

SECTION 01 11 00	SUMMARY OF WORK.....	4
SECTION 01 14 00	WORK RESTRICTIONS.....	8
SECTION 01 21 00	ALLOWANCES .....	13
SECTION 01 25 20	MOBILIZATION AND DEMOBILIZATION .....	15
SECTION 01 29 00	PAYMENT PROCEDURES.....	16
SECTION 01 29 01	SITE OCCUPANCY .....	18
SECTION 01 31 00	PROJECT MANAGING AND COORDINATION .....	19
SECTION 01 32 16.07	CONSTRUCTION PROGRESS SCHEDULE-BAR (GANTT) CHART .....	24
SECTION 01 33 00	SUBMITTAL PROCEDURES .....	28
SECTION 01 35 00.06	SPECIAL PROCEDURES FOR TRAFFIC CONTROL .....	35
SECTION 01 35 29.06	HEALTH AND SAFETY REQUIREMENTS .....	39
SECTION 01 35 33	SPECIAL PROCEDURES FOR BRIDGE REHABILITATION .....	43
SECTION 01 35 43	ENVIRONMENTAL PROCEDURES .....	45
SECTION 01 45 00	QUALITY MANAGEMENT .....	54
SECTION 01 51 00	TEMPORARY UTILITIES.....	60
SECTION 01 52 00	CONSTRUCTION FACILITIES .....	63
SECTION 01 56 00	TEMPORARY BARRIERS AND ENCLOSURES.....	67
SECTION 01 61 00	COMMON PRODUCT REQUIREMENTS .....	69
SECTION 01 74 11	CLEANING .....	72
SECTION 01 77 00	CLOSEOUT PROCEDURES .....	74
SECTION 01 78 00	CLOSEOUT SUBMITTALS .....	76
SECTION 02 81 01	HAZARDOUS MATERIALS.....	79
SECTION 03 10 00	CONCRETE FORMING AND ACCESSORIES .....	82
SECTION 03 30 00	CAST-IN-PLACE CONCRETE .....	85

## DRAWINGS

### TCH KM 13.1 EASTBOUND

- 101 COVER SHEET, DRAWING LIST & LOCATION MAP
- 102 GENERAL ARRANGEMENT
- 103 EXPANSION JOINT DETAILS - 1 OF 2
- 104 EXPANSION JOINT DETAILS - 2 OF 2

### TCH KM 23 EASTBOUND

- 201 COVER SHEET, DRAWING LIST & LOCATION MAP
- 202 GENERAL ARRANGEMENT
- 203 EXPANSION JOINT DETAILS - 1 OF 2
- 204 EXPANSION JOINT DETAILS - 2 OF 2

## REFERENCE DRAWINGS

### TCH KM 13.1 EASTBOUND - 1984 ORIGINAL DESIGN

- 1 OF 28 GENERAL ARRANGEMENT
- 5 OF 28 WEST ABUTMENT PLANS
- 6 OF 28 EAST ABUTMENT PLANS
- 7 OF 28 ABUTMENT ELEVATIONS
- 8 OF 28 ABUTMENT DETAILS SHEET 1
- 9 OF 28 ABUTMENT DETAILS SHEET 2
- 10 OF 28 ABUTMENT DETAILS SHEET 3
- 14 OF 28 DECK PLAN
- 15 OF 28 SOUTH DECK FLANGE PLANS WEST END
- 16 OF 28 SOUTH DECK FLANGE PLANS EAST END
- 17 OF 28 DECK DETAILS SHEET 1
- 18 OF 28 DECK DETAILS SHEET 2
- 19 OF 28 WEB POST-TENSIONING SHEET 1
- 20 OF 28 WEB POST-TENSIONING SHEET 2
- 23 OF 28 ABUTMENT DIAPHRAGM SHEET 1
- 24 OF 28 ABUTMENT DIAPHRAGM SHEET 2
- 25 OF 28 ABUTMENT DIAPHRAGM SHEET 3
- 26 OF 28 EXPANSION JOINTS SHEET 1
- 27 OF 28 EXPANSION JOINTS SHEET 2
- W84-264- 1 THRU 5 EXPANSION JOINT SHOP DRAWINGS

TCH KM 23 EASTBOUND - 1984 ORIGINAL DESIGN

2 OF 14 GENERAL LAYOUT

5 OF 14 ABUTMENTS FORMING, PLANS AND SECTIONS

6 OF 14 ABUTMENTS REINFORCING, PLANS AND SECTIONS

7 OF 14 PARTIAL DECK PLAN AND SECTION

8 OF 14 DIAPHRAGM SECTIONS AND DETAILS

10 OF 14 EXPANSION JOINT AND BEARING DETAILS

E-3524-1-7 ELASTOMETAL SA-500 EXPANSION JOINT

E-3524-1-8 BARRIER DETAILS

SECTION 01 11 00 SUMMARY OF WORK

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 14 00 - Work Restrictions.
- .2 Section 01 29 01 - Site Occupancy.
- .3 Section 01 33 00 - Submittal Procedures.
- .4 Section 01 35 00.06 - Special Procedures for Traffic Control.
- .5 Section 01 35 33 - Special Procedures for Bridge Rehabilitation.
- .6 Section 01 35 43 - Environmental Procedures.

**1.2 REFERENCES**

- .1 Reference information is provided for the Contractor's general information. It is the responsibility of the Contractor to verify the accuracy of any information contained on them.

**1.3 WORK COVERED BY CONTRACT DOCUMENTS**

- .1 Work of this Contract comprises rehabilitation work of the bridges at km 13.1 Eastbound (Minnewanka) and km 23 Eastbound on the Trans-Canada Highway located in Banff National Park, Alberta.
- .2 Preparation of an Environmental Protection Plan for the Work
  - .1 Prior to commencement of the bridge rehabilitation work, an "Environmental Protection Plan" (EPP) is to be prepared and followed by the successful Contractor to meet the requirements of Section 01 35 43 - Environmental Procedures, and to ensure that any adverse effects are minimal. The Contractor's EPP must be approved by the Departmental Representative on behalf of Parks Canada Agency (PCA) prior to the commencement of construction. The Departmental Representative and Parks Canada's Environmental Surveillance Officer (ESO) will refer to the approved EPP in determining compliance with the plan and contract specifications. The EPP will form part of this contract.
- .3 Without limiting the scope of work, the work of this Contract generally comprises the following:
  - .1 Mobilization and site preparation
  - .2 Project management and coordination
  - .3 Traffic management during construction
  - .4 Quality control and quality assurance of all construction activities
  - .5 At KM 13.1 EB
    - .1 Removal and disposal of existing deck joints.

- .2 Supply, fabrication and installation of new strip seal deck joints.
- .6 At KM 23 EB
  - .1 Removal and disposal of the existing east deck joint.
  - .2 Supply, fabrication and installation of new strip seal deck joint.
- .4 Demobilization

#### **1.4 CONTRACT METHOD**

- .1 Construct Work under a Lump Sum Price contract.

#### **1.5 WORK BY OTHERS**

- .1 Where it is necessary that work is to proceed in areas of this project common to both the Contractor and forces of other, the Contractor shall cooperate with the other Contractors, sharing his work space, and shall coordinate his operations with the other Contractors, including traffic management.

#### **1.6 WORK SEQUENCE**

- .1 Schedule Work progress to accommodate Owner/Departmental Representative's unrestricted access to inspect all phases of the Work.
- .2 Maintain fire and emergency access on the roadways at all times.
- .3 Required stages:
  - .1 Work at KM 13.1 and KM 23 shall be completed prior to 2013 October 31.
  - .2 Substantial Completion - October 15 2013.
  - .3 Final Completion - October 31 2013.
- .4 Work shall be carried out in accordance with Section 01 14 00 - Work Restrictions and Section 01 35 43 - Environmental Procedures.
- .5 Construct Work in stages to provide for continuous public usage. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.

#### **1.7 CONTRACTOR USE OF PREMISES**

- .1 Limit use of premises for Work, for storage, and for access, to allow:
  - .1 Owner occupancy.
  - .2 Work by other contractors.
- .2 Co-ordinate use of premises under direction of the Departmental Representative.
- .3 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.
- .4 The Contractor and any Subcontractors shall obtain a business license from the Parks Canada Tourist Information Centre in Banff, prior to commencement of the Work.

- .5 All Contractor's business and private vehicles are required to obtain a vehicle work pass from Parks Canada. These permits may be obtained at the Parks Canada Tourist Information Centre in Banff.
- .6 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by the Departmental Representative.
- .7 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

#### **1.8 OWNER OCCUPANCY**

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

#### **1.9 CONSTRUCTION SIGNAGE**

- .1 No sign 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 project, and dispose of off-site on completion of project or earlier if directed by the Departmental Representative.
- .4 All temporary traffic control signs that are used for longer than one day shall be mounted on wood posts.
- .5 Signage shall be coordinated with other contractors working in the area.

#### **1.10 DOCUMENTS REQUIRED**

- .1 Maintain at job site, one copy each document as follows:
  - .1 Environmental Protection Plan (EPP).
  - .2 Contract Drawings.
  - .3 Specifications.
  - .4 Addenda.
  - .5 Reviewed Shop Drawings.
  - .6 List of Outstanding Shop Drawings.
  - .7 Change Orders.
  - .8 Other Modifications to Contract.
  - .9 Field Test Reports.
  - .10 Copy of Approved Work Schedule.

- .11 Health and Safety Plan and Other Safety Related Documents.
- .12 Other documents as specified.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

SECTION 01 14 00 WORK RESTRICTIONS

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 31 00 - Project Management and Coordination.
- .3 Section 01 35 00.06 - Special Procedures for Traffic Control.
- .4 Section 01 35 33 - Special Procedures for Bridge Rehabilitation.
- .5 Section 01 35 43 - Environmental Procedures.
- .6 Section 01 56 00 - Temporary Barriers and Enclosures.

**1.2 ACCESS AND EGRESS**

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders, and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Provide for pedestrian, cyclist, and vehicular traffic for the duration of the Work.
- .3 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

**1.3 USE OF SITE AND FACILITIES**

- .1 The Work Sites shall be specified by the Departmental Representative and shall only be used for the purposes of the Work. The Work Sites will be made available by Parks Canada to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.
- .2 While the Work Sites are under the Contractor's control, the Contractor shall be entirely responsible for the security of the Work Sites and of the Work, and for the security of the work of Other Contractors located on the Work Sites.
- .3 The Contractor shall keep the Work Sites clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary for the performance and inspection of the Work.
- .4 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with the Departmental Representative to facilitate work as stated.
- .5 Traffic restrictions shall be in accordance with Section 01 35 00.06 - Special Procedures For Traffic Control.



- .6 Office/tool trailer may be set up near the bridge sites at a location approved by the Departmental Representative.
- .7 The Contractor shall provide sanitary facilities for work force in accordance with governing regulations and the Environmental Procedures for this project. The Contractor shall post notices and take such precautions as required by local health authorities and keep area and premises in sanitary condition.
- .8 Any damage to the Work Sites caused by the Contractor shall be repaired by the Contractor at its expense.

#### **1.4 UTILITIES**

- .1 Notify the Departmental Representative and utility companies of intended interruption of services and obtain required permissions.
- .2 The locations of Utilities, if any, shown or not shown on the Drawings, are subject to verification by the Contractor.
- .3 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 that they are preserved.
- .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 advise and obtain written approval for the intended methods of preserving the Utilities during Construction from all affected Utility Owners a minimum three (3) weeks prior to affecting any Utility. The Contractor shall keep the Departmental Representative informed of all communications with the Utility companies and authorities at the Construction Progress meetings.
- .5 The Contractor shall immediately report any damage to Utilities to the Departmental Representative and to the Utility company or authority affected, and shall promptly undertake such remedial measures as are necessary at no additional cost to the Owner.

#### **1.5 SURVEY OF EXISTING PROPERTY CONDITIONS**

- .1 Submission of a tender is deemed to be confirmation that the Contractor has inspected the site and is completely familiar with all conditions or restrictions affecting execution and completion of work.
- .2 The Contractor shall regularly monitor the condition of the Work Site and of property on and adjoining the Work Site throughout the construction period, and shall immediately notify the Departmental Representative 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.

#### **1.6 PROTECTION OF PERSONS AND PROPERTY**

- .1 The Contractor shall comply with all applicable safety regulations of the Workers' Compensation Board of Alberta (WCB of AB), the Provincial OH&S Act and

Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.

- .2 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or adjacent to the Work Site to the extent that may be affected by conduct of work.
- .3 The Contractor shall promptly take such measures as are required to repair, replace or compensate for any loss or damage caused by the Contractor to any property or, if Parks Canada so directs, shall promptly reimburse to Parks Canada the costs resulting from such loss or damage.

#### **1.7 USE OF PUBLIC AREAS**

- .1 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas.
- .2 All vehicles and equipment leaving the Work Site and entering public roadways shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle.
- .3 All vehicles arriving at or leaving the Work Site and transporting materials shall be loaded in a manner which will prevent dropping of materials or debris on the roadways, and where contents may otherwise be blown off during transit such loads shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas shall be removed or cleaned immediately by the Contractor at its own expense.
- .4 All activities shall be in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .5 Hauling units are not to exceed legal highway load limits.

#### **1.8 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 Deputy Project Superintendent;
- .3 Health and Safety Coordinator.
- .2 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.
- .3 The Project Superintendent shall nominate a Deputy Project Superintendent who shall have the authority of the Project Superintendent during the latter's absence.

- .4 Health and Safety Co-ordinator must:
  - .1 Have minimum 2 years 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.

#### **1.9 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 to be held on site after award notification. This meeting shall be attended by senior representatives of the Owner, the Departmental Representative, Contractor, major subcontractors and field inspectors.
- .3 Progress and status meetings will be held on a weekly basis.
- .4 Cost of attending the above meetings shall be considered incidental to the Contract items and no additional payment will be made.

#### **1.10 WASTE DISPOSAL**

- .1 Refer to Section 01 35 43 - Environmental Procedures.
- .2 All surplus, unsuitable and waste materials shall be removed from the job site to approved sites outside Banff National Park unless specified otherwise in other sections of these Specifications.
- .3 Deposits of any construction debris into any waterway are strictly forbidden.
- .4 Cost for waste disposal described above shall be considered incidental to the Contract items and no additional payment will be made.

#### **1.11 WORK STOPPAGE**

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

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 21 00 ALLOWANCES

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Prime Cost Sum.
- .2 Measurement procedures.

**1.2 PRIME COST SUM**

- .1 Include in Contract Price a Prime Cost Sum of \$100,000.
- .2 The Contract Price, and not Prime Cost Sum, includes Contractor's overhead and profit in connection with such prime cost sum.
- .3 Prime Cost Sum provided for in the lump sum arrangement table is not a sum due to the Contractor. Rather, payment will be made against it for miscellaneous work not included in the unit price table under the General Conditions of the Contract.
- .4 Prime Cost sum items may include but are not limited to:
  - .1 Deck repairs at Sunshine Overpass TCH km 25.5.
  - .2 Deck joint replacement at TCH km 6.4 Eastbound and Westbound Bridges.
  - .3 Deck joint replacement at TCH km 10.2 Eastbound Bridge.
  - .4 Additional repairs as directed by the Departmental Representative.
- .5 Once a Prime Cost Sum item has been agreed upon with Parks Canada, it shall be included as an item on the Project Schedule. This shall occur on the next update of the Project Schedule.

**1.3 MEASUREMENT PROCEDURES**

- .1 Payment for work under the Prime Cost Sum will be made using negotiated rates or by material, labour and equipment rates as per the following:
  - .1 Rental rates will be in accordance with current Alberta Roadbuilders and Heavy Construction Association rate schedule, and will be all inclusive and fully operated. Hourly rental of equipment will be measured in actual working time and necessary travel time within project limits.
  - .2 Transportation time to and from site to be reimbursed only if equipment is exclusively used for additional work.
  - .3 Labour rates and material costs shall be paid in accordance with the General Conditions.

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 25 20 MOBILIZATION AND DEMOBILIZATION

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 Description.
- .2 Measurement and Payment procedures.

**1.2 DESCRIPTION**

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

**1.3 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 The measurement and payment procedure for this Mobilization and Demobilization shall meet the requirements in Section 01 29 00 - Payment Procedures.

**END OF SECTION**

SECTION 01 29 00 PAYMENT PROCEDURES

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 - Work Restrictions.
- .3 Section 01 21 00 - Allowances.
- .4 Section 01 25 20 - Mobilization and Demobilization.
- .5 Section 01 35 14 - Special Procedures for Traffic Control.
- .6 Section 03 30 00 - Cast in Place Concrete.

**1.2 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 All work required to complete the Work but not paid for from the Price Cost Sum allowance (Section 01 21 00 – Allowances) shall be included in the Lump Sum Arrangement. No measurement or payment will be made for work considered incidental to this contract unless the Departmental Representative certifies that such extra expense is directly attributable to unforeseeable deterioration or existing condition of the existing structure substantially different than that indicated by the drawings and specifications.
- .2 The Work completed under the Lump Sum Arrangement shall include, but not be limited to, the following tasks as listed in the Lump Sum Price Breakdown:
  - .1 **Mobilization and Demobilization**
    - .1 Mobilization and Demobilization consists of preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, buildings, shops, offices, supplies and incidentals to and from the project site.
    - .2 Payment shall be made under “Lump Sum Price Item 1 – Mobilization / Demobilization”.
    - .3 50% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
    - .4 The remainder of the Lump Sum Price for 2013 Mobilization and Demobilization to be paid when work is complete and all materials, equipment, camp, buildings, shops, offices, and other facilities have been removed from site and site cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.
    - .5 Payment of only 10% of the total price tendered will be scheduled as outlined above. If the amount bid for Mobilization and Demobilization is greater than 10% of the total price tendered, payment of the remainder of the amount will be authorized when the contract has been completed.



- .2 **Traffic Management** includes the preparation and implementation of traffic management plans for the Contractor to meet the requirements of Section 01 35 14 - Special Procedures for Traffic Control. Payment will be as per the lump sum price in the Lump Sum Price Arrangement Table, pro-rated monthly over the duration of the Work.
- .3 **Removal of Existing Deck Joints** includes all costs of labour, materials, equipment, tools, environmental requirements, safety requirements, submittals and associated Work required to remove, haul, and properly dispose of the existing deck joints and barrier cover plates, including surrounding concrete in blockout areas, as indicated on the drawings. Payment will be as per the lump sum price in the Lump Sum Price Arrangement Table, pro-rated by the portion of the Work acceptably completed.
- .4 **Supply and Installation of New Deck Joints** includes all costs of labour, materials including all concrete and reinforcing steel in the block-out areas, equipment, tools, environmental requirements, safety requirements, submittals and associated Works required to fabricate, deliver and install the deck joints and barrier cover plates as shown on the drawings. Payment will be as follows:
  - .1 40% of the lump sum price indicated in the Lump Sum Price Arrangement Table, upon receipt and acceptance of the deck joints at the site.
  - .2 40% of the lump sum price indicated in the Lump Sum Price Arrangement Table when the decks joints are installed and accepted by the Departmental Representative.
  - .3 The remainder of the lump sum price in the Lump Sum Price Arrangement Table will be made when the seals are acceptably installed and the deck joints have been successfully leak tested in the presence of the Departmental Representative.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 01 29 01 SITE OCCUPANCY

**Part 4 General**

**4.1 SECTION INCLUDES**

- .1 Definition of Site Occupancy.

**4.2 RELATED SECTIONS**

- .1 SACC R2850D GC 5.10
- .2 Section 01 11 00 – Summary of Work Clause 1.6 - Work Sequence

**4.3 DEFINITION OF OCCUPANCY**

- .1 OCCUPANCY– Contract Completion Date:
  - .1 Notwithstanding SACC R2850D - GC 5.10, the Contractor shall be permitted to lease and occupy sites where he will be working in Banff National Park, free of charge from contract award up to and including the Contract Completion date of 2013 October 31 (Section 01 11 00 – Summary of Work - Work Sequence). The sites to be leased by the Contractor include all the roads and areas specified in this contract and as directed by the Departmental Representative.
  - .2 If the Contractor has not completed the work identified in the contract by 2013 October 31 (Section 01 11 00 – Summary of Work - Work Sequence) to the satisfaction of the Departmental Representative, a site lease fee of \$1,500.00 per calendar day shall be payable by the Contractor to Parks Canada. The site lease fee shall be payable for each and every calendar day, commencing 2013 October 31, and continuing until the Contractor has completed the work and is no longer occupying the sites to a maximum of 10 days or \$15,000.00. No allowances shall be made for days of inclement weather, equipment breakdown or any reasons outside of the Contractor's control.
  - .3 If the Contractor has completed the work identified in the contract prior to 2013 October 31 (Section 01 11 00 – Summary of Work - Work Sequence), to the satisfaction of the Departmental Representative, Parks Canada will pay the Contractor an amount equal to site lease fee of \$1,500.00 per calendar day times the number of days the Contractor has completed work and is no longer occupying the sites, prior to the specified completion 2013 October 31. The maximum amount payable by Parks Canada to the Contractor shall be \$15,000.00.
  - .4 The Contractor's occupancy of the site will be deemed to have ended, when both of the following conditions are met to the satisfaction of Parks Canada:
    - .1 All the work identified under this contract has been completed.
    - .2 All sites clean up including completed demobilization and camp removal, and any outstanding deficiencies have been addressed to the satisfaction of the Departmental Representative.

**END OF SECTION**

SECTION 01 31 00 PROJECT MANAGING AND COORDINATION

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 - Work Restrictions.
- .3 Section 01 32 18 - Construction Progress Schedule – Bar (Gantt) Chart
- .4 Section 01 33 00 - Submittal Procedures.
- .5 Section 01 35 43 - Environmental Procedures.
- .6 Section 01 52 00 - Construction Facilities.

**1.2 COORDINATION**

- .1 Coordinate Work with the Work of other Contractors, and Work by Owner, under instructions of the Departmental Representative.

**1.3 PROJECT MEETINGS**

- .1 Attend weekly project meetings throughout progress of Work as scheduled by the Departmental Representative.
- .2 Attend pre-installation meetings when specified in sections and when required to coordinate related or affected Work as scheduled by the Departmental Representative.
- .3 Provide physical space and make arrangements for meetings.

**1.4 CONSTRUCTION ORGANIZATION AND START-UP**

- .1 Within seven (7) days after award of Contract, a meeting of parties in Contract will be called by the Departmental Representative to discuss and resolve administrative procedures and responsibilities.
  - .1 Senior representatives of the Owner, the Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
  - .2 Agenda to include following:
    - .1 Appointment of official representative of participants in Work.
    - .2 Schedule of Work, progress scheduling in accordance with Section 01 32 16.07 – Construction Progress Schedules – Bar (Gantt) Chart.
    - .3 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.

- .4 Site safety and security in accordance with Section 01 14 00 - Work Restrictions, Section 01 52 00 - Construction Facilities and Section 01 35 43 - Environmental Procedures.
- .5 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, and administrative requirements.
- .6 Monthly progress claims, administrative procedures, photographs, and holdbacks.
- .7 Schedule of submissions.
- .8 Insurances and transcript of policies.
- .2 Comply with Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic, parking, and sanitary facilities.
- .3 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.
- .4 Coordinate field engineering and layout work with the Departmental Representative.
- .5 The cost of attending meetings will be considered incidental to the Lump Sum Price items and no additional payment will be made.

#### **1.5 SUBMITTAL SCHEDULE**

- .1 Prepare a schedule of the required submissions and the date the submissions will be made. Include columns for Actual Date of Submission, Review Comments Received, Final Submission and Final Acceptance Received.
- .2 The Owner will not be responsible for any construction delays resulting from delays in submission acceptance if the submittal dates shown in the Submittal Schedule are not achieved.

#### **1.6 CONSTRUCTION PROGRESS MEETINGS**

- .1 During course of Work prior to project completion, attend weekly progress meetings.
- .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.
- .3 Agenda to include 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.

- .6 Corrective measures and procedures to regain projected schedule.
- .7 Revisions to construction schedule.
- .8 Progress schedule, during succeeding work period.
- .9 Review of communications with Utility companies and status of approvals.
- .10 Review submittal schedules: expedite as required.
- .11 Maintenance of quality standards.
- .12 Review proposed changes for affect on construction schedule and on completion date.
- .13 Review site safety and security issues.
- .14 Traffic accommodation.
- .15 Other business.
- .4 The Contractor shall attend additional meetings to review submissions, procedures or discuss specific issues as determined by the Departmental Representative.
- .5 The contractor shall:
  - .1 Be represented at all meetings to the satisfaction of the Departmental Representative.
  - .2 Provide physical space and make arrangements for meetings.
- .6 The Cost of attending the above meetings will be considered incidental to the Contract and no additional payment will be made.

## **1.7 ON-SITE DOCUMENTS**

- .1 Maintain at job site, one copy each of the following:
  - .1 Contract Drawings;
  - .2 Specifications;
  - .3 Addenda;
  - .4 Change Orders;
  - .5 Other modifications to Contract;
  - .6 Traffic Accommodation Strategy;
  - .7 Safety Plan;
  - .8 WHMIS;
  - .9 Environmental Protection Plan (EPP);
  - .10 Quality Management Plan;
  - .11 Copy of approved Work schedule;

- .12 Labour conditions and wage schedules;
- .13 Applicable current editions of municipal regulations and by-laws;
- .14 Meeting Minutes;
- .15 Shop Drawings;
- .16 Testing Reports.

## **1.8 PROJECT SCHEDULES**

- .1 Submit preliminary construction progress schedule in accordance with Section 01 32 16.07 – Construction Progress Schedule – Bar (Gantt) Chart and Section 01 33 00 - Submittal Procedures, coordinated with Owner's project schedule to the Departmental Representative.
- .2 After review, revise and resubmit schedule to comply with revised project schedule.
- .3 During progress of Work revise and resubmit as directed by the Departmental Representative.
- .4 In addition to the project schedule, submit weekly schedules to the Departmental Representative by 3:00 PM each Thursday showing Work planned for the following week on a day by day basis.

## **1.9 SUBMITTALS**

- .1 Submit shop drawings, concrete mix designs, and records of test results in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit requests for payment for review, and for transmittal, to the Departmental Representative.
- .3 Process change orders through the Departmental Representative.
- .4 Submit requests for interpretation of Contract Documents, and obtain instructions through the Departmental Representative. Process substitutions through the Departmental Representative.
- .5 Deliver closeout submittals for review and preliminary inspections, for transmittal to the Departmental Representative.

## **1.10 CLOSEOUT PROCEDURES**

- .1 Notify the Departmental Representative when Work is considered ready for Substantial Performance.
- .2 Accompany the Departmental Representative on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with the Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance and those determined in the final inspection.

- .4 Notify the Departmental Representative of completion of items of Work listed in executed certificate of Substantial Performance and those determined in the final inspection.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## SECTION 01 32 16.07 CONSTRUCTION PROGRESS SCHEDULE-BAR (GANTT) CHART

### **Part 1 General**

#### **1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 21 00 - Allowances.
- .3 Section 01 31 00 - Project Managing and Coordination.
- .4 Section 01 33 00 - Submittal Procedures.

#### **1.2 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. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by the Departmental Representative to enable monitoring of project work in relation to established milestones.



### **1.3 REQUIREMENTS**

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Ensure all the Work required 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 milestones and time frame.
- .4 Limit activity durations to maximum of approximately five (5) working days, to allow for progress reporting.
- .5 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

### **1.4 SUBMITTALS**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to the 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 the Departmental Representative within 5 working days of receipt of acceptance of Master Plan.

### **1.5 PROJECT MILESTONES**

- .1 Project milestones form interim targets for Project Schedule.
  - .1 Completion of each Stage of construction.
  - .2 Substantial Completion: 2013 October 15.
  - .3 Total Completion: 2013 October 31.

### **1.6 MASTER PLAN**

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
- .2 The Departmental Representative will review and return revised schedules within 10 working days.
- .3 Revise impractical schedule and resubmit within 5 working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

### **1.7 PROJECT SCHEDULE**

- .1 Develop detailed Project Schedule derived from Master Plan.

- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

- .1 Award.
- .2 Shop Drawings, Samples.
- .3 Permits.
- .4 Submittals.
- .5 Mobilization.
- .6 Environmental Protection Plan, review and implementation.
- .7 Traffic Management Plan, review and implementation.
- .8 Health and Safety Plan, review and implementation.
- .9 Quality Management Plan, review and implementation.
- .10 Construction staging.
- .11 Removal and disposal of existing deck joints.
- .12 Supply, fabrication, and installation of new strip seal deck joints.
- .13 Removal of formwork, false work and work platforms.
- .14 Demobilization.

## **1.8 PROJECT SCHEDULE REPORTING**

- .1 Update Project Schedule on a weekly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

## **1.9 PROJECT MEETINGS**

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

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not used.

**END OF SECTION**

SECTION 01 33 00 SUBMITTAL PROCEDURES

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 14 00 - Work Restrictions.
- .2 Section 01 32 16.07 - Construction Progress Schedules - Bar (Gantt) Chart.
- .3 Section 01 35 00.06 - Special Procedures for Traffic Control.
- .4 Section 01 35 33 – Special Procedures for Bridge Rehabilitation.
- .5 Section 01 35 43 - Environmental Procedures.
- .6 Section 01 78 00 - Closeout Submittals.
- .7 Section 03 20 00 - Concrete Reinforcing.
- .8 Section 03 30 00 - Cast-In-Place Concrete.
- .9 Section 05 12 33 - Structural Steel for Bridges.

**1.2 REFERENCES**

- .1 Not used.

**1.3 ADMINISTRATIVE**

- .1 Submit to the Departmental Representative submittals listed for review. Submit with reasonable promptness (typically five working days) 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 Work affected by submittal shall not proceed 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 the 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 the 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 the Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by the Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

#### **1.4 SHOP DRAWINGS AND MIX DESIGNS**

- .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 Alberta, Canada.
- .3 The term "mix design" means engineered design for proportioning materials in concrete including all supporting test results, materials properties and Engineer's letter of recommendation.
- .4 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .5 Allow 14 days for the Departmental Representative's review of each submission.
- .6 Adjustments made on shop drawings by the Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to the Departmental Representative prior to proceeding with Work.
- .7 Make changes in shop drawings as the Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify the Departmental Representative in writing of revisions other than those requested.
- .8 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.

- .9 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 Operating weight.
- .10 After the Departmental Representative's review, distribute copies.
- .11 Submit electronic copies of shop drawings and/or mix design for each requirement requested in Specification Sections and as the Departmental Representative may reasonably request.
- .12 Submit electronic copies of product data sheets or brochures for requirements requested in Specification Sections and as requested by the Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .13 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by the Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.
  - .2 Testing must have been within 6 months of date of contract award for project.
- .14 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by the Departmental Representative.
  - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .2 Certificates must be dated after award of project contract complete with project name.

- .15 Submit electronic copies of manufacturers instructions for requirements requested in Specification Sections and as requested by the Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .16 Delete information not applicable to project.
- .17 Supplement standard information to provide details applicable to project.
- .18 If upon review by the 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.
- .19 The review of shop drawings and mix designs by the Departmental Representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that the 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.

## **1.5 REQUIRED CONTRACTOR SUBMITTALS**

- .1 General
  - .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on site and during the construction phase.
- .2 Pre-Mobilization Submittals
  - .1 Submit the following plans and programs to the Departmental Representative for review a minimum of fifteen (15) 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. The Contractor shall not construe the Departmental Representative's authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Provincial regulations, this specification, or to adequately protect the health and safety of all workers involved in the project and any members of the public who may be

affected by the project. The Contractor shall remain solely responsible for the adequacy and completeness of the programs and work practices, and adherence to them.

- .1 Project Schedule, detailing the schedule of the workdays and manpower required to complete each phase of the project (e.g., mobilization, construction sequencing, removal of deteriorated material, reconstruction of joints and demobilization).
- .2 Contractor Chain of Command, listing key Contractor personnel, including names and positions, addresses, telephone, cellular telephone and/or pager numbers. The list shall include the names and telephone/cellular telephone/pager numbers for contact persons who are available on a 24-hour basis in the event of emergencies.
- .3 Work Plan, describing the Contractor's intended methods of construction including but not limited to the environmental mitigation strategies and projected number of personnel on site.
- .4 Quality Management Plan in accordance with Section 01 45 00 – Quality Management.
- .5 Concrete Mix designs for each class of concrete mix in accordance with Section 03-30-00 Cast-In-Place Concrete.
- .6 Traffic Accommodation Strategy, in accordance with the requirements of Section 01 35 14 - Special Procedures for Traffic Control.
- .7 Environmental Protection Plans (EPP) and Environmental Construction Operations Plans (ECO Plans) which shall meet the requirements of Section 01 35 43 - Environmental Procedures.
- .8 Site Access Plan which shall include but not be limited to, engineering Drawings and procedures for accessing all areas of the Work. This shall access scaffolding, fixed and suspended work platforms, temporary railings, etc.
- .9 Procedure for removal of existing deck joints, including removal sequences, methods, equipment, tools, containment measures, and traffic control measures.
- .10 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.
- .11 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.
- .12 Health and Safety Plan must include:
  - .1 Contractor's safety policy.
  - .2 Identification of applicable compliance obligations.
  - .3 Definition of responsibilities for project safety/organization chart for project.



- .4 Site specific hazard assessment.
- .5 General safety rules for project.
- .6 Job specific safe work procedures.
- .7 Inspection policy and procedures.
- .8 Incident reporting and investigation policy and procedures.
- .9 Occupational Health and Safety meetings.
- .10 Occupational Health and Safety communications and record keeping procedures.
- .11 Results of safety and health risk or hazard analysis for site tasks and operation.
- .13 Submit copies of Material Safety Data Sheets (MSDS).
- .14 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 the Departmental Representative.
- .15 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.
- .2 The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of the submittals in writing.
- .3 Construction Phase Submittals
  - .1 Weekly Progress Reports that outline the Work completed to date as well as the anticipated Work to be performed for the following week on a day-by-day basis.
  - .2 Quality Control Inspection Reports - The Contractor shall maintain daily inspection reports that itemize 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 payment request.
  - .3 Traffic Accommodation logs.
  - .4 Shop Drawings – The Contractor shall submit all shop drawings required to fabricate and conduct the work a minimum 30 days prior to fabrication.
  - .5 Progress Photographs:
    - .1 Formats:
      - .1 Prints 200 x 300 mm, colour, and glossy, complete with binding edge or in three hole plastic sleeves.
      - .2 Electronic: .jpg files, minimum five mega pixels.
    - .2 Submission requirements: three sets of prints or one set of electronic files.
    - .3 Identification: typewritten name and number of project, description of photograph, jpg file name, and date of exposure on 25 x 50 mm white patch in upper right hand corner.

- .4 Viewpoints: 4 viewpoints determined by the Departmental Representative.
- .5 Submission Frequency: prior to commencement of work and weekly thereafter with progress statement, or as directed by the Departmental Representative.
- .6 Submit four copies of CD with all electronic pictures as part of closeout package.
- .6 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to the Departmental Representative and authority having jurisdiction weekly.
- .7 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
- .8 Submit copies of incident and accident reports.
- .4 Project Completion Submittals
  - .1 Record Drawings -The Contractor shall submit copies of all Contractor's Drawings revised as necessary to record all as-built changes to the Work and the Contractor shall submit a set of Contract Drawings clearly marked to record as-built changes to the Work.
  - .2 Quality Control/Quality Assurance Records – The Contractor shall submit a bound and itemized set of project quality control and quality assurance records.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

## SECTION 01 35 00.06 SPECIAL PROCEDURES FOR TRAFFIC CONTROL

### **Part 1 General**

#### **1.1 RELATED SECTIONS**

- .1 Section 01 11 00 - Summary of Work.
- .2 Section 01 14 00 - Work Restrictions
- .3 Section 01 29 00 – Payment Procedures
- .4 Section 01 35 33 - Special Procedures for Bridge Rehabilitations

#### **1.2 MEASUREMENT PROCEDURES**

- .1 The measurement and payment procedure for this Section shall meet the requirements in Section 01 29 00 - Payment Procedures.

#### **1.3 REFERENCES**

- .1 Alberta Infrastructure and Transportation
  - Traffic Accommodation in Work Zones.
- .2 U.S. Department of Transportation
  - Manual of Uniform Traffic Control Devices for Streets and Highways (UTCD).

#### **1.4 GENERAL**

- .1 The Contractor shall develop and implement a Traffic Accommodation Strategy (TAS) in accordance with the requirements of the “Alberta Transportation -Traffic Accommodation in Work Zones Manual” in conjunction with the “Alberta Transportation Specifications for Bridge Construction, Section 7 “Traffic Accommodation and Temporary Signing”. The Traffic Accommodation Strategy shall be submitted to the Departmental Representative a minimum of 15 days prior to commencement of site work and be accepted by the Departmental Representative prior to commencement of the site work.
- .2 If, in the opinion of the Departmental Representative or Parks Canada, the work zone is creating a hazard to the travelling public, operations may be ordered halted until the situation is rectified.
- .3 The Contractor shall design, supply, erect, move and maintain all traffic control devices, signs and other safety measures and provide competent traffic control staff to ensure safe passage of all traffic from commencement of site work to date of acceptance by the Departmental Representative.
- .4 The Contractor shall design, supply, erect, operate, move and maintain temporary lighting of roadway at each end of the Bridge and on the bridge deck in accordance with the requirements of Clause 1.8.

- .5 The Contractor shall coordinate traffic control with other contractors in the vicinity.

## **1.5 PROTECTION OF PUBLIC TRAFFIC**

- .1 Construction will be conducted in two (2) stages. The requirements will include, but are not limited to, the following:
- Prior to 2013 September 3, Work must be staged to ensure two adjacent lanes, with a minimum width of 3.6 meters each, remain open to traffic during daytime construction. Traffic may be reduced to a single lane of 4.2 meters during night-time construction (10:00 pm - 6:00 am). See rehab drawings for suggested construction staging.
  - Following 2013 September 3, a minimum clear roadway of one 4.2 meter lane shall be maintained for both daytime and night-time construction.
  - Interlocking traffic barriers or appropriate equivalent, subject to approval by the Departmental Representative, shall be provided between traffic and the work zone. Traffic barriers facing in a direction other than parallel to traffic shall be energy absorbing traffic barriers of an approved type that has been crash tested to meet Level 2 under NCHRP Report 350.
  - Keep travelled roadway surface graded and free of pot holes.
  - Traffic control measures will be monitored by the Departmental Representative, who may require modifications of these measures from time to time to achieve satisfactory traffic flow, safety of travelling public and coordination with adjacent contracts.
  - All signage and traffic control devices to be provided by the contractor.
- .2 When working on travelled way:
- Place equipment in position to minimize interference and hazard to travelling public.
  - Keep equipment units as close together as working conditions permit and preferably on same side of travelled way.
  - Do not leave equipment on travelled way overnight.
- .3 Close lanes of road only after receipt of written approval from the Departmental Representative.
- Before re-routing traffic erect suitable signs and devices to Traffic Accommodation in Work Zones.
- .4 Provide and maintain road access and egress to property fronting along Work under Contract and in other areas as indicated, except where other means of road access exist that meet approval of the Departmental Representative.

## **1.6 INFORMATIONAL AND WARNING DEVICES**

- .1 Provide and maintain signs, flashing warning lights and other devices required to indicate construction activities or other temporary and unusual conditions resulting from Project Work which requires road user response.

- .2 Supply and erect signs, delineators, barricades and miscellaneous warning devices to Traffic Accommodation in Work Zones.
- .3 Place signs and other devices in locations recommended in Traffic Accommodation in Work Zones.
- .4 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on site changes, revise list to approval of Departmental Representative.
- .5 Continually maintain traffic control devices in use:
  - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
  - .2 Remove or cover signs which do not apply to conditions existing from day to day.

## **1.7 CONTROL OF PUBLIC TRAFFIC**

- .1 Provide competent flag personnel, trained in accordance with, and properly equipped to Traffic Accommodation in Work Zones for situations as follows:
  - When public traffic is required to pass working vehicles or equipment that block all or part of travelled roadway.
  - When it is necessary to institute one-way traffic system through construction area or other blockage where traffic volumes are heavy, approach speeds are high and traffic signal system is not in use.
  - When workmen or equipment are employed on travelled way over brow of hills, around sharp curves or at other locations where oncoming traffic would not otherwise have adequate warning.
  - Where temporary protection is required while other traffic control devices are being erected or taken down.
  - For emergency protection when other traffic control devices are not readily available.
  - In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
  - At each end of restricted sections where pilot cars are required.
  - Delays to public traffic due to contractor's operators: 15 minutes maximum.

## **1.8 TEMPORARY LIGHTING (During Construction Season, from mobilization to demobilization)**

- .1 Provide lighting of the roadway on each end of the bridge and the bridge deck from dusk until dawn throughout the construction season, when the construction is in progress or when bridge width restrictions are in effect.
- .2 Temporary lights shall be installed on light poles and shall be capable of providing adequate illumination of the work site or detour without blinding drivers of approaching vehicles on the highway.
- .3 Provide reliable power supply for temporary lighting throughout the construction period.

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

## SECTION 01 35 29.06 HEALTH AND SAFETY REQUIREMENTS

### **Part 1 General**

#### **1.1 SECTION INCLUDES**

- .1 Health and safety considerations required to ensure that PCA shows due diligence towards health and safety on construction sites.

#### **1.2 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures

#### **1.3 REFERENCES**

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

#### **1.4 SUBMITTALS**

- .1 Make submittals 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 Submit copies of Contractor's authorized representative's work site health and safety inspection reports to the Departmental Representative and authority having jurisdiction, 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 in accordance with Section 02 81 01 - Hazardous Materials.
- .7 The Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 14 days after receipt of plan. Revise plan as appropriate and resubmit plan to the Departmental Representative within 7 days after receipt of comments from the Departmental Representative.

- .8 The 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 the Departmental Representative.
- .10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

## **1.5 FILING OF NOTICE**

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

## **1.6 SAFETY ASSESSMENT**

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

## **1.7 MEETINGS**

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

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

## **1.9 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.

## **1.10 COMPLIANCE REQUIREMENTS**

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



**1.11 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 the Departmental Representative verbally and in writing.

**1.12 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 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 site supervisor.

**1.13 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 the Departmental Representative.

**1.14 CORRECTION OF NON-COMPLIANCE**

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

**1.15 BLASTING**

- .1 Blasting or other use of explosives is not permitted.

**1.16 POWDER ACTUATED DEVICES**

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

**1.17 WORK STOPPAGE**

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

**Part 2 Products**

**2.1 NOT USED**

- .1 Not used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not used.

**END OF SECTION**

SECTION 01 35 33 SPECIAL PROCEDURES FOR BRIDGE REHABILITATION

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 14 00 - Work Restrictions
- .2 Section 01 29 00 - Payment Procedures
- .3 Section 01 35 43 - Environmental Procedures.
- .4 Section 03 10 00 - Concrete Forming and Accessories.
- .5 Section 03 30 00 - Cast-In-Place Concrete.
- .6 Section 05 12 33 - Structural Steel For Bridges.

**1.2 MEASUREMENT PROCEDURES**

- .1 The measurement and payment procedure for this Section shall meet the requirements in Section 01 29 00 - Payment Procedures.

**1.3 GENERAL CONSTRUCTION**

- .1 Construction on the bridge will be conducted in stages. All concrete and other materials identified for removal on the drawings or by the Departmental Representative shall be removed by means and methods that prevent debris from falling on the adjacent travelled lane.
- .2 All removed components and debris shall be contained, collected and disposed of outside the Park in accordance with Section 01 35 43 - Environmental Procedures.
- .3 Traffic control on the bridge and on the Trans Canada Highway during removal of bridge components shall be in accordance with Section 01 35 00.06 - Special Procedures for Traffic Control.

**1.4 REMOVAL OF EXISTING DECK JOINTS**

- .1 The existing deck joints and surrounding concrete in joint block-out areas shall be removed in order to accommodate the installation of the new deck joints. The existing reinforcing steel to remain, as shown on the drawings, shall not be damaged during the removal process.
- .2 Concrete removal shall be in accordance with the drawings; additional replacement rebar will be required where section loss has occurred to the existing rebar.

**1.5 INSTALLATION OF NEW DECK JOINTS**

- .1 Shall be in accordance with the drawings and manufacturer's instructions.

- .2 Installation of deck joints shall include reconstruction of deck joint block-outs as shown on the drawings and as outlined below:
  - .1 Place deck joint block-out concrete in accordance with Section 03 30 00 Cast-in-Place Concrete and as shown on the drawings.
  - .2 Place reinforcing steel as shown on the drawings.
  - .3 Deck joint elevation shall be set to match the deck surface such as to provide a smooth riding surface.
  - .4 Deck joints shall be installed in accordance with Manufacturer's instructions and as directed by the Departmental Representative.

#### **1.6 INSTALLATION OF NEW JOINT STRIP SEAL**

- .1 Shall be in accordance with the drawings and manufacturer's instructions.
- .2 Deck joints to be successfully leak tested in the presence of the Departmental Representative following completion of installation.

#### **Part 2 Products**

##### **2.1 NOT USED**

- .1 Not Used.

#### **Part 3 Execution**

##### **3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 01 35 43 ENVIRONMENTAL PROCEDURES

**Part 1 General**

**1.1 RELATED REQUIREMENTS**

- .1 All Specifications.

**1.2 MEASUREMENT PROCEDURES**

- .1 The cost to the Contractor to meet the environmental and aesthetic protection requirements described below shall be considered incidental to the Work and no additional payment will be made.

**1.3 GENERAL**

- .1 All Contractor operations shall be performed in such a manner that no detritus from his operations shall enter any waterways, ditches, or wetlands within Banff National Park.
- .2 If, in the opinion of the Departmental Representative or Parks Canada, full containment of Contractor's detritus is not being achieved, operations may be ordered halted until the situation is rectified.

**1.4 NATIONAL PARK REGULATIONS**

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

**1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)**

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act (CEAA) 2003 and subsequent amendments.
- .2 The Contractor is required to prepare an Environmental Protection Plan (EPP), which will include the topics in the following sub sections.
- .3 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the Work being suspended pending rectification of the problems.
- .4 The Contractor shall notify the Environmental Surveillance Officer (ESO) and the Departmental Representative in a reasonably timely manner of any actual or potential

environmental incidents or failure of protection measures, and immediately of any violations of environmental approvals, permits, authorizations or EPP measures.

## **1.6 RELICS AND ANTIQUITIES**

- .1 Give immediate notice to Parks Canada if evidence of archaeological finds are encountered during construction, and wait for written instructions before proceeding with Work in this area.
- .2 Relics and antiquities and items of historical or scientific interest such as cornerstones and contents, commemorative plaques, inscribed tablets, and similar objects found on the site shall remain the property of Parks Canada. Protect such articles and request directives from Parks Canada.
- .3 Provide 48 hours notice to Parks Canada prior to commencing any work that may interfere with or affect any identified historical or archaeological site. Commence work only upon written instruction from Parks Canada.

## **1.7 WILDLIFE**

- .1 Avoid or terminate activities on site that attract or disturb wildlife.
- .2 Pets are not allowed on the work site, or in any administrative or lay down areas.
- .3 All personnel will be instructed by Parks Canada's ESO in procedures to follow in the event of wildlife appearance near or intrusion into the construction site. Personnel are not to attract or approach any wildlife seen near the site, and are to vacate their location in the event of aggressive behaviour or persistent intrusion by bears, cougars, wolves, elk or moose. The ESO and the Departmental Representative are to be notified about the circumstance immediately. The general presence of wildlife observed near the construction site, any carcasses or unusual wildlife observations shall be reported to the ESO and the Departmental Representative.

## **1.8 DRAINAGE**

- .1 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .2 Do not pump water containing suspended materials into waterways, sewer or drainage systems.
- .3 Control dispersal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements.
- .4 The Contractor's EPP will detail how the dewatering will be undertaken, with special attention to the environmental sensitivity of the discharge area, freezing conditions operation, overflow avoidance, decanting and settlement pond reclamation.

## **1.9 FIRE PREVENTION AND CONTROL**

- .1 A fire extinguisher will be carried and available for use on each machine in the event of fire (e.g. ignited by a spark) to prevent the fire from burning the unit or spreading to other fuels in the work area. Basic fire fighting equipment – e.g. three shovels, two pulaskis, and two 20 litre backpack pumps shall be maintained at the construction site at a 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".
- .2 Machinery and equipment shall be operated in a manner and with all original manufacturers' safety devices to prevent ignition of flammable materials in the area.
- .3 Care shall be taken while smoking on the construction site to ensure that accidental ignition of any flammable material is prevented. Fires or burning of waste materials are not permitted.
- .4 In case of fire, the Contractor or worker shall take immediate action to extinguish the fire provided it is safe to do so. The ESO and the Departmental Representative shall be notified of any fire immediately. If not available, Banff Dispatch shall be contacted at (403) 762-4506.
- .5 Fires or burning of waste materials is not permitted

## **1.10 SITE ACCESS AND PARKING**

- .1 A plan detailing access to the construction site shall be prepared by the Contractor and included in the EPP. This includes access off/on KM 13.1 and KM 23 EB in the vicinity of the project – see specifications and the drawings; access within the work limits, including day-to-day entry/egress and plans for delivery and approach for large dimension materials will be anticipated and described. The access plan shall describe worker transportation to and from the construction site, and parking of workers' private vehicles
- .2 Restrict vehicle movements to work limits.
- .3 Do not park vehicles in areas beyond work limits, unless specifically authorized by the ESO and the Departmental Representative.
- .4 A construction office is anticipated for the bridge contract. The construction office may be located on the construction right-of-way, actual location subject to the approval of the Departmental Representative and ESO. It is anticipated the construction office may comprise the Contractor's main office, a materials testing trailer, the Departmental Representative and ESO trailer and toilets. Special measures are required to ensure that conflict with bears that are known to frequent the whole construction area does not arise. These include, but may not be limited to:

- .1 Food, products, lunches, waste food products, or any other materials attractive to bears brought to this office location or to the bridge sites shall be secured within the trailers or by other specified means. Waste shall be secured in the trailers and removed daily from the office location.
- .2 In the event of quick or persistent attraction of bears to the office location, the site may require electric fencing, or removal to an alternate location, at the direction of the Departmental Representative.
- .5 As an alternative to the above mentioned locations, a Contractor's office and work headquarters may be established at another location at the discretion of Parks Canada. The Contractor shall prepare a plan regarding structures, equipment, waste materials management, water, power and sewage services, materials lay-down area, fuel storage, operations, etc. required at this location. The plan will be subject to review and approval by the Departmental Representative. This site may be shared with other Contractors.
- .6 A workers' accommodation camp will not be permitted.
- .7 Materials lay-down shall be on the construction right-of-way, or in unusual circumstances – e.g. over-size components, at an alternate location to be determined by the Departmental Representative in consultation with ESO.

#### **1.11 CONTRACTOR'S OPERATIONS**

- .1 Confine all operations to the work limits as staked or designated by the Departmental Representative. No activities of any kind may be carried out beyond those work limits without the written permission of the Departmental Representative.
- .2 Do not store or stockpile construction materials in the trees bordering or being preserved on site. Do not unreasonably encumber the site with products.
- .3 Provide sufficient sanitary facilities and maintain in a clean condition.
- .4 Conduct operations at all times in such a manner as to preserve the natural features and vegetation in the area. Cut and fill slopes shall be blended with adjoining topography. Material from fill slopes shall not be permitted to slough or roll into surrounding tree cover or to bury any plant material designated to be retained.
- .5 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 staked or designated work area, the Contractor shall be responsible, at his expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Parks Canada.
- .6 Failure to comply with or observe environmental protection requirements as identified in these specifications may result in work being suspended pending rectification of the problems and operators of equipment being charged under the National Park Act.



## **1.12 POLLUTION CONTROL**

- .1 Maintain all temporary erosion and pollution control features for this project.
- .2 Control emissions from equipment and plant to local authorities emission requirements.
- .3 Prevent blasting and other extraneous materials from contaminating air beyond application area by providing suitable, temporary enclosures or mats to the satisfaction of the Departmental Representative and the ESO.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads and on-site work.

## **1.13 START-UP AND ENVIRONMENTAL BRIEFING**

- .1 All staff employed at the construction site shall attend a briefing regarding their individual and collective responsibilities lasting approximately 1 hour, 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 environmental briefing, will be issued a certification sticker to be displayed on their helmet. Employees of other service and materials providers who attend at the site – e.g. concrete truck operators, crane operators, and truck drivers must be apprised of their duty not to cause adverse environmental impact.
- .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.

## **1.14 HAZARDOUS PRODUCTS AND MATERIALS**

- .1 A list of products and materials to be used or brought to the construction site that are considered or defined as hazardous to the environment shall be presented in the EPP. Such products include, but are not limited to waterproofing agents, grout, concrete finishing agents, hot poured rubber membrane materials, blasting agents, etc. A plan detailing the containment and storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the application of these products shall be presented in the EPP. Hazardous products shall be stored no closer than 100 m from any waterway.

## **1.15 SPILL CONTAINMENT PLAN**

- .1 A spill response plan shall be presented in the EPP. Elements to be addressed shall include, but not necessarily limited to:
  - .1 Spill response kit capable of dealing with the largest possible spill shall be maintained in good working order on the construction site.

- .2 Staff shall be informed of the location of the response kit, and be trained in its use.
- .3 Hazardous materials are to be stored and used in minimal required quantities in accordance with all applicable federal and provincial legislation.
- .4 All spills are to be immediately contained with the source of spill arrested, reported to the Departmental Representative and cleanup initiated. In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment.

#### **1.16 EQUIPMENT FUELLING AND MAINTENANCE**

- .1 Equipment used on the project shall be fuelled with E10 gasoline and low sulphur diesel fuels.
- .2 A fuel delivery, storage and distribution plan shall be submitted. Topics to be addressed in the EPP will include, but not necessarily be limited to:
  - .1 Diesel and gasoline supply vehicles, including bulk tankers shall be parked more than 100 meters from any streams, wetlands, water bodies or watercourses.
  - .2 Fuel tanks with manual or electric pump delivery systems shall be used, Gravity fed fuel systems are not allowed.
  - .3 Fuelling personnel shall maintain immediate attention to and presence at the fuelling operation.
  - .4 Fuelling sites will be identified by the Departmental Representative and the ESO. Any fuelling closer than 100 m to any streams, wetlands, water bodies, or waterways will require the authorization and oversight of the ESO or the Departmental Representative.
  - .5 Lubricant changes and minor repairs shall be conducted at a location identified by the Departmental Representative in consultation with the ESO. Waste lubricants, used filters and other waste maintenance products shall be removed from Banff National Park to recycling or certified disposal sites.
  - .6 Equipment shall be inspected daily for fluid/fuel leaks and maintained in good working order.
  - .7 Equipment to be used on the project site shall be thoroughly cleaned of soil, seeds and any debris or external contaminants outside the national park before delivery to the work site.

#### **1.17 WASTE MATERIAL STORAGE AND REMOVAL**

- .1 The Contractor shall prepare a Construction and Waste management plan as a part of the EPP. The Plan shall include the following basic principle:

- .1 Waste reduction which follows the 3R's hierarchy, with Reduction as first priority, followed by Reuse, then Recycle.
- .2 Wastes generated at the construction site are to be contained and removed in a timely and approved manner. The EPP shall detail the waste management procedures, including the following:
  - .1 Describe the management of waste.
  - .2 Construction wastes shall be stored in containers at an approved location and removed promptly when the containers are 90% full.
  - .3 A concerted effort to reduce, reuse and recycle materials is expected.
  - .4 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
  - .5 Provide containers to deposit recyclable materials.
  - .6 Transport all recyclable materials to an approved recycling facility off site.
  - .7 Waste materials are to be disposed at a certified construction waste landfill outside Banff National Park. No burying, burning or discarding of waste materials will be permitted at the construction site, or elsewhere in Banff National Park.
  - .8 No materials attractive to wildlife are to be stored at the site overnight – daily removal is mandatory. Human food products are to be contained in a manner so as not to attract animals and waste food stuffs are to be removed from the construction site every day.
  - .9 Portable container toilets are to be provided in sufficient numbers and locations to ensure convenient usage including frequency of pump out.
- .3 All garbage must be stored and handled in conformance with the National Parks' Garbage Regulations.
- .4 No food, domestic garbage or hazardous wastes may be deposited in the trade waste site.
- .5 Dispose of all hazardous wastes in conformance with the Environmental Contaminates Act and applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .6 Provide bear proof garbage containers on-site for domestic garbage generated on-site by Contractor's personnel and make arrangement for collection and disposal on a daily basis or when directed by the Departmental Representative.
- .7 Maintain the site in a tidy condition, free from the accumulation of waste products, debris and litter.

- .8 Do not dispose of or allow dispersing waste or volatile materials such as mineral spirits, oil or paint thinners or other hazardous wastes into waterways. Provide clean-up equipment and adequate supply of absorbent material on-site.

#### **1.18 VEGETATION REMOVAL AND PROTECTION OF THE WORK LIMITS**

- .1 The EPP shall detail how the work limits will be marked and what procedures will be employed to ensure trespass outside these limits does not occur. No vegetation or tree removal is required in the bridge contract. Any vegetation wilfully or negligently removed shall be replaced in size and kind two fold.

#### **1.19 SENSITIVE AND NO-GO ZONES**

- .1 The ESO may identify sensitive areas and no-go zones in proximity to the work site. Even though these areas may lie outside the construction limit they must not be intruded into by personnel. The Contractor shall describe measures to be employed to achieve that goal.

#### **Part 2 Products**

- .1 Not Used.

## **Part 3            Execution**

### **3.1                CONCRETE MANAGEMENT**

- .1      Wet and uncured concrete is an acutely toxic substance for an aquatic environment. Extra care not to introduce these materials into the environment is required. The Contractor is to prepare an EPP which addresses concrete plant location, operation, and reclamation where required, to the satisfaction of the Departmental Representative. This plan shall include the following concrete management elements:
- .2      During saw-cutting, cooling fluids shall be contained, collected and disposed of at an approved disposal facility.
- .3      Concrete mixer truck washout shall be contained in a buried or above ground tank, with wash products moved back to the concrete batching yard or an approved facility for disposal.
- .4      Water contaminated in the placing of cement and curing of concrete shall be contained and removed from the site to an approved disposal facility.
- .5      If a concrete batching plant is used it shall be operated pursuant to applicable dust, air emission, and water quality control regulations.

### **3.2                STORAGE AND CONTAINMENT OF EXCAVATED MATERIAL**

- .1      The EPP shall detail the plan for both temporary storage and permanent disposal of surplus excavated material.

### **3.3                MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES**

- .1      Removal and storage of snow shall be described, and a plan approved by the ESO and the Departmental Representative.
- .2      Within the EPP 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.
- .3      It may be desirable or necessary to maintain security services at the construction site during quiet times. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals.
- .4      Develop a response plan for, and be suitably equipped for, fires on and immediately adjacent to the work area.

**END OF SECTION**

SECTION 01 45 00 QUALITY MANAGEMENT

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 61 00 - Common Product Requirements.

**1.2 MEASUREMENT PROCEDURES**

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

**1.3 DEFINITIONS**

- .1 Quality Control (QC): The process of checking specific product or services to determine if they comply with relevant quality standards and identify ways to eliminate causes of unsatisfactory product or service performed.
- .2 Quality Assurance (QA): The process of ensuring that the Contractor's Quality Management Plan (QMP) (QC, non-conformances, etc.) is being followed. The results of the QA are provided as feedback to both the Contractor and the Departmental Representative. Where required, the Contractor shall implement changes to the project based on the feedback received from the QA process.

**1.4 QUALITY MANAGEMENT PROGRAM**

- .1 The Contractor shall prepare a Quality Management Program. The purpose of the program shall be to ensure the performance of the Work in accordance with Contract requirements.
- .2 The Quality Management Program shall be described in a Quality Management Plan. The Contractor shall submit the Quality Management Plan to the Departmental Representative for acceptance in accordance with Section 01 33 00 - Submittal Procedures. The Plan shall develop a logical system for tracking and documenting the Quality Control of the Work as well as the Contractor's internal Quality Assurance procedures to verify the compliance of the Quality Control process. 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 Management Plan shall at a minimum include the following information:
  - .1 Distribution list, providing a list of names to whom the Manual shall be distributed;
  - .2 Title page, identifying the Contract, Contractor and copy number;
  - .3 Revision page, identifying the revision number and date of the Manual;
  - .4 Table of contents;
  - .5 Revision control, tabulating the revision number, date of revision, description of revisions and authorized signature;

- .6 Details of measuring and test equipment including methods and frequency of calibration;
  - .7 Purchasing details of all materials and equipment including procurement documents and vendor's Quality Control Program standards;
  - .8 Procedures for inspection of incoming items, in-process inspection and final inspection and tagging of all supply items;
  - .9 Details of special processes as identified by the Departmental Representative, including qualifications of personnel and certification;
  - .10 Procedures for shipping, packaging and storage of materials;
  - .11 Procedures for maintaining quality records and Statements of Compliance, including filing and storage of documents for a period of one year after Completion of the Works;
  - .12 Details of any non-conformance, including identification and recording of deficiencies, tagging procedures for "HOLD" or "REJECT" items, and final disposition of non-conformance forms by the Quality Control Manager;
  - .13 Inspection and test checklists, including tabulated checklists describing all manufacturing and delivery activities such as Inspection or Test, frequency of tests, description of tests, acceptance criteria of tests, such as verification, witnessing or holding tests and sign-off by the Quality Control Manager and the Quality Assurance Manager, if the Quality Assurance Manager witnesses the tests;
  - .14 Forms used to ensure the application of the inspection and test checklist requirements. These forms shall be identified in the checklists and describe all testing requirements for Specification compliance; and
  - .15 Details of the Quality Assurance Program including the Contractor's procedures to verify the compliance to the Quality Control process of on-site work and off-site work by fabricators.
- .4 The Contractor shall appoint qualified and experienced Quality Control and Quality Assurance Personnel, who are dedicated to quality matters and who will report regularly to the Quality Control Manager and Quality Assurance Manager as well as Contractor's management at a level which shall ensure that Quality Control and Quality Assurance requirements are not to be subordinated to manufacturing, construction or delivery. The Quality Control and Quality Assurance Personnel shall be empowered by the Contractor to resolve quality matters. Personnel involved in Quality Assurance shall be independent of the Quality Control Process.
- .5 The Quality Management Plan shall include samples of all forms to be filled in by the Quality Control and Assurance Personnel. All forms shall be signed by the Quality Control Manager and Quality Assurance Manager and submitted promptly to the Departmental Representative.
- .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. Quality Assurance Inspectors, will periodically (shall be a minimum of 10% of the Quality Control checks) perform a second independent check to assess if the Quality Control process is being followed. 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 and Quality Assurance documents and reports shall be prepared by the Contractor's Quality Control Manager and Quality Assurance Manager and submitted to the Departmental Representative.

## **1.5 TESTING**

- .1 Testing required to provide Quality Control and Quality Assurance to assure that the Work strictly complies with the Contract requirements shall include, but not be limited to:
  - .1 Testing of all structural concrete, reinforcing steel, granular material, asphalt, miscellaneous structural elements and metals, message board, utilities installed, and all source acceptance testing;
  - .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 The quality control testing proposed and testing frequency shall at a minimum, achieve the requirements of the following:
  - .1 The more stringent of the testing requirements in the 2007 Alberta Transportation Standard Specifications for Highway Construction Manual and subsequent updates or Alberta Transportation - Standard Specification for Bridge Construction 2010. Should one of these specifications be silent on a particular testing frequency the testing frequency shall be as defined in the BC MoT Standard Specifications (Highway Construction and or Bridge Construction, latest edition).
  - .2 Wherever these standard specifications refer to standards (e.g., CSA, ASTM, and others) the minimum testing frequencies in these standards shall be utilized.
  - .3 The Contractor and its independent Quality Assurance testing agency that will carry out the testing must satisfy themselves that the test frequencies being completed are sufficient to ensure the quality requirements of the QMP.
- .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 the Departmental Representative in advance to enable the Departmental Representative to witness the tests if it so desired;
  - .2 Notify the Departmental Representative when sampling will be conducted;
  - .3 Within one Day after completion of testing, submit test results to the Departmental Representative; and
  - .4 Identify test reports with the name and address of the organization performing all tests, and the date of the tests.
- .4 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract 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 Quality Assurance testing will be undertaken by the Contractor through an independent CSA certified testing firm. The independent testing firm will complete random sampling, inspection, and testing for the purposes of determining the compliance with specifications and other contract documents. The frequency, location of the inspections, sampling, and tests shall be a minimum of 10% of the Quality Control testing frequency.
- .7 The Contractor shall be responsible for third party testing of materials incorporated into the works.
- .8 The Departmental Representative may perform quality audits as desired. Such audits will not relax the responsibility of the contractor to perform work in accordance with Specifications. To facilitate this work the contractor shall:
  - .1 Notify appropriate agency and Departmental Representative in advance of work which the Departmental Representative may want to test.
  - .2 Submit samples and/or materials required for testing, as specifically requested in the Specifications or as requested by the Departmental Representative. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in the work.
  - .3 Provide labour and facilities to obtain and handle samples and materials on site.

## **1.6 INSPECTION**

- .1 Allow the 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 the Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 The 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.

## **1.7 INDEPENDENT INSPECTION AGENCIES**

- .1 Independent Inspection/Testing Agencies will be engaged by the Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the 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. The Contractor shall

correct defect and irregularities as advised by the Departmental Representative at no cost to the Departmental Representative.

## **1.8 ACCESS TO WORK**

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

## **1.9 REJECTED WORK**

- .1 Any instances of unacceptable work discovered by either the Quality Control or Quality Assurance personnel will require the preparation of a non-conformance report (NCR).
- .2 If instances of unacceptable work are discovered by the Departmental Representative, the Departmental Representative may issue a non-conformance report (NCR).
- .3 The Contractor shall expediently correct any non-conformances, whether the result of poor workmanship, use of defective products or damage; and whether incorporated in the Work or not, the Contractor shall replace or re-execute in accordance with the Contract Documents.
- .4 Payment for the work itself may be withheld until the NCR issue has been resolved to the satisfaction of the Departmental Representative.
- .5 If in opinion of the Departmental Representative it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, the Departmental Representative will deduct from Total Bid Amount the difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by the Departmental Representative.

## **1.10 REPORTS**

- .1 Submit 1 electronic copy of all inspection and test reports to the Departmental Representative in accordance with Section 01 33 00 Submittal Procedures..
- .2 Submit to the Departmental Representative one paper copy and one electronic copy of all Non-Conformance Reports.

## **1.11 MILL TESTS**

- .1 Submit mill test certificates as required of specification Sections.

## **Part 2 Products**

### **2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 51 00    TEMPORARY UTILITIES

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1        Section 01 52 00 - Construction Facilities.
- .2        Section 01 35 43 - Environmental Procedures.

**1.2                MEASUREMENT PROCEDURES**

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

**1.3                INSTALLATION AND REMOVAL**

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

**1.4                DEWATERING**

- .1        Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

**1.5                WATER SUPPLY**

- .1        Contractor to supply potable water for construction use, and potable bottled water for all on site personnel.

**1.6                TEMPORARY HEATING AND VENTILATION**

- .1        Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2        Construction heaters used inside building must be vented to outside or be non-flameless type. Solid fuel salamanders are not permitted.
- .3        Provide temporary heat and ventilation in enclosed areas as required to:
  - .1        Facilitate progress of Work.
  - .2        Protect Work and products against dampness and cold.
  - .3        Prevent moisture condensation on surfaces.
  - .4        Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
  - .5        Provide adequate ventilation to meet health regulations for safe working environment.
- .4        Ventilating:

- .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
  - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
  - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
  - .4 Ventilate storage spaces containing hazardous or volatile materials.
  - .5 Ventilate temporary sanitary facilities.
  - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .5 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

#### **1.7 TEMPORARY POWER AND LIGHT**

- .1 Contractor shall provide and pay for temporary power during construction for temporary lighting, offices and operating of power tools.
- .2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3 Any required on-site power generation facilities shall be supplied and paid for by the Contractor including all fuel, oil, fluids, maintenance and any other item which may be required for power generation.
- .4 On-site power generation shall be operated in accordance with Section 01 35 43 - Environmental Procedures.

#### **1.8 TEMPORARY COMMUNICATION FACILITIES**

- .1 Provide and pay for temporary telephone, fax, AND data hook up lines necessary for own use and use of the Departmental Representative.
- .2 Provide and pay for satellite phone for emergency use at construction sites where reliable land line or cell phone service is not available.

#### **1.9 FIRE PROTECTION**

- .1 Provide and maintain temporary fire protection equipment during performance of Work as per Section 01 35 43 - Environmental Procedures.
- .2 Burning rubbish and construction waste materials is not permitted on site.

### **Part 2 Products**

#### **2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 52 00 CONSTRUCTION FACILITIES

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 51 00 - Temporary Utilities.
- .2 Section 01 56 00 - Temporary Barriers and Enclosures.
- .3 Section 01 33 00 – Submittal Procedures.
- .4 Section 01 35 43 - Environmental Procedures.

**1.2 MEASUREMENT PROCEDURES**

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

**1.3 REFERENCES**

- .1 Canadian Standards Association (CSA International)
  - .1 CAN/CSA-S269.2, Access Scaffolding for Construction Purposes.
  - .2 CAN/CSA-Z321, Signs and Symbols for the Occupational Environment.
- .2 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as of: May 14, 2004.

**1.4 SUBMITTALS**

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

**1.5 INSTALLATION AND REMOVAL**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced and used by Contractor, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide construction facilities in order to execute work expeditiously.
- .5 Remove from site all such work after use.

**1.6 SCAFFOLDING**

- .1 Scaffolding in accordance with CAN/CSA-S269.2.

- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, and platforms.

## **1.7 HOISTING**

- .1 Provide, operate and maintain hoists and cranes required for moving of workers, materials and equipment.
- .2 Hoists and cranes to be operated by qualified operator.

## **1.8 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.

## **1.9 CONSTRUCTION PARKING**

- .1 Parking will be permitted on site provided it does not disrupt performance of Work.
- .2 Provide and maintain adequate access to project site.

## **1.10 SECURITY**

- .1 Provide and pay for responsible security personnel to guard site and contents of site after working hours and during holidays.

## **1.11 OFFICES**

- .1 Provide office heated to 22 degrees C, lighted 750 lx and ventilated, 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.
- .3 Subcontractors to provide their own offices as necessary. Direct location of these offices.
- .4 Departmental Representative's Site office.
  - .1 Provide temporary office for the Departmental Representative.
  - .2 Inside dimensions minimum 3.6 m long x 3 m wide x 2.4 m high, with floor 0.3 m above grade, complete with 4 50% opening windows and one lockable door.
  - .3 Insulate building and provide heating system to maintain 22 degrees C inside temperature at -20 degrees C outside temperature.
  - .4 Finish inside walls and ceiling with plywood, hardboard or wallboard and paint in selected colours. Finish floor with 19 mm thick plywood.
  - .5 Install electrical lighting system to provide min 750 lx using surface mounted, shielded commercial fixtures with 10 % upward light component.



- .6 Provide private washroom facilities adjacent to office complete with flush or chemical type toilet, lavatory and mirror and maintain supply of paper towels and toilet tissue.
- .7 Equip office with 1 x 2 m table, 4 chairs, 6 m of shelving 300 mm wide, one 3 drawer filing cabinet, one plan rack and one coat rack and shelf.
- .8 Maintain in clean condition.

#### **1.12 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.

#### **1.13 SANITARY FACILITIES**

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

#### **1.14 CONSTRUCTION SIGNAGE**

- .1 No other signs or advertisements, other than warning signs, are permitted on site.
- .2 Direct requests for approval to erect Consultant/Contractor signboard to the Departmental Representative. For consideration general appearance of Consultant/Contractor signboard must conform to project identification site sign. Wording in both official languages.
- .3 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.
- .4 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.

#### **1.15 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.

**Part 2            Products**

**2.1                NOT USED**

.1            Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 56 00 TEMPORARY BARRIERS AND ENCLOSURES

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 35 43 - Environmental Procedures.
- .2 Section 01 52 00 - Construction Facilities.
- .3 Section 01 35 14 - Special Procedures for Traffic Control.

**1.2 REFERENCES**

- .1 Canadian General Standards Board (CGSB)
  - .1 CGSB 1.59, Alkyd Exterior Gloss Enamel.
  - .2 CAN/CGSB 1.189, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
  - .1 CSA-O121, Douglas Fir Plywood.
- .3 Public Works Government Services Canada (PWGSC) Standard Acquisition Clauses and Conditions (SACC)-ID: R0202D, Title: General Conditions 'C', In Effect as Of: May 14, 2004.

**1.3 INSTALLATION AND REMOVAL**

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

**1.4 HOARDING**

- .1 Erect temporary site enclosure using new 1.2 m high snow fence wired to rolled steel "T" bar fence posts spaced at 2.4 m on centre. Provide one lockable truck gate. Maintain fence in good repair.
- .2 Provide barriers around trees and plants designated to remain. Protect from damage by equipment and construction procedures.

**1.5 GUARD RAILS AND BARRICADES**

- .1 Provide secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and open bridge decks or girders.
- .2 Provide as required by governing authorities.

**1.6 ACCESS TO SITE**

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

**1.7 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.

**1.8 FIRE ROUTES**

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

**1.9 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.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 01 61 00 COMMON PRODUCT REQUIREMENTS

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 45 00 - Quality Control.
- .2 All Technical Specification sections.

**1.2 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, the 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 the Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

**1.3 QUALITY**

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

**1.4 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 fabricated metal 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 the Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to the Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

## **1.5 TRANSPORTATION**

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

## **1.6 MANUFACTURER'S INSTRUCTIONS**

- .1 Unless otherwise indicated in the 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 the Departmental Representative in writing, of conflicts between specifications and manufacturer's instructions, so that the Departmental Representative will establish course of action.
- .3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Departmental Representative to require removal and re-installation at no increase in Contract Price or Contract Time.

## **1.7 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 the 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. The 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 the Departmental Representative, whose decision is final.

**1.8 CO-ORDINATION**

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

**1.9 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.

**1.10 PROTECTION OF WORK IN PROGRESS**

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

**1.11 EXISTING UTILITIES**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and pedestrian and vehicular traffic.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 01 74 11      CLEANING

**Part 1            General**

**1.1                RELATED SECTIONS**

- .1      Section 01 77 00 - Closeout Procedures.
- .2      Section 01 35 43 - Environmental Procedures.
- .3      Section 01 51 00 - Temporary Facilities.
- .4      Section 01 52 00 - Construction Facilities.

**1.2                REFERENCES**

- .1      Not Used

**1.3                MEASUREMENT PROCEDURES**

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

**1.4                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 the Departmental Representative. Do not burn waste materials on site.
- .3      Clear snow and ice from access to site.
- .4      Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .5      Provide on-site containers for collection of waste materials and debris.
- .6      Provide and use marked separate bins for recycling..
- .7      Dispose of waste materials and debris off site.
- .8      Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.
- .9      Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .10     Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.



**1.5 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 the 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 Remove dirt and other disfiguration from exterior surfaces.
- .8 Sweep and wash clean paved areas.
- .9 Remove snow and ice from access to bridges.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 01 77 00 CLOSEOUT PROCEDURES

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 78 00 - Closeout Submittals.

**1.2 REFERENCES**

**1.3 ADMINISTRATIVE REQUIREMENTS**

- .1 Acceptance of Work Procedures:
  - .1 Contractor's Inspection: Contractor to conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
    - .1 Notify the 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 The Departmental Representative Inspection:
    - .1 Departmental Representative and Contractor to inspect Work and identify defects and deficiencies.
    - .2 Contractor to correct Work as directed.
  - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
    - .1 Work: completed and inspected for compliance with Contract Documents.
    - .2 Defects: corrected and deficiencies completed.
    - .3 Work: complete and ready for final inspection.
  - .4 Final Inspection:
    - .1 When completion tasks are done, request final inspection of Work by the Departmental Representative and Contractor.
    - .2 When Work incomplete according to the Departmental Representative, complete outstanding items and request re-inspection.

**1.4 FINAL CLEANING**

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

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3            Execution**

**3.1                NOT USED**

.1            Not Used.

**END OF SECTION**

SECTION 01 78 00 CLOSEOUT SUBMITTALS

**Part 1 General**

**1.1 SECTION INCLUDES**

- .1 As-built drawings.
- .2 Warranties and bonds.

**1.2 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 77 00 - Closeout Procedures.

**1.3 MEASUREMENT PROCEDURES**

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

**1.4 AS -BUILT DOCUMENTS AND SAMPLES**

- .1 Maintain, in addition to requirements in General Conditions, at site for the 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.
- .5 Keep record documents and samples available for inspection by the Departmental Representative.

**1.5 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. Do not conceal Work until required information is recorded.
- .3 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .2 Field changes of dimension and detail.
  - .3 Changes made by change orders.
  - .4 Details not on original Contract Drawings.
  - .5 References to related shop drawings and modifications.
- .4 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
  - .2 Changes made by Addenda and change orders.
- .5 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .6 Provide digital photos, if requested, for site records.

## **1.6 WARRANTIES AND BONDS**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Warranty management plan to include required actions and documents to assure that the Departmental Representative receives warranties to which it is entitled.
- .3 Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .4 Submit, warranty information made available during construction phase, to the Departmental Representative for approval prior to each monthly pay estimate.
- .5 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, within ten days after completion of applicable item of work.
  - .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.

- .6 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.
- .7 Respond in timely manner to oral or written notification of required construction warranty repair work.

**Part 2 Products**

**2.1 NOT USED**

- .1 Not Used.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**

SECTION 02 81 01 HAZARDOUS MATERIALS

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 43 - Environmental Procedures.

**1.2 REFERENCES**

- .1 Export and Import of Hazardous Waste Regulations (EIHW Regulations), SOR/92-637.
- .2 National Fire Code of Canada 1995.
- .3 Transportation of Dangerous Goods Act (TDG Act) 1992, (T-19.01).
- .4 Transportation of Dangerous Goods Regulations (TDGR), (SOR/85-77, SOR/85-585, SOR/85-609, SOR/86-526).

**1.3 DEFINITIONS**

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

**1.4 SUBMITTALS**

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

**1.5 STORAGE AND HANDLING**

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

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

## **1.6 TRANSPORTATION**

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



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

## **Part 2 Products**

### **2.1 MATERIALS**

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

## **Part 3 Execution**

### **3.1 DISPOSAL**

- .1 Dispose of hazardous waste materials in accordance with applicable federal and provincial acts, regulations, and guidelines.
- .2 Recycle hazardous wastes for which there is an approved, cost effective recycling process available.
- .3 Send hazardous wastes only to authorized hazardous waste disposal or treatment facilities.
- .4 Burning, diluting, or mixing hazardous wastes for purpose of disposal is prohibited.
- .5 Disposal of hazardous materials in waterways, storm or sanitary sewers, or in municipal solid waste landfills is prohibited.
- .6 Dispose of hazardous wastes in a timely fashion in accordance with applicable provincial regulations.

**END OF SECTION**

SECTION 03 10 00 CONCRETE FORMING AND ACCESSORIES

**Part 4 General**

**4.1 RELATED SECTIONS**

- .1 Section 01 29 00 – Payment Procedures
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 35 43 - Environmental Procedures.
- .4 Section 03 30 00 - Cast-in-Place Concrete.

**4.2 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 CSA-O86S1, Supplement No. 1 to CAN/CSA-O86-01, Engineering Design in Wood.
  - .3 CSA O121-M1978(R2003), Douglas Fir Plywood.
  - .4 CSA S269.1, Falsework for Construction Purposes.
  - .5 CAN/CSA-S269.3, Concrete Formwork, National Standard of Canada

**4.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings for formwork and falsework. Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta, Canada.
- .3 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.
- .4 Indicate method and schedule of construction, shoring, stripping and re-shoring procedures, materials, arrangement of joints, special architectural exposed finishes, ties, liners, and locations of temporary embedded parts. Comply with CSA S269.1, for falsework drawings and CAN/CSA-S269.3 for formwork drawings.
- .5 Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.
- .6 Indicate sequence of erection and removal of formwork/falsework as directed by the Departmental Representative.

**4.4 DELIVERY, STORAGE AND HANDLING**

- .1 Waste Management and Disposal:

- .1 Place materials defined as hazardous or toxic in designated containers.
- .2 Ensure emptied containers are sealed and stored safely.

## **Part 5 Products**

### **5.1 MATERIALS**

- .1 Formwork materials:
  - .1 For concrete without special architectural features, use wood and wood product formwork materials to CSA-O121.
  - .2 Plywood: medium density overlay Douglas Fir to CSA O121, 18 mm thick.
- .2 Form release agent: non-toxic, biodegradable, low VOC.
- .3 Falsework materials: to CSA-S269.1.

## **Part 6 Execution**

### **6.1 FABRICATION AND ERECTION**

- .1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with drawings.
- .2 Fabricate and erect falsework in accordance with CSA S269.1.
- .3 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.
- .4 Align form joints and make watertight.
  - .1 Keep form joints to minimum.
- .5 Use 20 mm chamfer strips on external corners and/or 20 mm fillets at interior corners, joints, unless specified otherwise on drawings.
- .6 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .7 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.
- .8 Line forms for following surfaces:
  - .1 Underside of bridge decks if exposed.
  - .2 Exposed faces of abutments and wingwalls: do not stagger joints of form lining material and align joints to obtain uniform pattern.
  - .3 Secure lining taut to formwork to prevent folds.

- .4 Pull down lining over edges of formwork panels.
- .5 Ensure lining is new and not reused material.
- .6 Ensure lining is dry and free of oil when concrete is poured.
- .7 Application of form release agents on formwork surface is prohibited where drainage lining is used.
- .8 If concrete surfaces require cleaning after form removal, use only pressurized water stream so as not to alter concrete's smooth finish.
- .9 Cost of textile lining is included in price of concrete for corresponding portion of Work.
- .9 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

## **6.2 REMOVAL AND RESHORING**

- .1 Leave formwork in place for following minimum periods of time after placing concrete.
  - .1 5 days if the concrete temperature is maintained at a minimum of 15° C.
- .2 Remove formwork when concrete has reached 75 % of its design strength or minimum period noted above, whichever comes later.
- .3 Reuse formwork and falsework subject to requirements of CSA-A23.1/A23.2.

**END OF SECTION**

SECTION 03 30 00 CAST-IN-PLACE CONCRETE

**Part 1 General**

**1.1 RELATED SECTIONS**

- .1 Section 01 29 00 – Payment Procedures
- .2 Section 01 33 00 - Submittal Procedures.
- .3 Section 01 35 33 - Special Procedures for Bridge Rehabilitation.
- .4 Section 01 35 43 - Environmental Procedures.
- .5 Section 01 45 00 - Quality Control.
- .6 Section 03 10 00 - Concrete Forming and Accessories.

**1.2 MEASUREMENT AND PAYMENT PROCEDURES**

- .1 The measurement and payment procedure for this Section shall meet the requirements in Section 01 29 00 - Payment Procedures.

**1.3 REFERENCES**

- .1 All cast-in-place concrete work shall be in accordance with Alberta Transportation Specifications for Bridge Construction, Section 4 “Cast-in-Place Concrete”

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Ensure emptied containers are sealed and stored safely.
- .2 Disposal of excess concrete is the Contractor's responsibility and shall be done in accordance with the EPP and Section 01 35 43 - Environmental Procedures.

**Part 2 Products**

**2.1 Concrete Mix**

- .1 Alberta Transportation Specifications for Bridge Construction, Class “C”.

**Part 3 Execution**

**3.1 NOT USED**

- .1 Not Used.

**END OF SECTION**