utilities to the Departmental Representative and to the Utility company authority affected, and shall promptly undertake such remedial measures as are necessary at no additional cost to the Owner.

1.06 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 the work.
- .2 The Contractor shall regularly monitor the condition of 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 condition of the Work Site and or 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 The Contractor is required to do an original ground survey prior to the commencement of work in the designated work area which is to be the basis for measuring and calculating quantities for payment for work as designated in Section 01 21 00.
- .5 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. 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 condition 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.

1.07 PROTECTION OF PERSONS AND PROPERTY

- .1 The Contractor shall comply with all applicable safety regulations of the Worker's Compensation Board of Alberta (WCB) including, but limited to, WCB's Industrial Health and Safety regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.
- .2 The Contractor shall comply with the Canada Labour Code - Part 2 regulations as it applies to working within a Federal Government Workplace.
- .3 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.
- .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 Parks Canada the costs resulting from such loss or damage.
- .5 If required, blasting shall take place between 11:00 a.m. and 3:00 p.m. The Contractor shall:
 - .1 Notify the Departmental Representative at least 24 hours in advance of each scheduled blast.
 - .2 A list of other parties to be notified in advance of each scheduled blasting will be provided by the Departmental Representative. Contractor to notify these parties at least 24 hrs in advance of each scheduled blasting.
 - .3 Provide traffic management in accordance with Section 01 35 31 - Special Procedures for Traffic Control.

1.08 USE OF PUBLIC AREAS

- .1 Off-road construction equipment will not be allowed on the existing public roads except at designated crossing points and loading areas. 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 public roads but this shall be standard highway trucks not

exceeding legal highway load limits.

- .2 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Site and entering public roads shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Site and transporting materials shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas shall be recovered 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.

1.09 SUPERVISORY PERSONNEL

- .1 Within five 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. The following personnel shall be included in the list:
 - .1 Project Superintendent
 - .2 Safety representative
- .2 The above personnel shall be 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 who shall have the authority of the Project Superintendent during the latter's absence.
 - .3 The Safety Representative shall possess safety experience in general construction. Duties shall encompass all matters of safety activities from commencement or Worj until Total Performance of the Work.

1.10 MEETINGS

- .1 The Work includes attending meetings between the Contractor and the Departmental Representative. The meetings will be called and chaired by the Departmental Representative as required. The Contractor shall be represented at such meetings to the satisfaction of the Departmental Representative.
- .2 The Departmental Representative will schedule an initial meeting held on site after award notification. Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors, and supervisors are to be in attendance.
- .3 The Contractor will be requested to assemble his staff and sub-contractors for an environmental briefing to be conducted by Parks Canada. The briefing shall be of approximately 2 hours in duration and held at initial project start-up. The Contractor shall ensure that all his current project staff 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, briefings will be arranged for new staff and sub-contractors showing up 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.

1.11 WASTE DISPOSAL

- .1 All surplus, unsuitable and waste materials shall be removed from the job site to approved sites outside the Jasper National Park. Refer to Section 01 35 43 - Environmental Procedures and Environmental Protection Plan.
- .2 Deposits of any construction debris into any waterway are 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.

1.12 WORK STOPPAGE

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

2

1.13 PRODUCTS

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED SECTIONS

- .1 Section 01 11 00 - Summary of Work

1.02 DESCRIPTION

- .1 Mobilization and Demobilization consists of the preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, buildings, shops, office, supplies and incidentals to and from the project sites.
- .2 Any protective measures or movement of the Contractor 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.

1.03 MEASUREMENT PROCEDURES

- .1 Payment shall be made under "Lump Sum Price Item 1 - Mobilization / Demobilization".
- .2 50 % of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
- .3 The remainder of the Lump Sum Contract 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.

2 PRODUCTS

2.01 PRODUCTS

- .1 Not Used

3 EXECUTION

3.01 EXECUTION

- .1 Not Used

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 - Work Restrictions
- .3 Section 01 33 00 - Submittal Procedures

1.02 ADMINISTRATIVE

- .1 Schedule and administer project meetings throughout the progress of the work at the call of Departmental Representative .
- .2 Prepare agenda for meetings.
- .3 Distribute written notice of each meeting four days in advance of meeting date to Departmental Representative .
- .4 Provide physical space and make arrangements for meetings.
- .5 Preside at meetings.
- .6 Record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.
- .7 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants.
- .8 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.03 PRECONSTRUCTION MEETING

- .1 Within 7 days after award of Contract, request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative , Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 Establish time and location of meeting and notify parties concerned minimum 5 days before meeting.
- .4 Agenda to include:
 - .1 Appointment of official representative of participants in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16.07 - Construction Progress Schedules - Bar (GANTT) Chart.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.

- .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
- .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures .
- .6 Traffic control procedures and detours.
- .7 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
- .8 Owner provided products.
- .9 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
- .10 Monthly progress claims, administrative procedures, photographs, hold backs.
- .11 Appointment of inspection and testing agencies or firms.
- .12 Insurances, transcript of policies.

1.04 PROGRESS MEETINGS

- .1 During course of Work, schedule progress meetings weekly.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Record minutes of meetings and circulate to attending parties and affected parties not in attendance within 3 days after meeting.
- .4 Agenda to include the following:
 - .1 Review, approval of minutes of previous meeting.
 - .2 Review of Work progress since previous meeting.
 - .3 Field observations, problems, conflicts.
 - .4 Problems which impede construction schedule.
 - .5 Review of off-site fabrication delivery schedules.
 - .5 Review Traffic Control and Emergency response Protocol issues.
 - .6 Corrective measures and procedures to regain projected schedule.
 - .7 Revision to construction schedule.
 - .8 Progress schedule, during succeeding work period.
 - .9 Review submittal schedules: expedite as required.
 - .10 Maintenance of quality standards.
 - .11 Review proposed changes for affect on construction schedule and on completion date.
 - .12 Other business.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 - Work Restrictions

1.02 MEASUREMENT PROCEDURE

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

1.03 REFERENCES

- .1 Definitions:
 - .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
 - .2 Bar Chart (Gantt chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars.
 - .3 Baseline: original approved plan (for Project, work package, or activity), plus or minus approved scope changes.
 - .4 Duration: total number of work periods (not including holidays or other non-working periods) required to complete activity or other Project element.
 - .1 Usually expressed as workdays or work weeks.
 - .5 Master Plan: summary-level schedule that identifies major deliverable; work breakdowns structure and key milestones.
 - .6 Milestone: significant point or event in Project, usually completion of major deliverable.
 - .7 Project Planning, Monitoring and Control System: overall system operated to enable monitoring of Project Work in relation to established milestones.
 - .8 Project Schedule: planned dates for performing activities and planned dates for meeting milestones.
 - .9 Work Breakdown Structure (WBS): deliverable-oriented hierarchical decomposition of Work to be executed by contractor to accomplish project objectives and create required deliverables. It organizes and defines total scope of Project. Each descending level represents an increasingly detailed definition of Project Work. WBS is decomposed into Work packages.

1.04 ADMINISTRATIVE REQUIREMENTS

- .1 Ensure the Project Schedule is practical and remain within specified Contract Duration.
- .2 Ensure all the Work required for the Contract is identified in the Project

Schedule. Refer to Section 01 11 00 Summary of Work for a potential list of activities.

- .3 Plan to complete Work in accordance with prescribed Project Schedule.
- .4 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.
- .5 Include the requirements of Section 01 14 00 - Work Restrictions and Section 01 35 43 - Environmental Procedures.

1.05 ACTION AND INFORMATIONAL SUBMITTALS

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

1.06 PROJECT MILESTONES

- .1 Project milestones form interim targets for Project Schedule
 - .1 Completion of each Stage of Construction within each work area.
- .2 Interim Certificate (Substantial Completion): October 30, 2015
- .3 Contract Completion: December 30, 2015

1.07 MASTER PLAN

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

1.08 DETAIL SCHEDULE

- .1 Relate Detail Schedule activities to basic activities and milestones developed and approved in Master Plan.
- .2 Provide level of detail for project activities such that sequence and interdependency of Contract tasks are demonstrated and allow co-ordination and control of project activities. Show continuous flow from left to right.

- .3 Ensure detailed Project Schedule includes as minimum milestones and activity types as follows:
 - .1 Award
 - .2 Permits
 - .3 Submittals
 - .1 Project Schedule
 - .2 List of subcontractors, suppliers, and consultants
 - .3 Contractor Chain of Command including Sub-Contractors and consultants
 - .4 Work Plan
 - .5 Environmental Protection Plan
 - .6 Traffic Management Plan
 - .7 Site Access / Detour Plan
 - .8 Emergency Responce Protocol
 - .9 Site Specific Health and Safety Plan
 - .10 Quality Control Plan
 - .4 Mobilization
 - .5 Work Activities grouped by Work Area
 - .6 Interim Inspection
 - .7 Site Clean-up / Demobilization

1.09 REVIEW OF THE CONSTRUCTION DETAIL SCHEDULE

- .1 Allow 5 work days for review by Departmental Representative of proposed construction Detail Schedule.
- .2 Upon receipt of reviewed Detail Schedule make necessary revisions and resubmit to Departmental Representative for review within 5 work days.
- .3 Promptly provide additional information to validate practicability of Detail Schedule as required by Departmental Representative.
- .4 Submittal of Detail Schedule indicates that it meets Contract requirements and will be executed generally in sequence.

1.10 PROGRESS MONITORING AND REPORTING

- .1 On ongoing basis, Detail Schedule on job site must show "Progress to Date". Arrange participation on and off site of subcontractors and suppliers, as, and when necessary, for purpose of network planning, scheduling, updating and progress monitoring. Inspect Work with Departmental Representative at least once monthly to establish progress on each current activity shown on applicable networks.
- .2 Perform Detail Schedule update monthly with status dated (Data Date) on last working day of month. Update to reflect activities completed to date, activities in progress, logic and duration changes.
- .3 Submit to Departmental Representative copies of updated Detail Schedule.
- .4 Requirements for monthly progress monitoring and reporting are basis for progress payment request.
- .5 Submit monthly written report based on Detail Schedule, showing Work to

date performed, comparing Work progress to planned, and presenting current forecasts. Report must summarize progress, defining problem areas and anticipated delays with respect to Work schedule, and critical paths. Explain alternatives for possible schedule recovery to mitigate any potential delay. Include in report:

- .1 Description of progress made.
- .2 Pending items and status of: shop drawings, change orders, possible time extensions.
- .3 Status of Contract completion date and milestones.
- .4 Current and anticipated problem areas, potential delays and corrective measures.

1.11 PROJECT MEETINGS

- .1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on the baseline schedule.

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED SECTIONS

- .1 Section 01 14 00 - Work Restrictions.
- .2 Section 01 32 18 - Construction Progress Schedules - Bar (Gantt) Chart
- .3 Section 01 35 30 - Health and Safety Requirements
- .4 Section 01 35 31 - Special Procedures for Traffic Control and Construction Detours
- .5 Section 01 35 43 - Environmental Procedures
- .6 Section -1 45 00 - Quality Control
- .7 Section 01 78 00 - Closeout Submittals

1.02 MEASUREMENT PROCEDURES

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

1.03 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units converted values are acceptable.
- .5 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 Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .6 Notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.

- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

1.04 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been coordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 14 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .8 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.

- .4 Capacities.
- .5 Performance characteristics.
- .6 Standards.
- .7 Relationship to adjacent work.

- .9 After Departmental Representative's review, distribute copies.

- .10 Submit six (6) prints and one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request.

- .11 Submit six (6) copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.

- .12 Delete information not applicable to project.

- .13 Supplement standard information to provide details applicable to project.

- .14 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.

- .15 The review of shop drawings by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This 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 requirements of construction and Contract Documents.
 - .2 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 sub-trades.

1.05 SAMPLES

- .1 Not Used.

1.06 MOCK-UPS

- .1 Not Used.

1.07 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.

- .2 Submit transcription of insurance immediately after award of Contract.

1.08 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**
 - .1 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. The Contractor shall not begin any site work until the Departmental Representative has authorized acceptance of the submittals in writing.
 - .2 The Contractor shall not construe the Departmental Representative's authorization of 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.
 - .1 Project schedule, detailing the schedule of the workdays required from the Contractor, subcontractors, supplier and consultants to complete each activity of the project 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 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 and cellular telephone numbers.
 - .3 Contractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone, and cellular telephone numbers. The list shall include names and telephone/cellular 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 work area the contractor's intended methods of construction, and materials, equipment, and manpower he will 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 Environmental Protection Plan (EPP) and Environmental Construction Operations Plan (ECO) which shall meet the requirements of Section 01 35 43 - Environmental Procedures.
 - .7 Site Access and Detour Plans. It shall include but not be limited to, engineered Drawings and procedures for accessing all areas of Work or for proposed detours.
 - .8 Survey Plan describing the Contractor's intended methods of surveying during this project.
 - .9 Contractor shall develop an "Emergency Procedures Protocol"

- in consultation with Parks Canada. Parks Canada will supply the Contractor with a template with contact names and numbers to be used for this purpose.
- .10 Health and Safety Plan - The Contractor shall have a Certificate of Recognition (COR) or Registered Safety Plan (RSP) including a site specific Health and Safety Plan acceptable to the Departmental Representative. The Contractor shall implement and maintain the Health and Safety Plan during the Work.
 - .11 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 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 Submit copies of Material Safety Data Sheets (MSDS)
 - .13 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.
 - .14 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
- .3 The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of the submittals in writing.
- .2 **Construction Phase Submittals.**
- .4 Monthly Progress Reports in accordance with Section 01 32 18.
 - .5 Weekly Progress Reports that outline the detailed Work (Contractor, subcontractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed the following week on a day-to-day basis. Work to be linked to activities by area 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.
 - .6 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.
 - .7 Shop Drawings and Mix Designs - The Contractor shall submit all shop

drawings and mix designs required to fabricate and/or conduct the work a minimum 30 days prior to fabrication/production.

- .8 Submit four (4) copies of Contractor's authorized representative's work site health and safety inspection reports to the Departmental Representative and authority having jurisdiction, weekly.
 - .9 Submit copies of reports or directions issued by Federal or Provincial health and safety inspections.
 - .10 Submit copies of incident and accident reports.
- .3 **Project Completion Submittals**
- .1 Record Drawings - The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-builts to the Work and the Contractor shall submit a set of Contract Drawings clearly marked as record as-built changes to the Work. The drawings are to be submitted in electronic AutoCad (.dwg) format.
 - .2 Quality Control Records - The Contractor shall submit a bound and itemized set of project quality control records.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 14 00 - Work Restrictions.
- .2 Section 01 33 00 - Submittal Procedures
- .3 Section 01 35 43 - Environmental Procedures

1.02 MEASUREMENT PROCEDURES

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

1.03 REFERENCES

- .1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations
- .2 Health Canada/Workplace Hazardous Materials Information System (WHMIS) Material Safety Data Sheets (MSDS)
- .3 Province of Alberta
 - .1 Occupational Health and Safety Regulations. - Updated 2014.

1.04 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 Submittal Procedures.
- .2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of site specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.
 - .3 Contractor's Safety Policy.
 - .4 Definitions of responsibilities for project safety/organization chart for project.
 - .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 communication and record keeping procedures.
- .3 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to Departmental Representative weekly.
- .4 Submit copies of reports or directions issued by Federal, Provincial and

- Territorial health and safety inspectors.
- .5 Submit copies of incident and accident reports.
 - .6 Submit WHMIS MSDS - Material Safety Data Sheets to Departmental Representative.
 - .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 10 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 5 days after receipt of comments from Departmental Representative.
 - .8 Departmental Representative's review of 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.
 - .9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Departmental Representative.
 - .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.05 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities prior to beginning of Work.

1.06 SAFETY ASSESSMENT

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

1.07 MEETINGS

- .1 Schedule and administer Health and Safety meeting with Departmental Representative prior to commencement of Work.

1.08 REGULATORY REQUIREMENTS

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

1.09 PROJECT/SITE CONDITIONS

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

1.10 GENERAL REQUIREMENTS

- .1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.11 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.

1.12 COMPLIANCE REQUIREMENTS

- .1 Comply with Occupational Health and Safety Regulations, General Safety Regulation, Province of Alberta.
- .2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.13 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition 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.

1.14 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have site-related working experience specific to activities associated with roadway and bridge 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 the site supervisor.

1.15 POSTING OF DOCUMENTS

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

1.16 CORRECTION OF NON-COMPLIANCE

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

1.17 BLASTING

- .1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Departmental Representative.
- .2 Production of blasting powder must be done in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Do blasting operations in accordance with Section 31 24 14 - Roadway Excavation, Embankment and Compaction.

1.18 POWDER ACTUATED DEVICES

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

1.19 WORK STOPPAGE

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

2 PRODUCTS

2.01 NOT USED

- .1 Not used.

3 EXECUTION

3.01 NOT USED

- .1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 All Divisions 01,02, 03 and 30 Sections.

1.02 PRECEDENCE

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

1.03 MEASUREMENTS 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 will be considered incidental to the work.

1.04 NATIONAL PARK REGULATIONS

- .1 The Contractor shall ensure all work is performed in accordance with the ordinances, laws, rules and regulations set out in the Canada National Parks Act and Regulations.
- .3 All Contractor's vehicles are required to display a vehicle pass from Parks Canada. These permits may be obtained free of charge from the Departmental Representative, PCA Surveillance Officer or at the Park Administration.

1.05 CANADIAN ENVIRONMENTAL ASSESSMENT ACT

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act (CEAA) Guidelines Order of 2003 and subsequent amendments. The Miette Hot Springs Source Rehabilitation Project has been subject to an environmental assessment completed in August 2015, pursuant to the expectations of the CEAA. Environmental Protection Plans are the next step to achieve the desired end results of minimal adverse environmental effect as the project is constructed.
- .2 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.

1.06 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Before commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Departmental Representative.
- .3 Environmental Protection Plan must include comprehensive overview of known or potential environmental issues to be addressed during construction.

- .4 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .5 Include in Environmental Protection Plan:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Descriptions of environmental protection personnel training program.
 - .3 Erosion and sediment control plan identifying type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan.
 - .4 Spill Control Plan to include procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
 - .5 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
 - .6 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, are contained on project site.
 - .7 Contaminant Prevention Plan identifying potentially hazardous substances to be used on job site; intended actions to prevent introduction of such materials into air, water, or ground; and detailing provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
 - .8 Waste Water Management Plan identifying methods and procedures for management.
 - .9 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.

1.07 START-UP AND ENVIRONMENTAL BRIEFING

- .1 All staff employed at the construction site will be subject to an approximately two hour briefing regarding their individual and collective responsibilities to ensure avoidable adverse environmental impact does not arise from their activities and personal choices. Employees must attend this briefing before beginning their work at the site. Each employee, having received the briefing, will be issued a certification sticker to be displayed on their helmet. It is recognized new employees may join the Contractor's workforce 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 at 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 workforce at the site.
- .2 Parks Canada will have an ESO attending the site to monitor the construction activity for conformance with the EPP. The ESO or alternate designated Parks Canada staff member will present the "environmental briefing". The ESO's main duties are to monitor the progress of the construction on an on-going

basis to ensure compliance with environmental protection measures, and to provide guidance through the Departmental Representative, in the event of unanticipated environmental problems. Although the ESO has authority to enforce National Parks Act violations, direction to the Contractor will be the duty of the Departmental Representative.

1.08 CONSTRUCTION SITE ACCESS AND PARKING

- .1 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 meters distance from any watercourse.
- .2 The Contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by worker's vehicles or construction machinery and shall instruct workers so that the "footprint" of the project is kept within defined boundaries.

1.09 SITE MANAGEMENT

- .1 The Contractor is to prepare an EPP which details how the work limits shall be marked and what procedures will be employed to ensure trespass outside these limits does not occur, to the satisfaction of the Departmental Representative and the ESO.
- .2 The Contractor shall control blowing dust and debris generated from the construction site by means such as covering or wetting down materials and rubbish. Dust control measures for temporary access roads mat also have to initiated.
- .3 Security services at the construction site may be desirable or necessary during the contract, especially during quiet times. Fuel tanks and other potentially deleterious substance containers must be secured by the Contractor to ensure they are tamperproof and cannot be drained by vandals.
- .4 Pets shall not be brought to or maintained at the construction site.

1.10 FIRES, FIRE PREVENTION AND CONTROL

- .1 Fires and burning of rubbish on site is not permitted.
- .2 A fire extinguisher shall be carried and available for use on each machine. Basic fire fighting equipment recommended (e.g.. a water truck, minimum 500 imperial gallons with 500 feet of fire hose and a pump capable of producing 45 psi water pressure at the nozzle, three shovels, two pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at location known and easily accessible to all the Contractor's staff. Contractor's staff shall receive basic training in early response to wildfire events during the "environmental briefing".
- .3 The Departmental Representative will indicate possible sources of water for filling the water truck, It will be the Contractor's responsibility to then gain access to a recommended water source and bear all costs for it's use.

- .4 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.
- .5 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented.
- .6 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, Park Dispatch shall be contacted at (XXX) XXX XXXX

1.11 EROSION CONTROL

- .1 Develop and submit erosion and Sediment Control Plan (ESC) identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan and the EPP .
- .2 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 and performance.
- .3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.

1.12 EQUIPMENT MAINTENANCE, FUELLING AND OPERATION

- .1 The Contractor shall ensure that all soil and any debris attached to the construction equipment to be used on the project site shall be removed (e.g. power washing) outside the Jasper National Park before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Except for chain saws, any fuelling closer than 100 meters to streams, wetlands, water bodies or waterways shall required authorization and oversight of the Departmental Representative.
- .3 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 meters from streams, wetlands, water bodies or waterways. Gravity fed fuel system are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain presence at and immediate attention to the fuelling operation.
- .4 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in Part 1.14 of this Section.
- .5 Equipment used on the project shall be fuelled with E10, and low sulphur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure the 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 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 Jasper National Park.
- .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 Jasper National Park.

1.13 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 construction shall require working close to watercourses or water bodies. In these instances, the Contractor is to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) do not enter any watercourses, to the satisfaction of the Departmental Representative and ESO.
- .2 The Contractor shall instruct workers to prevent pushing, placement, leveling, storage or stockpiling of any materials in the trees bordering the right of way or into watercourses or water bodies.
- .3 When, in the opinion of Parks Canada, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at his or her expense, for complete restoration including replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative and ESO.
- .4 Workers private vehicles are to remain within the construction footprint.

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 If necessary, the construction activity may be scheduled around important wildlife windows. Specific windows may involve Harlequin Ducks and/or fish, depending on the location of the worksite. The Departmental Representative

will advise if any apply.

- .3 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.
- .4 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 are not available, Park Dispatch will be contacted at (XXX) XXX XXXX.

1.15 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 meters from the Bow River.
- .3 A Spill Response Plan will be prepared as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative and the ESO and in accordance with all applicable federal and provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, waterproofing agents, grout, cement, concrete finishing agents, hot poured rubber membrane materials, asphalt cement and sand blasting agents.
- .4 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.
- .5 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berm 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.
- .6 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.
- .7 The Contractor shall provide spill kits at re-fuelling, lubrication, and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The ESO and Departmental Representative prior to project

start-up must approve these spill kits. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.

- .8 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, Park Dispatch will be contacted at 911 or 780 852 6155. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.
- .9 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .10 The costs involved in a spill incident (the control, clean up, disposal of contaminants and site remediation to pre-spill condition), 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.

1.16 HISTORICAL/ ARCHAEOLOGICAL CONTROL

- .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 Departmental Representative immediately. The Contractor and workers shall wait for instructions before proceeding with their work.
- .2 All historical or archaeological objects found in the Miette Hot Springs are protected under the National Parks Act and Regulations and are the property of Parks Canada. The Contractor and workers shall protect any articles found and request direction from the ESO or the Departmental Representative.

1.17 WASTE MATERIALS STORAGE AND REMOVAL

- .1 The Contractor and workers shall dispose of hazardous wastes in conformance with the Canadian Environmental Protection Act.
- .2 All wastes originating from construction, trade, hazardous and domestic source, 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 Gulf Islands National Park Reserve. 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 or recycler 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 at the Miette Hot Springs. 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.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 CLEARING AND GRUBBING

- .1 The Contractor shall ensure that the substrate of riparian area of streams, rivers or watercourses, whether open water or frozen over shall not be disturbed by tracked, wheeled, or self-propelled equipment. The ESO or Departmental Representative will provide direction in the case of work occurring near any wetland area or watercourses.
- .2 The Contractor shall take all measures to ensure trees do not fall into streams, rivers, wetlands or water bodies or outside the clearing limits as marked by coloured flagging. Generally, work within a 30 meter buffer of watercourses, water bodies or wetlands requires the close oversight of the ESO or the Departmental Representative.
- .3 Trees inadvertently felled into streams, rivers, watercourses or outside the clearing limits shall be removed by means so as to not 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.
- .4 Logs and other salvage materials are to be conveyed to and placed in 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.
- .5 During the grubbing component, stumps, roots, embedded logs and other

non-soil debris shall be pulled and shaken free of loose soil and rocks before transport to the waste pit area for chipping by others.

- .6 Existing areas or 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 by the Departmental Representative or the ESO.

3.02 STRIPPING

- .1 A contingency plan for control of dust generated from the construction site shall be prepared, with materials availability arranged in the event of their need. In the event of a work program shutdown during inclement weather, erosion control of bared soils or excavated materials stockpiles will be required. The Contractor's EPP will describe measures to be implemented in such circumstance.
- .2 Stripping close to 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 meter buffer of waterways or wetlands require the close oversight of the ESO and the Departmental Representative.
- .3 No stripping shall occur outside of the designated area or within 1 meter of the drip line of existing forest.
- .4 Stripped soil 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.

3.03 MATERIAL LOADING, HAULING AND PLACEMENT

- .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.
- .2 No grade building shall occur outside of designated area or within 0.6 meters 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.
- .3 Materials shall be placed at storage sites or on grade without spillage outside the working limits. Any material inadvertently falling outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation at that location.

3.04 EXCAVATION AND PLACEMENT

- .1 Excavation will be undertaken to the construction drawings.
- .2 All sediment control measures shall be implemented by the Contractor prior to the commencement of work in the vicinity of any water bodies, watercourses

or wetlands.

- .3 Special precautions may be required during excavation in the vicinity of intermittent or active drainage channels. See "Specific Concerns".
- .4 Placement of rip rap shall be undertaken without contacting the watercourse or wetted margins of the stream, unless approved by the Departmental Representative.
- .5 Fisheries protection windows may impact the timing of the work so that stream disturbance is prevented. See "Specific Concerns".
- .6 If a pump-out sump to dewater excavations will be required, the Contractor is to prepare an EPP which details how the dewatering shall be undertaken, to the satisfaction of the Departmental Representative and the ESO. Water containing suspended materials shall not be pumped into watercourses, drainage system or on to land, except with the permission the of the Departmental Representative and ESO.

3.05 CONCRETE MANAGEMENT

- .1 Where concrete work is to take place, the EPP must include the following concrete management elements:
 - .1 Concrete mixer truck washout must be contained in an approved facility with wash products taken back to the concrete batching yard for disposal.
 - .2 Rolling concrete mixers with surplus concrete are to returned to the batching yard.
 - .3 Water contaminated on the placing of cement and curing of concrete shall be contained and removed from the site to an approved disposal facility.

3.06 FINE GRADING, TOPSOIL PLACEMENT, AND SEEDING

- .1 Any exposed slopes that have been cut, filled, or fine graded or disturbed in any way will require cover 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.

3.07 SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION

- .1 The Contractor shall prepare an Erosion and Sedimentation Management Plan for the components of the 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.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 All Divisions 01,02,03 and 30 Sections

1.02 MEASUREMENT PROCEDURES

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

1.03 TESTING BY THE CONTRACTOR

- .1 Testing required providing quality control to assure that the Work strictly complies with the Contract requirements shall include, but no be limited to:
 - .1 Testing all structural concrete, grout, reinforcing steel, asphalt concrete pavement, structural backfill, precast concrete box culverts, structural corrugated steel culverts/arches, misc. metals, concrete barriers, retaining walls, and all source acceptance testing; and
 - .2 All testing specified in the Contract Documents; and
 - .3 Any other testing required as a condition for deviation from the specified Contract procedures.
- .2 Testing proposed shall be based on testing requirements in the August 2007 Transportation Standard Specifications for Highway Construction Manual and subsequent updates.
- .3 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 Departmental Representative in advance to enable the Departmental Representative to witness test if 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 the tests, and the date of the tests.
- .4 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contact requirements.
- .5 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.
- .6 The minimum frequency for Quality Control during the embankment construction will be as follows:
 - .1 Embankment Construction with fine grained or granular soil - Standard Proctor by ASTM D698 - 1 per change in material or 1 per week, whichever is more frequent.

- .2 Embankment construction with fine grained or granular soil - Field density by: ASTM D1556 - Sand Cone, ASTM D1267 - Balloon, or ASTM D2922 - Nuclear. To be done 1 per 1000 m2 per lift, spaced randomly across full width of embankment.
- .3 Embankment construction with blasted rock or oversize granular - Field observation with daily field report, done full time during blasted rock placement

1.04 Quality Control Program

- .1 The Contractor shall prepare a Quality Control Program. The purpose of the program shall be to ensure the performance of the Work in accordance with the Contract requirements.
- .2 The Quality Control Program shall be described in a Quality Control Manual. The Contractor shall submit the Manual to the Departmental Representative for review in accordance to Section 01 33 00 - Submittal Procedures. The Manual shall develop a logical system for tracking and documenting the Quality Control of the Work. A systematic format and a set of procedures patterned on a recognized Quality Control Standard will be acceptable, subject to review by the Departmental Representative.
- .3 The Quality Control Manual shall include the following information:
 - .1 Distribution list, providing a list of names to whom the Manual shall be distributed
 - .2 Title page including Contract no, revision page with dates of revisions, and a Table of Contents
 - .3 Details of measuring and testing equipment and methods, including calibration
 - .4 Details of special processes as identified by the Departmental representative, including qualifications of personnel and certification.
 - .5 Procedures for shipping, packaging, and storage of materials and equipment.
 - .6 Procedures for maintaining quality of any non-conformance, including identification and recording of deficiencies, tagging procedures for "HOLD" or "REJECT" items, and final disposition of non-conformance forms by Quality Control Manager.
 - .8 Inspection and test checklists, including tabulated checklists describing all manufacturing and delivery activities such as Inspection or Test, frequency of tests, description of tests, acceptance criteria of tests, such as verification, witnessing or holding tests and sign-off by the Quality Control Manager and the Departmental Representative, if the Departmental Representative witnesses the tests.
 - .9 Forms used to ensure application of the inspection and test checklist requirements. These forms shall be identified in the checklists and describe all testing requirements for Specification compliance.
- .4 The Contractor shall appoint a Quality Control Manager who shall report regularly to the Contractor's management at a level which shall ensure the Quality Control requirements are not subordinated to manufacturing, construction or delivery. The Quality Control Manager shall be empowered by the Contractor to resolve quality matters.

- .5 The Quality Control Manual shall include samples of all forms to be filled in by the Quality Control Inspectors. All forms shall be signed by the Quality Control Manager and submitted promptly to the Departmental Representative who will add its review signature.
- .6 An independent check of all Work shall be performed by the Contractor. The Contractor shall appoint Quality Control Inspectors to ensure compliance of products and workmanship with Contract requirements. The same personnel may not be used to perform a given task and to check the quality and accuracy of the task.
- .7 At completion of the Work a bound and itemized copy of all Quality Control documents and reports shall be prepared by the Contractor's Quality Manager and submitted to the Departmental Representative.

1.05 INSPECTION

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

1.06 INDEPENDENT INSPECTION AGENCIES

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

1.07 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work, off site manufacturing and fabrication plants.
- .2 Co-operate to provide reasonable facilities for such access.

1.08 PROCEDURES

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

1.09 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner may deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Departmental Representative.

1.10 REPORTS

- .1 Submit 4 copies of inspection and test reports to Departmental Representative.

1.11 TESTS AND MIX DESIGNS

- .1 Furnish test results and mix designs as requested.

1.12 MILL TESTS

- .1 Submit mill test certificates as requested.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

Miette Hot Springs QUALITY CONTROL
Source Springs Rehabilitation
Hot Springs Enterprise Unit
PROJ NO:

SECTION 01 45 00
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1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Not Used

1.02 MEASUREMENT PROCEDURES

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

1.03 INSTALLATION AND REMOVAL

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

1.04 SITE STORAGE/LOADING

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

1.05 CONSTRUCTION PARKING/TEMPORARY ACCESS

- .1 Provide and maintain adequate access and parking at the project site in areas approved by the Departmental Representative. Parking areas are limited and the Contractor is encouraged to keep on-site parking of non-essential equipment and vehicles to a minimum.
- .2 Build and maintain temporary roads as required during period of Work in locations approved by the departmental representative. Any temporary roads that are constructed must be removed and the area rehabilitated back to original condition. All costs to construct, remove, and rehabilitate any constructions access/temporary roads will be the responsibility of the Contractor.
- .3 If authorized to use existing roads for access to project site, maintain such roads for duration of Contract and make good damage resulting from Contractor's use of roads.

1.06 SECURITY

- .1 If required by the Contractor, provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays. The Contractor is advised that some random acts of vandalism to equipment have occurred within the Park.

1.07 OFFICES

- .1 Provide office of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.

1.08 EQUIPMENT, TOOL AND MATERIALS STORAGE

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

1.09 SANITARY FACILITIES

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

1.10 CONSTRUCTION SIGNAGE

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

1.11 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.
- .3 Store materials resulting from demolition activities that are salvageable.
- .4 Stack stored new or salvaged material not in construction facilities.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 52 00 - Construction Facilities

1.02 MEASUREMENT PROCEDURES

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

1.03 INSTALLATION AND REMOVAL

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

1.04 HOARDING

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

1.05 GUARD RAILS AND BARRICADES

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

1.06 ACCESS TO SITE

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.

1.07 PUBLIC TRAFFIC FLOW

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

1.08 FIRE ROUTES

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

1.09 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

- .1 Protect surrounding private and public property from damage during performance of Work.
- .2 Be responsible for damage incurred.

Miette Hot Springs
Source Springs
Rehabilitation
Hot Springs Enterprise Unit
PROJ NO:

TEMPORARY BARRIERS AND
ENCLOSURES

SECTION 01 56 00
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2 PRODUCTS

2.01 NOT USED

.1 Not Used.

3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 45 00 - Quality Control.

1.02 REFERENCES

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

1.03 QUALITY

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality 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 disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based upon requirements of Contract Documents.

1.04 AVAILABILITY

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such

reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.05 STORAGE, HANDLING AND PROTECTION

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

1.06 TRANSPORTATION

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

1.07 MANUFACTURER'S INSTRUCTIONS

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

Time.

1.08 QUALITY OF WORK

- .1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to produce required results.
- .2 Do not employ anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site, workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative, whose decision is final.

1.09 CO-ORDINATION

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

1.10 CONCEALMENT

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

1.11 REMEDIAL WORK

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

1.12 FASTENINGS

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

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 32 18 - Construction Progress Schedules - Bar (GANTT) Chart

1.02 MEASUREMENT PROCEDURES

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

1.03 REFERENCES

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

1.04 QUALIFICATIONS OF SURVEYOR

- .1 Qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.

1.05 SURVEY REFERENCE POINTS

- .1 Existing base horizontal and vertical control points are designated on drawings.
- .2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.
- .3 Make no changes or relocations without prior written notice to Departmental Representative.
- .4 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
- .5 Require surveyor to replace control points in accordance with original survey control.

1.06 SURVEY REQUIREMENTS

- .1 Contractor is responsible for conducting original ground survey to be used as the basis for measurement for all quantities to be calculated against the contract units.
- .1 Contractor will be responsible for all staking and layout.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for grading, cut and fill.
- .4 Stake slopes and top of embankment as required during construction.

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 01 77 00 - Closeout Procedures.

1.02 MEASUREMENT PROCEDURES

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

1.03 PROJECT CLEANLINESS

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Owner or other Contractors.
- .2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site animal proof containers for collection of waste materials and debris.
- .5 Dispose of waste materials and debris off site.
- .6 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .7 Provide adequate ventilation during use of volatile or noxious substances.
- .8 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.04 FINAL CLEANING

- .1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris including that caused by Owner or other Contractors.

- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Inspect finishes, and ensure specified workmanship and operation.
- .8 Sweep and wash clean concreted areas.
- .9 Remove dirt and other disfiguration from exterior surfaces
- .10 Clean drainage systems

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

- .1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 74 11 - Cleaning.
- .2 Section 01 78 00 - Closeout Submittals.

1.02 MEASUREMENT PROCEDURES

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

1.03 ADMINISTRATIVE REQUIREMENTS

- .1 Acceptance of Work Procedures:
- .1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection.
- .2 Departmental Representative Inspection:
 - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct Work as directed.
- .3 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative, and Contractor.
 - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.

1.04 FINAL CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

Miette Hot Springs CLOSEOUT PROCEDURES
Source Springs Rehabilitation
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3 EXECUTION

3.01 NOT USED

.1 Not Used.

END OF SECTION

1 GENERAL

1.01 RELATED REQUIREMENTS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 - Quality Control.
- .3 Section 01 71 00 - Examination and Preparation
- .4 Section 01 77 00 - Closeout Procedures

1.02 MEASUREMENT PROCEDURES

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

1.03 AS -BUILT DOCUMENTS AND SAMPLES

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

1.04 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

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

- .1 Field changes of dimension and detail.
- .2 Changes made by change orders.
- .3 Details not on original Contract Drawings.
- .4 References to related shop drawings and modifications.

- .4 Specifications: mark each item to record actual construction, including:
 - .1 Changes made by Addenda and change orders.

- .5 Other Documents: maintain inspection certifications and field test records required by individual specifications sections.

1.05 FINAL SURVEY

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

1.06 WARRANTIES AND BONDS

- .1 Submit, warranty information made available during construction phase, to Departmental Representative for approval prior to each monthly pay estimate.

- .2 Assemble approved information in binder, submit upon acceptance of work and organize binder as follows:
 - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
 - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
 - .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers.
 - .4 Verify that documents are in proper form, contain full information, and are notarized.
 - .5 Co-execute submittals when required.
 - .6 Retain warranties and bonds until time specified for submittal.

- .3 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

2 PRODUCTS

2.01 NOT USED

- .1 Not Used.

3 EXECUTION

3.01 NOT USED

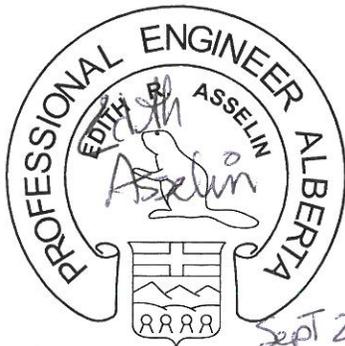
- .1 Not Used.

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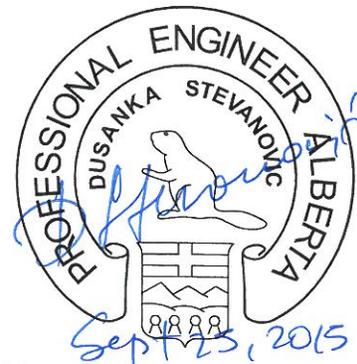
END OF SECTION

CONTRACT SPECIFICATIONS
FOR
PARKS CANADA - MIETTE HOT SPRINGS
SPRING SOURCE AND CISTERN INTAKE REPAIR
SEPTEMBER, 2015

Certification applies only to Technical Specification Sections 004100 to 444132



Edith Asselin, M.Eng., P.Eng., LEED AP
Project Manager



Dusanka Stevanovic, P.Eng.
Structural Engineer

ASSOCIATED ENGINEERING
QUALITY MANAGEMENT SIGN-OFF

Signature: [Signature]

Date: SEPT. 25, 2015

APEGA Permit to Practice P 3979

Prepared by Associated Engineering Ltd.

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DIVISION 03 - CONCRETE	
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END OF DOCUMENT

Part 1 General

1.1 REFERENCES

- .1 CSA International
 - .1 CSA S350, Code of Practice for Safety in Demolition of Structures.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit demolition plan:
 - .1 Submit for review and approval, plans showing proposed method and work procedure.
- .2 Sustainable Design Submittals:
 - .1 Submit for review and approval, Erosion and Sedimentation Control Plan.
- .3 Submittals are to be submitted to Departmental Representative in accordance with Specification 01 33 00 – Submittal Procedures.

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 EXAMINATION

- .1 Inspect site with Departmental Representative and verify extent and location of items designated for removal, disposal, alternative disposal, recycling, salvage and items to remain.
- .2 Locate and protect any utilities. Preserve active utilities traversing site in operating condition. It is understood that there are no utilities at the site, but this must be confirmed by the Contractor. Contractor is responsible for all locates of utilities and other related structures. Inform Departmental Representative of any utilities located, prior to commencing demolition.
- .3 Notify and obtain approval of utility companies before starting demolition.
 - .1 Immediately notify Departmental Representative and utility company concerned in case of damage to any utility or service, designated to remain in place.
 - .2 Immediately notify the Departmental Representative should uncharted utility or service be encountered, and await instruction in writing regarding remedial action.

3.2 PREPARATION

- .1 Temporary Erosion and Sedimentation Control:
 - .1 Provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to: sediment and erosion control plan, specific to site, that complies Parks Canada requirements.
 - .2 Inspect, repair, and maintain erosion and sedimentation control measures during demolition.
 - .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal after completion of demolition work.
- .2 Protection of In-Place Conditions:
 - .1 Prevent movement, settlement, or damage to adjacent structures, utilities, and landscaping features to remain in place. Provide bracing and shoring as required.
 - .2 Keep noise, dust, and inconvenience to Parks staff and visitors to minimum.
 - .3 Provide temporary dust screens, covers, railings, supports and other protection as required.
 - .4 Do Work in accordance with Section 01 35 29.06 - Health and Safety Requirements.
- .3 Demolition/Removal:
 - .1 Remove items as indicated.

3.3 CLEANING

- .1 Progress Cleaning:
 - .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment from site.
- .3 Refer to demolition drawings and specifications for items to be salvaged for reuse.
- .4 Waste Management: separate waste materials for recycling in accordance with Section 01 35 43 - Environmental Procedures.
 - .1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

END OF SECTION

Part 1 General

1.1 MEASUREMENT & PAYMENT

- .1 This work is considered incidental to the Work and shall not be measured for payment.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CAN/CSA-S269.3, Concrete Formwork, National Standard of Canada.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit shop drawings for formwork and falsework.
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Alberta, Canada.

Part 2 Products

2.1 MATERIALS

- .1 Formwork materials:
 - .1 Forms for exposed surfaces:
 - .1 Use 18 mm Coated Formply consisting of Douglas Fir substrate with resin-impregnated paper overlay and factory treated chemically active release agent.
 - .2 Use full-sized sheets as practical.
 - .3 Obtain approval of Departmental Representative prior to the reuse of any form.
 - .4 Support pours less than 1.5 m height at 300 mm maximum on centres.
 - .5 Support pours greater than 1.5 m height at 200 mm maximum on centre.
 - .6 Use strong-backs or walers placed perpendicular to supports to ensure straightness of form.
 - .7 Construct metal bolts or anchorages within the form so as to allow their removal to a depth of at least 20 mm from the concrete surface.
 - .8 Remove plastic sleeves for a distance of 100 mm from the face of the concrete and fill cavity with a non-shrink grout approved by the Departmental Representative to 75 mm from the surface. Fill remaining 75 mm with an approved concrete patching material.
 - .2 Forms for unexposed surfaces:
 - .1 Use 15 mm plywood supported at 400 mm maximum on centre.

Part 3 Execution

3.1 FABRICATION AND ERECTION

- .1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.
- .2 Hand trim sides and bottoms and remove loose earth from earth forms before placing concrete.
- .3 Fabricate and erect falsework in accordance with CSA S269.1.
- .4 Refer to drawings for required finishes.
- .5 Do not place shores and mud sills on frozen ground.
- .6 Provide site drainage to prevent washout of soil supporting mud sills and shores.
- .7 Fabricate and erect formwork in accordance with CAN/CSA-S269.3 to produce finished concrete conforming to shape, dimensions, locations and levels indicated within tolerances required by CSA-A23.1/A23.2.
- .8 Align form joints and make watertight.
 - .1 Keep form joints to minimum.
- .9 Use 25 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise.
- .10 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .11 Build in anchors, sleeves, and other inserts required to accommodate Work specified in other sections.
 - .1 Ensure that anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.
- .12 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 CSA International
 - .1 CSA-A23.1/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CAN/CSA-A23.3, Design of Concrete Structures.
 - .3 CSA-G30.18, Carbon Steel Bars for Concrete Reinforcement.
 - .4 CSA-G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .5 CAN/CSA-G164, Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .6 ASTM A955/A955M, ASTM A276.
- .2 Reinforcing Steel Institute of Canada (RSIC)
 - .1 RSIC-2004, Reinforcing Steel Manual of Standard Practice.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare reinforcement drawings in accordance with RSIC Manual of Standard Practice.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Alberta, Canada.
 - .1 Indicate placing of reinforcement and:
 - .1 Bar bending details.
 - .2 Lists.
 - .3 Quantities of reinforcement.
 - .4 Sizes, spacings, locations of reinforcement and mechanical splices if approved by Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings.
 - .2 Detail lap lengths and bar development lengths to CAN/CSA-A23.3, unless otherwise indicated.
- .4 When Chromate solution is used as replacement for galvanizing non-prestressed reinforcement, provide product description for review by Departmental Representative prior to its use.

1.3 QUALITY ASSURANCE

- .1 Submit in accordance with Section 01 45 00 - Quality Control and as described in PART 2 - SOURCE QUALITY CONTROL.
 - .1 Mill Test Report: provide Departmental Representative with certified copy of mill test report of reinforcing steel, minimum 2 weeks prior to beginning reinforcing work.
 - .2 Upon request submit in writing to Departmental Representative proposed source of reinforcement material to be supplied.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
 - .1 Store materials in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
 - .2 Replace defective or damaged materials with new.

Part 2 Products

2.1 MATERIALS

- .1 Substitute different size bars only if permitted in writing by Departmental Representative.
- .2 Reinforcing steel: Reinforcing material shall be stainless steel reinforcing conforming to the requirements of ASTM A955/A955M, ASTM A276. The minimum yield strength shall be 420 MPa. Solid stainless reinforcing steel shall be of designation S31653, S31603, S31803, S30400, S32304, or S24100 as defined by the Unified Numbering System (UNS). Only one type of stainless steel shall be used throughout the project unless specified otherwise.
- .3 Cold-drawn annealed stainless steel wire ties: same grade as reinforcing.
- .4 Chairs, bolsters, bar supports, spacers: to CSA-A23.1/A23.2.
- .5 Mechanical splices: subject to approval of Departmental Representative.

2.2 FABRICATION

- .1 Stainless steel reinforcement shall be produced and tested in accordance with the applicable standard and proof of compliance shall be submitted to the Departmental Representative for review and acceptance prior to placement of any reinforcing steel.
- .2 Obtain Departmental Representative's written approval for locations of reinforcement splices other than those shown on placing drawings.
- .3 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

2.3 SOURCE QUALITY CONTROL

- .1 Upon request, provide Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis, minimum 2 weeks prior to beginning reinforcing work.
- .2 Upon request inform Departmental Representative of proposed source of material to be supplied.

Part 3 Execution

3.1 FIELD BENDING

- .1 Do not field bend or field weld reinforcement except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying slow and steady pressure.
- .3 Replace bars, which develop cracks or splits.

3.2 PLACING REINFORCEMENT

- .1 Place reinforcing steel as indicated on placing drawings in accordance with CSA-A23.1/A23.2.
- .2 Prior to placing concrete, obtain Departmental Representative's approval of reinforcing material and placement.
- .3 Ensure cover to reinforcement is maintained during concrete pour.

3.3 CLEANING

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

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 CSA International
 - .1 CSA-A23.1/A23.2-2004, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA A3000-08, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).
 - .3 CAN/CSA-G30.18, Billet-Steel Bars for Concrete Reinforcement.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Shop Drawings:
 - .1 Submit placing drawings prepared in accordance with plans to clearly show size, shape, location and necessary details of reinforcing.
- .3 Provide testing results for review by Departmental Representative and do not proceed without written approval when deviations from mix design or parameters are found.
- .4 Concrete hauling time: provide for review by Departmental Representative deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching.

1.3 QUALITY ASSURANCE

- .1 Provide to Departmental Representative, 2 weeks minimum prior to starting concrete work, valid and recognized certificate from plant delivering concrete.
 - .1 Quality Control Plan: provide written report to Departmental Representative verifying compliance that concrete in place meets performance requirements.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Concrete hauling time: deliver to site of Work and discharged within 120 minutes maximum after batching.
 - .1 Do not modify maximum time limit without receipt of prior written agreement from Consultant and concrete producer as described in CSA A23.1/A23.2.
 - .2 Deviations to be submitted for review by the Departmental Representative.
- .2 Concrete delivery: ensure continuous concrete delivery from plant meets CSA A23.1/A23.2.

Part 2 Products

2.1 DESIGN CRITERIA

- .1 Alternative 1 - Performance: to CSA A23.1/A23.2, and as described in MIXES of PART 2 - PRODUCTS.

2.2 MATERIALS

- .1 Cement: to CSA A3001, Type GU.
- .2 Water: to CSA A23.1/A23.2.
- .3 Reinforcing bars: to CAN/CSA-G30.18, Grade 400.
- .4 Aggregates: Fine and coarse aggregates: to CAN/CSA-A23.1, stockpiled separately.
- .5 Water reducing agents and superplasticizers: to ASTM C494.
- .6 Air entraining agents: to ASTM C260
- .7 Hydration stabilizing admixtures: to ASTM C494. Permitted only with written acceptance from the Departmental Representative.

2.3 MIXES

- .1 Submit a concrete mix design including applicable material test reports for the Departmental Representative's review a minimum of 2 weeks before concrete placement.
 - .1 Mix designs:
 - .1 Prepared by Concrete Testing Laboratory:
 - .1 Laboratory certified to CAN/CSA-A283
 - .2 Signed and sealed by Professional Engineer registered in the Province of Alberta employed by laboratory certified to CAN/CSA-A283.
 - .2 Prepared by supplier:
 - .1 Reviewed for compliance, signed and sealed by Professional Engineer registered in the Province of Alberta employed by an independent concrete laboratory certified to CAN/CSA-A283.
 - .2 Required mix properties:
 - .1 Minimum specified compressive strength at 28 days: 35 MPa.
 - .2 Nominal maximum aggregate size: 20 to 5 mm.
 - .3 Range of slump: 100±30 mm.
 - .4 Total air content: 5%-8%.
 - .5 Maximum water/cementing materials ratio: 0.40.
 - .3 Material tests:
 - .1 Fine and coarse aggregate sieve: CAN/CSA-A23.2-2A within 90 days.
 - .2 Amount of material finer than 80µm in aggregate: CAN/CSA-A23.2-5A within 90 days.

- .3 Organic impurities in sands for concrete: CAN/CSA-A23.2-7A within 90 days.
- .4 Results of deleterious substances and physical properties of aggregates: Table 12, CAN/CSA-A23.1; A23.2-3A, A23.2-4A, A23.2-23A, A23.2-24A, A23.2-29A within 180 days.
- .5 Potential expansivity of aggregates: CAN/CSA A23.2-14A within 24 months.
- .6 Detection of alkali-silica reactive aggregate by accelerated expansion of mortar bars: CAN/CSA A23.2-25A within 12 months.

Part 3 Execution

3.1 PREPARATION

- .1 Provide Departmental Representative 48 hours' notice before each concrete pour.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 During concreting operations:
 - .1 Development of cold joints not allowed.
 - .2 Ensure concrete delivery and handling facilitates placing with minimum of rehandling, and without damage to existing structure or Work.
- .4 Protect previous Work from staining.
- .5 Clean and remove stains prior to application of concrete finishes.

3.2 INSTALLATION/APPLICATION

- .1 Do cast-in-place concrete work in accordance with CSA A23.1/A23.2.
- .2 Sleeves and inserts:
 - .1 Cast in sleeves, ties, slots, anchors, reinforcement, frames, conduit, bolts, waterstops, joint fillers and other inserts required to be built-in.
 - .2 Sleeves and openings greater than 100 mm x 100 mm not indicated, must be reviewed by Departmental Representative.

3.3 FINISHES

- .1 Formed surfaces exposed to view: sack rubbed finish in accordance with CSA A23.1/A23.2.

3.4 FIELD QUALITY CONTROL

- .1 Concrete testing: to CSA A23.1/A23.2 by testing laboratory approved by Consultant and paid for by Contractor.

3.5 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning and Section 01 35 43 - Environmental Procedures.
- .2 Use trigger operated spray nozzles for water hoses.

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- .3 Designate cleaning area for tools to limit water use and runoff.
 - .4 Cleaning of concrete equipment to be done in accordance with Section 01 35 43 Environmental Procedures.
 - .1 Provide appropriate area on job site where concrete trucks can be safely washed.
 - .2 Divert admixtures and additive materials from landfill to approved official hazardous material collections site after receipt of written approval from Departmental Representative.
 - .3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other location where it will pose health or environmental hazard.

END OF SECTION

Part 1 General

1.1 GENERAL

- .1 This section contains detailed piping and valve specifications.

Part 2 Products

2.1 GENERAL

- .1 Line Code H1 as follows:

SERVICE: As shown on the drawings		LINE CODE: H1
PRIMARY FLANGE RATING: CLASS 150		DESIGN PRESSURE: 1050 kPa
TEMPERATURE (MAX): 40°C		CORROSION ALLOWANCE: N/A
ITEM	SIZES	GENERAL DESCRIPTION
Pipe	All sizes	Austenitic stainless steel to ASTM A312 Grade TP316, Sch. 40, Sch. 10S.
Fittings	All sizes	Forged stainless steel to ASTM A182, F316/316L, or A403 Grade WP 316/316 L-S.
	65mm & larger	Stainless steel A403 or factory-fabricated from ASTM A312 stainless steel pipe. Victaulic.
Flanges	All sizes	316 stainless steel to ANSI B16.5 Class 150
Bolts	All sizes	To ASTM A193 Grade B8M, Class 2.
Nuts	All sizes	Semi-finished, hex head to ASTM A194, Grade 8MA.
Gaskets	All sizes	To ASTM 16.21 non-metallic, flat gaskets.
Check Valves	80 mm to 450 mm	Description: wafer body, suitable for installation between ANSI 125/150 flanges, stainless steel body and hinge, stainless steel trim and seat. Products: Checkrite wafer check valve Model 15XMZ or approved alternate.
Ball Valves	40 mm to 150 mm	Description: 2-piece full port stainless steel ball valve, flanged end connection. Products: Flow-Tek series F15 or approved alternate.
Strainers	50 mm & smaller	Description: ASTM A351 stainless steel body and cover, stainless steel screen, flanged end, Products: Model YF150SS supplied by Sure Flow Equipment Inc. or approved alternate.
Flexible Coupling	100 mm to 400 mm	Description: Type 316 Stainless Steel flexible coupling. Products: Dresser Style 38 or as approved alternate.

Grooved Joints: Install in accordance with the manufacturer’s latest published installation instructions. Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to (and including) groove. Gasket shall be manufactured by the coupling manufacturer and verified as suitable for the intended service. A factory trained representative (direct employee) of the coupling manufacturer shall provide on-site training for contractor’s field personnel in the use of grooving tools, application of groove, and product installation. The representative shall periodically visit the job site and review installation to ensure best

SERVICE: As shown on the drawings	LINE CODE: H1	
PRIMARY FLANGE RATING: CLASS 150	DESIGN PRESSURE: 1050 kPa	
TEMPERATURE (MAX): 40°C	CORROSION ALLOWANCE: N/A	
ITEM	SIZES	GENERAL DESCRIPTION
practices in grooved joint installation are being followed. Contractor shall remove and replace any improperly installed products.		

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION