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END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 35 43 – Environmental Procedures.
- .2 Section 01 14 00 – Work Restrictions.
- .3 Government of Canada, Standard Acquisition Clauses and Conditions (SACC) Manual R2850D GC 5.10
- .4 Appendices
 - .1 Appendix A – Aqua Dam Details
 - .2 Appendix B - Site Plan/light std locations
 - .3 Appendix C - Design Details
 - .4 Appendix D - Best Management Practices for Construction

1.2 DEFINITIONS

- .1 Departmental Representative: Within the context of these specifications, this refers to the person exercising the roles and attributes of Canada under the contract. Parks Canada Agency will be fulfilling the role of Departmental Representative for this Contract.
- .2 Owner: For the purpose of this Contract, the Owner is the Parks Canada Agency, who operates the site.
- .3 Contractor: The contractor to undertake the site management and operation services defined, within the context of these specifications, as the Contractor.

1.3 PROJECT LOCATION

- .1 Johnson Lake East End Dam – see appendix B for location details
- .2 The objective of this project is to:
 - .1 Construct a spillway and bridge on the Johnson Lake east end dam

1.4 PROJECT SCHEDULE

- .1 It is imperative that this work be completed by Dec 15, 2013.

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- .1 Installation of a 40 meter aqua dam. supplied by Parks Canada. (See installation details appendix A). Parks Canada will coordinate having a manufactures representative on site for the installation process.
- .2 Dewatering of work site
- .3 Establishing a siphon to keep water running into outfall (volume requirements to be detailed by Parks Canada aquatics staff)
- .4 Construction of a concrete spillway structure c/w seepage cut-off and bridge abutments. This will be identical to the west end structure. The elevation of spillway notch will be determined by Departmental Representative. (see design details appendix C, ignore “site specific” details)
- .5 Placement of 90’ liner for spillway bottom (see design details appendix C)

- .6 Placement of class 1 an 2 Rip Rap or equivalent sized rock for hardening/protecting abutments and spillway channel (see design details appendix C, ignore “site specific” details)
- .7 Construction of Bridge (see design details appendix C)
- .8 Pour concrete “plug” (drilled and doweled) in the west end spillway to increase the height of the notch. This is to establish the east end spill way as the primary spillway. Height of the “plug” will be determined by Departmental Representative.
- .9 In preparation for and during construction of this project the Contractor must meet the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. Prior to the commencement of construction the Contractor must provide written confirmation that he has read and understood and will comply with all mitigations of Section 01 35 43 – Environmental Procedures and Best Management Practices for Construction (see appendix D.) The Departmental Representative and Parks Canada’s environmental surveillance officer (ESO) will refer to Section 01 35 43 – Environmental Procedures and Best Management Practices for Construction (see appendix D.) in determining compliance with contract specifications.

1.6 CONTRACT METHOD

- .1 Construct Work under lump sum price contract.

1.7 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 others, the Contractor shall cooperate with the other Contractors and the Owner in reviewing their construction schedules, sharing his work space, and shall coordinate his operations with the other Contractors, including traffic management and construction staging.

1.8 WORK SEQUENCE

- .1 Complete all work by Dec 15, 2013.
- .2 Maintain fire access/control.

1.9 CONTRACTOR USE OF PREMISES

- .1 Contractor has unrestricted use of site subject to 1.7.1 above, Section 01 14 00 and until the Contract Completion date.
- .2 Notwithstanding SACC R2850D - GC 5.10, the Contractor shall be permitted to occupy sites where he will be working in Banff National Park, free of charge from the date of award of the contract up to and including the completion date of March 31, 2014. The sites to be occupied by the Contractor include all the roads and areas specified in this contract and as directed by the Departmental Representative. (See appendix D- site plan)
- .3 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 site cleanup and any outstanding deficiencies have been addressed to the satisfaction of the Departmental Representative.

- .4 Contractor shall limit use of premises for Work, for storage, and for access, to allow:
 - .1 Owner occupancy.
 - .2 Work by other Contractors.
- .5 Coordinate use of premises under direction of the Departmental Representative.
- .6 The Contractor and any Subcontractors shall obtain a business license from Realty Services in the Banff Park Administration building in Banff town site, prior to commencement of the contract.
- .7 All Contractor's business and private vehicles are required to display a vehicle work pass from Parks Canada. These permits may be obtained free of charge from PCA Environmental Surveillance Officer or as directed by the Departmental Representative.
- .8 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.10 OWNER FURNISHED ITEMS

- .1 Schedule of Owner furnished items:
 - .1 40 metre Agua Dam
 - .2 Clean fill from borrow pit on site
 - .3 Cobble/Rock material that may be required to line the spillway (not Rip Rap).
 - .4 Helicopter to transport equipment and materials to site.

1.11 WARRANTY

- .1 All work is to be warranted for a period of one year after all deficiencies identified during final inspection have been rectified.

1.12 CONSTRUCTION SIGNAGE

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

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 35 00.06 – Special Procedures for Traffic Control.
- .2 Section 01 35 43 – Environmental Procedures.

1.2 USE OF SITE AND FACILITIES

- .1 The Work Site limits will be specified by Parks Canada and shall only be used for the purposes of the Work. The Work Site will be made available by Parks Canada to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents.
- .2 Office-tool trailer may be set up at site.
- .3 The Contractor shall keep the Work Site clean and free from accumulation of waste materials and rubbish regardless of source. Snow shall be removed by the Contractor as necessary and at his cost for the performance and inspection of the Work.
- .4 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.
- .5 Any damage to the Work Site caused by the Contractor shall be repaired by the Contractor at its expense.
- .6 The Contractor may work from dawn to dusk, Monday to Thursday. There may be restricted hours for work Friday to Sunday.

1.3 ACCES TO SITE AND ALLOWABLE EQUIPMENT

- .1 Access to site is along the existing power line right of way (exact route will be detailed by Departmental Representative)
- .2 Only small construction equipment can be driven/walked into site
 - .1 Mini Excavators
 - .2 Skid Steer loaders
 - .3 Side by Side or Quad ATVs and trailers
- .3 Equipment and materials, suitably sized for helicopter to lift, can be slung into site. (Helicopter will be provide/coordinated by Parks Canada at no charge)

1.4 WORK CONDUCTED OVER OR ADJACENT TO WATERWAYS

- .1 All components of the Work shall be conducted in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Protection Plan prepared for the project.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, or streams without approval from the Departmental Representative.
- .3 Refer to Section 01 35 43 – Environmental Procedures, for details.

- .4 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 – Environmental Procedures and the Environmental Assessment (EA) prepared for the project (provided in Appendix E).
- .5 The Contractor is responsible for the development and supply of construction access to the Work as approved by the Departmental Representative.

1.5 ACCESS TO ADJACENT PROPERTIES

- .1 Construction operations shall be conducted so as to cause minimal inconvenience to the public.

1.6 SURVEY OF EXISTING PROPERTY CONDITIONS

- .1 Submission of tender is deemed to be confirmation that the Contractor has inspected the site and is conversant with all conditions affecting execution and completion of work.
- .2 The Contractor shall regularly monitor the condition of the Work Site and of property on and adjoining the Work Site throughout the construction period, and shall immediately notify the Owner if any deterioration in condition is detected. Such monitoring shall cover all pertinent features and property including, but not limited to, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.

1.7 PROTECTION OF PERSONS AND PROPERTY

- .1 Comply with all applicable safety regulations of the Workers' Compensation Board of Alberta (WCB) including, but not limited to, WCB's Industrial Health and Safety Regulations, Industrial First Aid Regulations, and Workplace Hazardous Materials Information System Regulations.
- .2 The Contractor shall take all necessary precautions and measures to prevent injury or damage to persons and property on or near the Work Site.
- .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.

1.8 USE OF PUBLIC AREAS

- .1 Flag persons shall be provided when vehicles are entering or exiting Worksite access points.
- .2 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Site and entering public roadways shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Site and transporting materials shall be loaded in a manner which will prevent dropping of materials or debris on the roadways, and where contents may otherwise be blown off during transit such loads shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas shall be removed or cleaned immediately by the Contractor at no cost to the Owner. All activities shall be in accordance with Section 01 35 43 - Environmental Procedures and appendix D.

1.9 SUPERVISORY PERSONNEL

- .1 In accordance with Government of Canada GC 2.6 R28Z0D, 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.
- .2 The following personnel shall be included in the list:
 - .1 Project Superintendent.
 - .2 Safety Representative.
- .3 The above personnel shall perform the following duties:
 - .1 The Project Superintendent shall be employed full time and shall be present on the Work Site each and every workday that Work is being performed, from the commencement of Work to Total Performance of the Work.
 - .2 The Project Superintendent shall nominate a Deputy Project Superintendent who shall have the authority of the Project Superintendent during the latter's absence.
 - .3 The Safety Representative shall possess safety experience in general construction. Duties shall encompass all matters of safety activities from commencement of Work until the Total Performance of the Work.

1.10 MEETINGS

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

1.11 WASTE DISPOSAL

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

1.12 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 11 00 – Summary of Work.
- .2 Section 01 35 00.06 – Special Procedures for Traffic Control.

1.2 DESCRIPTION

- .1 Mobilization and Demobilization consists of preparatory work and operations including but not limited to, those necessary for the movement of personnel, equipment, camp, buildings, shops, offices, supplies and incidentals to and from the project site. Mobilization and Demobilization further consists of all traffic control requirements as provided in Section 01 35 00.06 – Special Procedures for Traffic Control.
- .2 Any protective measures or movement of Contractor trailers necessitated by animal interactions and required by Parks Canada will be paid by the Departmental Representative, and are not to be anticipated in the Lump Sum Contract Price for Mobilization and Demobilization.

1.3 MEASUREMENT PROCEDURES

- .1 Mobilization and Demobilization:
 - .1 50% of Lump Sum Contract Price for Mobilization and Demobilization to be paid when mobilization to site is complete.
 - .2 The remainder of the Lump Sum Price for Mobilization and Demobilization to be paid after Contract Completion and the site has been cleaned and left in condition to the satisfaction of the Departmental Representative and all other Agencies having Jurisdiction.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

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 33 00 – Submittal Procedures.
- .4 Section 01 35 43 – Environmental Procedures.
- .5 Section 01 45 00 – Quality Control.
- .6 Section 01 52 00 – Construction Facilities.
- .7 Section 01 77 00 – Close out Procedures.
- .8 Section 01 78 00 – Close out Submittals.

1.2 MEASUREMENT PROCEDURES

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

1.3 COORDINATION

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

1.4 CONSTRUCTION ORGANIZATION AND START UP

- .1 Within seven (7) days after award of Contract, request a meeting of Contract Representatives to discuss and resolve administrative procedures and responsibilities. Meeting shall be chaired by the Departmental Representative who will prepare the minutes of the meeting.
- .2 Senior representatives of the Owner, Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors are to be in attendance.
- .3 Agenda to include following:
 - .1 Appointment of official representative of participants in Work.
 - .2 Schedule of Work.
 - .3 Schedule of submittals in accordance with Section 01 33 00.
 - .4 Requirements for temporary facilities, offices, storage sheds, utilities, fences in accordance with Section 01 52 00.
 - .5 Site safety and security in accordance with Sections 01 14 00, 01 52 00 and 01 35 43.
 - .6 Quality Control in accordance with Section 01 45 00.
 - .7 Proposed changes, change orders, procedures, approvals required, mark up percentages permitted, time extensions, overtime, and administrative requirements.
 - .8 Owner-furnished materials.
 - .9 Monthly progress claims, administrative procedures, photographs, and holdbacks.

- .10 Close out procedures and submittals in accordance with Sections 01 77 00 and 01 78 00.
- .11 Insurances and transcript of policies.
- .12 Other business.
- .4 Comply with Departmental Representative's allocation of mobilization areas of site; for field offices and sheds, for access, traffic, and parking facilities.
- .5 During construction, coordinate use of site and facilities through Departmental Representative's procedures for intra project communications: Submittals, reports and records, schedules, coordination of Drawings, recommendations, and resolution of ambiguities and conflicts.
- .6 Comply with instructions of the Departmental Representative for use of temporary utilities and construction facilities.
- .7 Coordinate field engineering and layout work with the Departmental Representative.

1.5 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 Management Plan.
 - .7 Safety Plan.
 - .8 WHMIS.
 - .9 Environmental Protection Plan.
 - .10 Copy of approved Work schedule and most recent updated schedule.
 - .11 Notice of Project.
 - .12 Labour and Material Bond

1.6 PROJECT SCHEDULES

- .1 Submit preliminary construction progress schedule to Departmental Representative
- .2 During progress of Work revise and resubmit as directed by the Departmental Representative.

1.7 SUBMITTALS

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

- .6 Deliver closeout submittals for review and preliminary inspections, for transmittal to Departmental Representative.

1.8 CLOSEOUT PROCEDURES

- .1 Notify Departmental Representative when Work is considered ready for Substantial Performance.
- .2 Accompany Departmental Representative on preliminary inspection to determine items listed for completion or correction.
- .3 Comply with Departmental Representative's instructions for correction of items of Work listed in executed certificate of Substantial Performance.
- .4 Notify Departmental Representative of instructions for completion of items of Work determined in Departmental Representative's final inspection.
- .5 Schedule project meetings at the call of Departmental Representative.
- .6 Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.
- .7 Note that the Departmental Representative will be responsible for preparing agenda for meetings, notification of meeting dates and recording meeting minutes.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 14 00 – Work Restrictions.
- .2 Section 01 35 00.06 – Special Procedures for Traffic Control.
- .3 Section 01 35 29.06 – Health and Safety Requirements.
- .4 Section 01 35 43 – Environmental Procedures.
- .5 Section 01 45 00 – Quality Control.
- .6 Section 01 78 00 – Closeout Submittals.

1.2 MEASUREMENT PROCEDURES

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

1.3 REFERENCES

- .1 Not Used.

1.4 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit with reasonable promptness and in orderly sequence so as to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock ups in SI Metric units.
- .4 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and coordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and shall be considered rejected.
- .5 Notify Departmental Representative in writing at time of submission, identifying any deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Verify field measurements and affected adjacent Work is consistent.
- .7 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .9 Keep one reviewed copy of each submission on site.

1.5 MOCK-UPS

- .1 Mock ups may be requested. Approval/acceptance of Mock up will be required prior to proceeding with work.

1.6 CERTIFICATES AND TRANSCRIPTS

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

1.7 REQUIRED CONTRACTOR SUBMITTALS

- .1 General
 - .1 This Clause identifies the plans, programs, and documentation required prior to mobilization on site and during the construction phase.
 - .2 Pre-Mobilization Submittals: The Contractor shall not begin any site Work until the Departmental Representative has authorized acceptance of submittals in writing. Submit the following plans and programs to the Departmental Representative for review a minimum of seven (7) days prior to mobilization to the project site:
 - .1 Project schedule. Submission shall include both a paper copy of the schedule and an electronic copy.
 - .2 List of subcontractors, suppliers and consultants, their role and their key personnel, including names and positions, addresses, telephone and cellular telephone numbers, as requested by Departmental Representative .
 - .3 Plan describing methods the Contractor will have to meet his responsibilities as the Prime Contractor for Traffic Control in the Work zones.
 - .4 Contractor Chain of Command, listing key Contractor personnel, including for each name, position, qualification, experience, telephone, cellular telephone and numbers. The list shall include the names and telephone/cellular telephone numbers for contact persons who are available on a 24-hour basis in the event of emergencies.
 - .5 Contractor to confirm, in writing, compliance to Directive 17 (appendix F) and Section 01 35 43 – Environmental Procedures.
 - .6 Contractor shall develop an “Emergency Procedures Protocol” in consultation with Parks Canada.
 - .3 Construction Phase Submittals
 - .1 Progress Reports that outline the detailed Work (Contractor, subcontractors, suppliers, consultants) completed to date as well as the anticipated Work to be performed for the following week. Also, alternate Work to be identified if Work or a portion of, proposed cannot be done due to weather, equipment breakdown, delays in delivery, etc.
 - .2 Submit copies of reports or directions issued by Federal and Provincial health and safety inspectors.
 - .3 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.
 - .5 The Contractor shall not construe the Departmental Representative’s authorization of the submittals to imply approval of any particular method or sequence for conducting the Work, or for addressing health and safety concerns. Authorization of the programs shall not relieve the Contractor from the responsibility to conduct the Work in strict accordance with the requirements of Federal or Provincial regulations, 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.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 All Division 01, 02 and 03 Sections.

1.2 MEASUREMENT PROCEDURES

- .1 Cost of Traffic Control shall be considered incidental to “Lump Sum Price Item 1 – Mobilization and Demobilization”, and no additional payment will be made for the duration of the Contract.
- .2 Cost of snow removal for Contractor to do the work identified in the Contract while Contractor is on site shall be considered incidental to “Lump Sum Price Item 1 – Mobilization and Demobilization”, and no additional payment will be made for the duration of the Contract. This excludes snow removal on Public roads.

1.3 REFERENCES

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

1.4 QUALITY CONTROL

- .1 All Quality Control by the Contractor.

1.5 GENERAL

- .1 The Contractor shall develop and implement a Traffic Management Plan in accordance with the requirements of the current edition of the AT - Traffic Accommodation in Work Zones, except where specified otherwise. The Traffic Management Plan will include plans specific to each detour and access point required for this project.
- .2 The Contractor shall design, supply, erect, move and maintain all traffic control devices, signs, temporary pavement marking, other safety measures and provide staff to ensure safe passage of all traffic from commencement of site work to date of acceptance by the Departmental Representative.
- .3 All traffic and warning signs shall be either bilingual or of a symbolic or pictorial type. If bilingual signs are used, the English and French message shall be of equal letter size and at same elevation, with English on left and French on right. Assistance in translation of construction and warning signs to French may be obtained from Parks Canada.
- .4 All speed limits, traffic control and warning signs shall have an “NPC” adhesive sticker added to bottom right-hand corner. These stickers will be supplied by Parks Canada following the acceptance by the Departmental Representative of the Contractor’s traffic management plan.
- .5 The Contractor shall coordinate traffic management procedures with other Contractors working in the area.

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 as specified in the Traffic Management Plan submitted by the Contractor and approved by the Departmental Representative.
- .3 Place signs and other devices to standards and in locations recommended in AT - Traffic Accommodation in Work Zones.
- .4 Signs shall be wind resistant.
- .5 As situation on site changes, Contractor to update his Traffic Management Plan outlining signs and other devices required for the project and submit for the approval of the Departmental Representative.
- .6 Continually inspect and maintain traffic control devices in use by:
 - .1 Checking signs daily for legibility, damage, suitability and location.
 - .2 Cleaning, repairing or replacing signs as required ensuring clarity and reflectance.
 - .3 Removing or covering signs which do not apply to conditions existing from day to day or time to time.

1.7 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Protect travelling public from damage to person and property.
- .2 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .3 Maintain access and haul roads as necessary.
- .4 Dust control: adequate to ensure safe operation at all times.
- .5 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations if night work operations required.
- .6 Provide snow removal during period of Work.
- .7 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .8 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .9 Provide competent flag persons, trained in accordance with, and properly dressed and equipped as specified in, Alberta Transportation - Traffic Accommodation in Work Zones for situations as follows:
 - .1 When vehicles are entering or exiting Worksite access points.
 - .2 When vehicles are entering or exiting gravel pits in the park.
 - .3 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.
 - .4 Where temporary protection is required while other traffic control devices are being erected or taken down.

- .5 For emergency protection when other traffic control devices are not readily available.
- .6 In situations where complete protection for workers, working equipment and public traffic is not provided by other traffic control devices.
- .10 Delays to public traffic due to contractor's operators: 10 minutes maximum.
- .11 No stoppage of traffic will be allowed for the period commencing at 07:00 a.m. on the day before a Statutory Holiday or long weekend to 7:00 a.m. on the day following a long weekend.
- .12 During hours of darkness, Contractor shall determine requirements but as a minimum, flagpersons shall be additionally equipped with a red signal hand-light of sufficient brightness to be clearly visible to approaching traffic and flagging stations shall be illuminated by overhead lighting. Signs indicating hazardous conditions and signs requiring increased attention shall be marked with flashers.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 14 00 – Work Restrictions.
- .2 Section 01 33 00 – Submittal Procedures.
- .3 Section 01 35 43 – Environmental Procedures.
- .4 Section 01 41 00 – Regulatory Requirements.
- .5 Section 02 81 01 – Hazardous Materials.
- .6 Appendix E – Parks Canada Safety Attestation Form.

1.2 MEASUREMENT PROCEDURES

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

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. 2000.

1.4 SUBMITTALS

- .1 Make submittals in accordance with Section 01 33 00 – Submittal Procedures.
- .2 Submit copies of reports or directions issued by Federal or Provincial health and safety inspectors.
- .3 Submit copies of incident and accident reports.
- .4 Submit WHMIS MSDS - Material Safety Data Sheets in accordance with Section 02 81 01 - Hazardous Materials.
- .5 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.
- .2 Parks Canada recognizes that federal Occupational Health and Safety legislation places specific responsibilities upon Parks Canada as owner of the work place. In order to meet those requirements, Parks Canada has implemented a contractor safety regime to ensure roles and responsibilities assigned under Part II of the Canada Labour Code and the Canada Occupational Health and Safety Regulations are implemented and observed when involving contractor(s) to undertake work in Parks Canada work places, including on Parks Canada property.

- .3 After contract award and prior to commencement of any work under the contract, the Project Manager will hold a health and safety meeting with the Contractor. At this meeting, the Contractor is required to complete and sign an Attestation to certify the Contractor will comply with the requirements set out in the Attestation and the terms and conditions of the contract.

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 Departmental Representative prior to commencement of Work.

1.8 REGULATORY REQUIREMENTS

- .1 Do Work in accordance with Section 01 41 00 – Regulatory Requirements.

1.9 PROJECT/SITE CONDITIONS

1.10 GENERAL REQUIREMENTS

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

1.11 RESPONSIBILITY

- .1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.
- .2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and ordinances, and with site-specific Health and Safety Plan.

1.12 COMPLIANCE REQUIREMENTS

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

1.13 UNFORSEEN HAZARDS

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

1.14 HEALTH AND SAFETY CO-ORDINATOR

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

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

1.15 CORRECTION OF NON-COMPLIANCE

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

1.16 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

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 All Divisions 01, 02, 31, 32, and 35 Sections.

1.2 SUBMITTALS

- .1 Prior to the commencement of construction the Contractor must provide written confirmation that he has read and understood and will comply with environmental procedures as outlined in this section 01 35 43-Environmental Procedures and Directive 17 (Best Management Practices for Construction Projects in Banff National Park-appendix F).

1.3 NATIONAL PARK REGULATIONS

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

1.4 CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)

- .1 Execution of the work is subject to the provisions within the *Canadian Environmental Assessment Act* (CEAA) Guidelines Order of 2012, subsequent amendments, and Parks Canada's Interim Directive on Implementation of the Canadian Environmental Assessment Act 2012.
- .2 Failure to comply with or observe environmental protection measures as identified in these specifications may result in the work being suspended pending rectification of the problems.

1.5 MONITORING

- .1 Parks Canada will have an ESO attending the site to monitor the construction activity for conformance with the Environmental Procedures. 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.

1.6 CONSTRUCTION SITE ACCESS AND PARKING

- .1 In consultation with the Departmental Representative, the Contractor shall formulate an agreement for worker transportation to and from the work sites and where workers shall park their private vehicles. Generally, personal vehicles shall be parked at least 10 metres distance from any watercourse.

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

1.7 PROTECTION OF WORK LIMITS

- .1 The Contractor is to prepare an Environmental Protection Plan which details how the work limits shall be marked and what procedures will be employed to ensure trespass outside these limits does not occur, to the satisfaction of the Departmental Representative and the ESO.

1.8 EROSION CONTROL

- .1 Erosion control measures that prevent sediment from entering any waterway, water body or wetland in the vicinity of the construction site are a critical element of the project and shall be implemented by the Contractor.
- .2 If necessary, on-site sediment control measures shall be constructed and functional prior to initiating activities. The Contractor shall prepare an Erosion Control Plan to the satisfaction of the Departmental Representative and the ESO.
- .3 The regular monitoring and maintenance of all erosion control measures shall be the responsibility of the Contractor. If the design of the control measures is not functioning effectively they are to be repaired. The Departmental Representative and ESO also will monitor erosion control performance.
- .4 The site will be secured against erosion during any periods of construction inactivity or shutdown.

1.9 POLLUTION CONTROL

- .1 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 30 metres from watercourses.
- .2 The containment, storage, security, handling, use, unique spill response requirements and disposal of empty containers, surplus product or waste generated in the use of any hazardous or toxic products shall be in accordance with all applicable federal and provincial legislation. Hazardous products shall be stored no closer than 100 metres from watercourses.
- .3 The Contractor shall prevent blowing dust and debris by covering and/or providing dust control for temporary roads and on-site work by methods that are approved by the Departmental Representative or ESO.
- .4 The Contractor shall provide spill kits at re-fuelling, lubrication, and repair locations that will be capable of dealing with 110% of the largest potential spill and shall be maintained in good working order on the construction site. The ESO and Departmental Representative prior to project start-up must approve these spill kits. The Contractor and site staff shall be informed of the location of the spill response kit(s) and be trained in its use.
- .5 Timely and effective action shall be taken to stop, contain and clean-up all spills as long as the site is safe to enter. The Departmental Representative and the ESO shall be notified immediately of any spill. If not available, Banff Dispatch will be contacted at (403) 762 – 4506. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.

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

1.10 EQUIPMENT MAINTENANCE, FUELLING AND OPERATION

- .1 The Contractor shall ensure that all soil, seeds and any debris attached to construction equipment to be used on the project site shall be removed (e.g. power washing) outside the Banff National Park before delivery to the work site.
- .2 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative and the ESO. Except for chain saws, any fuelling closer than 100 metres any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
- .3 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times. Protection and containment of approved fuel storage sites is addressed in # 4 of Pollution Control above.
- .4 Equipment used on the project shall be fuelled with E10, and low sulfur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
- .5 Oil changes, lubricant changes, greasing and machinery repairs shall be performed at locations approved by the ESO or the Departmental Representative. Waste lubrication products (e.g. oil filters, used containers, used oil, etc.) shall be secured in spill-proof containers and properly recycled or disposed of at an approved facility. No waste petroleum, lubricant products or related materials are to be discarded, buried or disposed of in borrow pits, turnouts, picnic areas, viewpoints, etc. anywhere within Banff National Park.
- .6 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
- .7 Fuel containers and lubricant products shall be stored only in secure locations specified by the Departmental Representative. Fuel tanks or other potentially deleterious substance containers shall be secured to ensure they are tamperproof and cannot be drained by vandals when left overnight in Banff National Park. Alternatively, the Contractor may hire a security person employed to prevent vandalism.

1.11 OPERATION OF EQUIPMENT

- .1 Equipment movements shall be restricted to the 'footprint' of the construction area. The work limits shall be identified by stake and ribbon or other methods approved by the Departmental Representative. Unless authorized by the Departmental Representative, activities beyond the work limits are not permitted. No machinery will enter, work in or cross over streams, rivers, wetlands, water bodies or watercourses, nor damage aquatic and riparian habitat or trees and plant communities. Some of the construction shall require working close to watercourses or water bodies. In these instances, the Contractor is to describe measures to be employed to ensure fugitive materials (e.g. rocks, soil, branches) and especially deleterious substances (e.g. chemicals) do not enter any watercourses, to the satisfaction of the Departmental Representative and ESO.

- .2 The Contractor shall instruct workers to prevent pushing, placement, raveling, storage or stockpiling of any materials (e.g. slash, rock, fill or topsoil) in the trees bordering the right-of-way or into watercourses or water bodies.
- .3 When, in the opinion of Parks Canada, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the designated work area, the Contractor shall be responsible, at his or her expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc. to the satisfaction of the Departmental Representative and ESO.
- .4 Restrict vehicle movements to work limits.
- .5 Workers private vehicles are to remain within the construction footprint.

1.12 FIRE PREVENTION AND CONTROL

- .1 A fire extinguisher shall be carried and available for use on each machine and at locations within the plant in the event of fire. Contractor's staff shall receive basic training in early response to wildfire events during the "environmental briefing".
- .2 Construction equipment shall be operated in a manner and with all original manufacturer's safety devices to prevent ignition of flammable materials in the area.
- .3 Care shall be taken while smoking on the construction site to ensure that the accidental ignition of any flammable material is prevented. Fires or burning of waste materials is not permitted.
- .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.

1.13 WILDLIFE

- .1 During the Environmental Briefing all personnel shall be instructed by the ESO on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .2 Construction activities will take place during daylight hours and, and if necessary, the construction activity may be scheduled around important wildlife windows.
- .3 All site workers will observe posted speed limits and avoid or terminate activities on site that attract or disturb wildlife and vacate the area and stay away from the immediate location if bears, cougars, wolves, elk or moose display aggressive behaviour or persistent intrusion. Extra care to control materials that might attract wildlife (e.g. lunches and food scraps) must be exercised at all times. The contractor will ensure that the work site is properly secured during non-work hours with excavations fenced and covered as required to prevent injury to wildlife.
- .4 Notify the ESO and Departmental Representative immediately about dens, litters, nests, carcasses (road kills), bear activity or encounters on or around the site or crew accommodation. Other wildlife-related encounters are to be reported within 24 hours. If the ESO or Departmental Representative are not available, Banff Dispatch will be contacted at (403) 762 – 4506.

1.14 RELICS AND ANTIQUITIES

- .1 Artifacts, relics, antiquities and items of historical interest such as cornerstones, commemorative plaques, inscribed tablets and similar objects found on the work site shall be reported to the ESO or the Departmental Representative immediately. The Contractor and workers shall wait for instructions before proceeding with their work.
- .2 All historical or archaeological objects found in Banff National Park are protected under the National Parks Act and Regulations and are the property of Parks Canada. The Contractor and workers shall protect any articles found and request direction from the ESO or the Departmental Representative.

1.15 WASTE MATERIALS STORAGE AND REMOVAL

- .1 The Contractor and workers shall dispose of hazardous wastes in conformance with the Environmental Contaminants Act and applicable provincial regulations while observing the Code of Good Practice for Management of Hazardous and Toxic Wastes at Federal Establishments.
- .2 All wastes originating from construction, trade, hazardous and domestic sources, shall not be mixed, but will be kept separate.
- .3 Construction, trade, hazardous waste and domestic waste materials shall not be burned, buried or discarded at the construction site or elsewhere in Banff National Park. These wastes shall be contained and removed in a timely and approved manner by the Contractor and workers, and disposed of at an appropriate waste landfill site located outside the park. Construction waste storage containers, provided by the Contractor, shall be emptied by the Contractor when 90% full. Waste containers will have lids, and waste loads shall be covered while being transported.
- .4 A concerted effort shall be made by the Contractor and workers to reduce, reuse and recycle materials.
- .5 All efforts to prevent wildlife from obtaining food, garbage or other domestic wastes shall be made by the Contractor and contract staff while undertaking their work in Banff National Park. Such wildlife attractants shall not be stored at the work site overnight. Lunches, coolers and food products, including waste food products, shall be securely stored away from access by animals. Daily removal of food scraps, food wrappers, pop cans or other attractive products to bear proof containers is mandatory.
- .6 The Contractor and workers shall immediately report any circumstances related to food/garbage (e.g. overflowing container or strong smell) and wildlife to the ESO or the Departmental Representative. If neither can be reached, the Contractor/worker shall immediately contact Banff Dispatch at (403) 762 – 4506 and report the details.
- .7 Sanitary facilities, such as a portable container toilet, shall be provided by the Contractor and maintained in a clean condition.

1.16 MISCELLANEOUS SITE MANAGEMENT CONTINGENCIES

- .1 If required, a Contractor's office and work headquarters material laydown, equipment parking and storage area will be permitted at the work site.
- .2 The National Park Act regulations prohibit anyone working within Banff National Park from using public campground facilities.
- .3 Removal and storage of snow shall be arranged with the ESO and the Departmental Representative.

- .4 The Contractor shall control blowing dust and debris generated from the construction site by means such as covering or wetting down dry materials and rubbish. Dust control measures for temporary access roads may also have to be initiated.
- .5 Security services at the construction site may be desirable or necessary during the contract, especially during quiet times. Fuel tanks or other potentially deleterious substance containers must be secured by the Contractor to ensure they are tamperproof and cannot be drained by vandals at his own cost.
- .6 Pets shall not be brought to or maintained at the construction site or worker's camp.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 MATERIAL LOADING, HAULING, PLACEMENT AND GRADE BUILDING

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

3.2 SPECIFIC CONCERNS RELATIVE TO EROSION CONTROL AND SEDIMENTATION

- .1 The Contractor shall prepare an Erosion and Sedimentation Management Plan for the components of this contract that are undertaken in proximity to watercourses, wetlands or riparian environments. This plan shall be to the satisfaction of the Departmental Representative and ESO.
- .2 An important desired end result is to allow no release into watercourses of sediments in levels that are deleterious to fish or that would harmfully alter, disrupt, or destroy fish habitat. Similarly there is to be no sediment release into areas of vegetation growth or sensitive areas of sediments in levels that would adversely alter growing or hydraulic conditions.

3.3 CLEANING

- .1 Clean in accordance with Section 01 74 11 – Cleaning.
- .2 Ensure public waterways, storm and sanitary sewers remain free of waste and volatile materials disposal.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 21 23 33.01 – Excavating, Trenching and Backfilling.

1.2 REFERENCES AND CODES

- .1 Perform Work in accordance with National Building Code of Canada (NBC) including amendments up to tender closing date and other codes of provincial or local application provided that in case of conflict or discrepancy, more stringent requirements apply.
- .2 Meet or exceed requirements of:
 - .1 Contract documents.
 - .2 Specified standards, codes and referenced documents.

1.3 CANADIAN ENVIRONMENTAL PROTECTION ACT

- .1 Perform Work in accordance with Canadian Environmental Protection Act.

1.4 NATIONAL PARKS ACT

- .1 Perform Work in accordance with National Parks Act when projects are located within boundaries of National Park.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 All Division 01, 02 and 03 Sections.

1.2 MEASUREMENT PROCEDURES

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

1.3 INSPECTION

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .4 Departmental Representative will order 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. If such Work is found in accordance with Contract Documents, Departmental Representative shall pay cost of examination and replacement.

1.4 ACCESS TO WORK

- .1 Allow inspection/testing agencies access to Work.

1.5 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 35 00.06 – Special Procedures for Traffic Control.
- .2 Section 01 35 43 – Environmental Procedures.
- .3 Section 35 42 19 – Preservation of Water Courses and Wetlands.

1.2 SUBMITTALS

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

1.3 INSTALLATION AND REMOVAL

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

1.4 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.

1.5 CONSTRUCTION PARKING

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

1.6 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.

1.7 SANITARY FACILITIES

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

1.8 CONSTRUCTION SIGNAGE

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

- .3 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

1.9 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Provide traffic control measures in accordance with Section 01 35 00.06 – Special Procedures for Traffic Control.

1.10 CLEANING

- .1 Clean in accordance with Section 017411 – Cleaning.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 Complete in accordance with Sections 01 35 43 and 35 42 19.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 45 00 – Quality Control.

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.

1.3 QUALITY

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

1.4 AVAILABILITY

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

1.5 STORAGE, HANDLING AND PROTECTION

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
- .3 Store products subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.6 TRANSPORTATION

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

1.7 MANUFACTURER'S INSTRUCTIONS

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

1.8 QUALITY OF WORK

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

1.9 CO-ORDINATION

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

1.10 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.

1.11 EXISTING UTILITIES

- .1 Protect, relocate or maintain existing active services if present. 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

Part 1 General

1.1 PRECEDENCE

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

1.2 RELATED REQUIREMENTS

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

1.3 INSPECTION AND DECLARATION

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

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 PRECEDENCE

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

1.2 RELATED REQUIREMENTS

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

1.3 RECORDING ACTUAL SITE CONDITIONS

- .1 Contractor to provide as built drawings to Departmental Representative at project completion.
- .2 Contract Drawings and shop drawings: legibly mark each item to record actual construction, including:
 - .1 Field changes of dimension and detail.
 - .2 Changes made by change orders.
 - .3 Details not on original Contract Drawings.
 - .4 References to related shop drawings and modifications.
- .3 Specifications: legibly mark each item to record actual construction, including:
 - .1 Changes made by Addenda and change orders.

1.4 WARRANTIES AND BONDS

- .1 All work is to be warranted for a period of one year after all deficiencies identified during final inspection have been rectified.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 01 33 00 – Submittal Procedures.
- .2 Section 01 61 00 – Common Product Requirements.
- .3 Section 01 74 11 – Cleaning.

1.2 REFERENCES

- .1 Definitions:
 - .1 Dangerous Goods: product, substance, or organism specifically listed or meets hazard criteria established in Transportation of Dangerous Goods Regulations.
 - .2 Hazardous Material: product, substance, or organism used for its original purpose; and is either dangerous goods or material that will cause adverse impact to environment or adversely affect health of persons, animals, or plant life when released into the environment.
 - .3 Hazardous Waste: hazardous material no longer used for its original purpose and that is intended for recycling, treatment or disposal.
- .2 Reference Standards:
 - .1 Canadian Environmental Protection Act, 1999 (CEPA 1999)
 - .1 Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149).
 - .2 Department of Justice Canada (Jus)
 - .1 Transportation of Dangerous Goods Act, 1992 (TDG Act).
 - .2 Transportation of Dangerous Goods Regulations (T-19.01-SOR/2001-286).
 - .3 Health Canada / Workplace Hazardous Materials Information System (WHMIS)
 - .1 Material Safety Data Sheets (MSDS).
 - .4 National Research Council Canada Institute for Research in Construction (NRC-IRC)
 - .1 National Fire Code of Canada-2010.

1.3 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .3 Transport hazardous materials and wastes in accordance with Transportation of Dangerous Goods Act, Transportation of Dangerous Goods Regulations, and applicable provincial regulations.
- .4 Storage and Handling Requirements:

- .1 Co-ordinate storage of hazardous materials with Departmental Representative and abide by internal requirements for labelling and storage of materials and wastes.
- .2 Store and handle hazardous materials and wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 Store and handle flammable and combustible materials in accordance with National Fire Code of Canada requirements.
- .4 Keep no more than 45 litres of flammable and combustible liquids such as gasoline, kerosene and naphtha for ready use.
 - .1 Store flammable and combustible liquids in approved safety cans bearing the Underwriters' Laboratory of Canada or Factory Mutual seal of approval.
 - .2 Storage of quantities of flammable and combustible liquids exceeding 45 litres for work purposes requires the written approval of the Departmental Representative.
- .5 Transfer flammable and combustible liquids away from open flames or heat-producing devices.
- .6 Solvents or cleaning agents must be non-flammable or have flash point above 38 degrees C.
- .7 Store flammable and combustible waste liquids for disposal in approved containers located in safe, ventilated area. Keep quantities to minimum.
- .8 Observe smoking regulations, smoking is prohibited in areas where hazardous materials are stored, used, or handled.
- .9 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.
 - .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 stored in separate containers.
 - .6 Store hazardous materials and wastes in secure storage area with controlled access.
 - .7 Maintain clear egress from storage area.
 - .8 Store hazardous materials and wastes in location that will prevent them from spilling into environment.
 - .9 Have appropriate emergency spill response equipment available near storage area, including personal protective equipment.
 - .10 Maintain inventory of hazardous materials and wastes, including product name, quantity, and date when storage began.
 - .11 When hazardous waste is generated on site:
 - .1 Co-ordinate transportation and disposal with Departmental Representative.
 - .2 Comply with applicable federal, provincial and municipal laws and regulations for generators of hazardous waste.

- .3 Use licensed carrier authorized by provincial authorities to accept subject material.
- .4 Before shipping material obtain written notice from intended hazardous waste treatment or disposal facility it will accept material and it is licensed to accept this material.
- .5 Label container[s] with legible, visible safety marks as prescribed by federal and provincial regulations.
- .6 Only trained personnel handle, offer for transport, or transport dangerous goods.
- .7 Provide photocopy of shipping documents and waste manifests to Departmental Representative.
- .8 Track receipt of completed manifest from consignee after shipping dangerous goods. Provide photocopy of completed manifest to Departmental Representative.
- .9 Report discharge, emission, or escape of hazardous materials immediately to Departmental Representative and appropriate provincial authority. Take reasonable measures to control release.
- .12 Ensure personnel have been trained in accordance with Workplace Hazardous Materials Information System (WHMIS) requirements.
- .13 Report spills or accidents immediately to Departmental Representative. Submit a written spill report to Departmental Representative within 24 hours of incident.

Part 2 Products

2.1 MATERIALS

- .1 Description:
 - .1 Bring on site only quantities hazardous material required to perform Work.
 - .2 Maintain MSDS in proximity to where materials are being used. Communicate this location to personnel who may have contact with hazardous materials.

Part 3 Execution

3.1 CLEANING

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

END OF SECTION

SECTION 03 10 00 CONCRETE FORMING AND ACCESSORIES

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 43 - Environmental Procedures.
- .3 Section 03 20 00 - Concrete Reinforcing
- .4 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA)
 - .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, Douglas Fir Plywood.
 - .4 CSA S269.1, Falsework for Construction Purposes.
 - .5 CAN/CSA-S269.3, Concrete Formwork, National Standard of Canada.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit shop drawings for formwork and falsework.
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta, Canada.
- .3 .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.
- .4 Indicate formwork design data: permissible rate of concrete placement, and temperature of concrete, in forms.
- .5 Indicate sequence of erection and removal of formwork/falsework.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Waste Management and Disposal:
 - .1 Place materials defined as hazardous or toxic in designated containers.
 - .2 Use sealers, form release and stripping agents that are non-toxic, biodegradable and have zero or low volatile organic compounds (VOC's).
 - .3 Dispose concrete waste in accordance with Section 01 35 43 - Environmental Procedures and as approved by the Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Formwork materials:
 - .1 Forms for unexposed surfaces are at the discretion of the Contractor subject to approval of the Departmental Representative.
- .2 Formwork shall have sufficient supports, strong-backs and/or walers to ensure straightness of the form.
- .3 Metal bolts or anchorages within the forms shall be so constructed as to permit their removal to a depth of at least 20 mm from the concrete surface.
- .4 Break-back type form ties shall have all spacing washers removed and the tie shall be broken back a distance of at least 20 mm from the concrete surface.
- .5 All fittings for metal ties shall be of such design that, upon their removal, the cavities which are left will be of the smallest possible size. Torch cutting of steel hangers and ties will not be permitted. Formwork hangers for exterior surfaces of decks and curbs shall be an acceptable break-back type with surface cone, or removable threaded type.
- .6 Cavities shall be filled with cement mortar and the surface left sound, smooth, even and uniform in colour.
- .7 Form release agent shall be non-toxic, biodegradable, and low VOC.
- .8 Falsework materials shall conform to CSA-S269.1.

Part 3 Execution

3.1 FABRICATION AND ERECTION

- .1 Verify lines, levels and centres before proceeding with formwork/falsework and ensure dimensions agree with Drawings.
- .2 Obtain the Departmental Representative's approval for use of earth forms framing openings not indicated on drawings.
- .3 Fabricate and erect falsework in accordance with CSA S269.1.
- .4 Do not place shores and mud sills on frozen ground.
- .5 Provide site drainage to prevent washout of soil supporting mud sills and shores.
- .6 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 CAN/CSA-A23.1/A23.2.
- .7 Align form joints and make watertight. Keep form joints to minimum.
- .8 Use 20 mm chamfer strips on external corners and/or 25 mm fillets at interior corners, joints, unless specified otherwise on the drawings.
- .9 Form chases, slots, openings, drips, recesses, expansion and control joints as indicated.
- .10 Build in anchors, sleeves, and other inserts required to accommodate Work as shown on the drawings and specified in other sections. Ensure that all anchors and inserts will not protrude beyond surfaces designated to receive applied finishes, including painting.

- .11 Pier foundation formwork shall be watertight to prevent river contamination.
- .12 Clean formwork in accordance with CSA-A23.1/A23.2, before placing concrete.

3.2 REMOVAL AND RESHORING

- .1 Leave formwork in place for following minimum periods of time after placing concrete.
 - .1 2 days for cast-in-place concrete barriers, deck cantilevers and other structural members if the 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, or replace immediately with adequate reshoring.
- .3 Reuse formwork and falsework subject to requirements of CSA-A23.1/A23.2.

END OF SECTION

SECTION 03 20 00 CONCRETE REINFORCING

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 43 - Environmental Procedures.
- .3 Section 03 10 00 - Concrete Forming and Accessories
- .4 Section 03 30 00 - Cast-in-Place Concrete.

1.2 REFERENCES

- .1 ASTM International
 - .1 ASTM A82/A82M, Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
- .2 CSA International
 - .1 CSA-A23.1-09/A23.2, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.
 - .2 CAN/CSA-A23.3, Design of Concrete Structures.
 - .3 CSA-G30.18, Carbon Steel Bars for Concrete Reinforcement.
 - .4 CSA- G40.20/G40.21, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
 - .5 CAN/CSA-G164-[M92(R2003)], Hot Dip Galvanizing of Irregularly Shaped Articles.
- .3 Reinforcing Steel Institute of Canada (RSIC)
 - .1 RSIC-2004, Reinforcing Steel Manual of Standard Practice.
- .4 Concrete Reinforcement Work shall be in accordance with British Columbia Standard Specifications for Highway Construction, Section 412, "Concrete Reinforcement."

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare reinforcement drawings in accordance with RSIC Manual of Standard Practice.
- .3 Shop Drawings:
 - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Alberta, Canada.
 - .1 Indicate placing of reinforcement and:
 - .1 Bar bending details.
 - .2 Lists.
 - .3 Quantities of reinforcement.
 - .4 Sizes, spacings, locations of reinforcement and mechanical splices if approved by the Departmental Representative, with identifying code marks to permit correct placement without reference to structural drawings.

- .5 Indicate sizes, spacings and locations of chairs, spacers and hangers.
- .2 Detail lap lengths and bar development lengths to CAN/CSA-A23.3, unless otherwise indicated.

1.4 QUALITY ASSURANCE

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

1.5 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 MATERIALS

- .1 Substitute different size bars only if permitted in writing by the Departmental Representative.
- .2 Reinforcing steel: billet steel, grade 400W, deformed bars to CSA-G30.18, unless indicated otherwise.
- .3 Reinforcing steel:
 - .1 weldable low alloy steel deformed bars to CSA-G30.18.
 - .2 welded deformed wire reinforcement to CSA-G30.15
- .4 Cold-drawn annealed steel wire ties: to ASTM A82/A82M.
- .5 Chairs, bolsters, bar supports, spacers: to CSA-A23.1.
- .6 Mechanical splices: subject to approval of the Departmental Representative.
- .7 Plain round bars: to CSA-G40.20/G40.21.

2.2 FABRICATION

- .1 Fabricate reinforcing steel in accordance with CSA-A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada, unless indicated otherwise.

- .2 All hooks and bends shall be bent using the pin diameters and dimensions as recommended in the Reinforcing Steel Institute of Canada (RSIC), Manual of Standard Practice.
- .3 Obtain the Departmental Representative's approval for locations of reinforcement splices other than those shown on placing drawings.
- .4 Upon approval of the Departmental Representative, weld reinforcement in accordance with CSA W186.
- .5 Ship bundles of bar reinforcement, clearly identified in accordance with bar bending details and lists.

2.3 SOURCE QUALITY CONTROL

- .1 Provide the Departmental Representative with certified copy of mill test report of reinforcing steel, showing physical and chemical analysis.
- .2 Inform the Departmental Representative of proposed source of material to be supplied.

Part 3 Execution

3.1 FIELD BENDING

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

3.2 PLACING REINFORCEMENT

- .1 Place reinforcing steel as indicated on drawings and in accordance with CSA-A23.3.
- .2 Prior to placing concrete, obtain the Departmental Representative's approval of reinforcing material and placement.
- .3 Ensure cover to reinforcement is maintained during concrete pour.
- .4 Welding of reinforcement is not permitted.

3.3 CLEANING

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

END OF SECTION

SECTION 03 30 00 CAST-IN-PLACE CONCRETE

Part 1 General

1.1 RELATED SECTIONS

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 35 43 - Environmental Procedures.
- .3 Section 01 45 00 - Quality Management.
- .4 Section 01 74 11 - Cleaning.
- .5 Section 03 10 00 - Concrete Forming and Accessories.
- .6 Section 03 20 00 - Concrete Reinforcing.

1.2 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"
- .2 Alberta Bridge Structures Design Criteria 2012, Section 5 "Materials".
- .3 CSA International
 - .1 CSA A23.1/A23.2-09, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
 - .2 CSA A283-06, Qualification Code for Concrete Testing Laboratories.
 - .3 CSA A3000-08, Cementitious Materials Compendium (Consists of A3001, A3002, A3003, A3004 and A3005).

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Provide testing results and reports for review by the Departmental Representative and do not proceed without approval when deviations from mix design or parameters are found.
- .3 Concrete pours: provide accurate records of poured concrete items indicating date and location of pour, quality, air temperature and test samples taken as described in PART 3 - FIELD QUALITY CONTROL.
- .4 Concrete hauling time: provide for review by the Departmental Representative deviations exceeding maximum allowable time of 120 minutes for concrete to be delivered to site of Work and discharged after batching.

1.4 QUALITY ASSURANCE

- .1 Quality Assurance: in accordance with Section 01 45 00 - Quality Management.
- .2 Provide the Departmental Representative, minimum 4 weeks prior to starting concrete work, with valid and recognized certificate from plant delivering concrete. Provide test data and certification by qualified independent inspection and testing laboratory that materials and mix designs used in concrete mixture will meet specified requirements.
- .3 Minimum 4 weeks prior to starting concrete work, provide proposed quality control procedures for review by the Departmental Representative on following items:

- .1 Falsework erection.
 - .2 Hot weather concrete.
 - .3 Cold weather concrete.
 - .4 Curing.
 - .5 Finishes.
 - .6 Formwork removal.
 - .7 Joints.
- .4 Quality Control Plan: provide written report to the Departmental Representative verifying compliance that concrete in place meets performance requirements of concrete as established in PART 2 - PRODUCTS.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Concrete hauling time: deliver to site of Work and discharged within 90 minutes maximum after batching.
 - .1 Deviations to be submitted for review by the Departmental Representative.

Part 2 Products

2.1 CONCRETE MIX

Alberta Transportation Specifications for Bridge Construction, Section 5.5, Class "C" ad summarised in the following table:

Minimum Compressive Strength @ 28 Days MPa	Size of Course Aggregate mm	Range of Slump mm	Entrained Air Content. %	Max. Water Cement Ratio
30	20 to 5	60 to 80	5 - 8	0.42

- .1 Ready-mix or pre-bagged mix conforming to the above will be acceptable.

Part 3 Execution

3.1 PREPARATION

- .1 Obtain the Departmental Representative's approval before placing concrete. Provide 24 hours minimum notice prior to placing of concrete.
- .2 Place concrete reinforcing in accordance with Section 03 20 00 - Concrete Reinforcing.
- .3 During concreting operations:

- .1 Development of cold joints not allowed except where indicated on the drawings.
- .2 Ensure concrete delivery and handling facilitates placing with minimum of re-handling, and without damage to existing structure or Work.
- .4 Ensure reinforcement and inserts are not disturbed during concrete placement.
- .5 Prior to placing of concrete obtain the Departmental Representative's approval of proposed method for protection of concrete during placing and curing in adverse weather.
- .6 Protect previous Work from staining.
- .7 Clean and remove stains prior to application for concrete finishes.
- .8 Maintain accurate records of poured concrete items to indicate date, location of pour, quality, air temperature and test samples taken.

3.2 INSTALLATION/APPLICATION

- .1 Cast-in-place concrete work in accordance with Alberta Transportation specifications and CSA A23.1/A23.2
- .2 Special attention shall be made to the requirements concreting in cold weather required by the Alberta Transportation Specifications for Bridge Construction
- .3 Bearing Seats shall have a trowelled finish to CSA A23.1.

3.3 FIELD QUALITY CONTROL

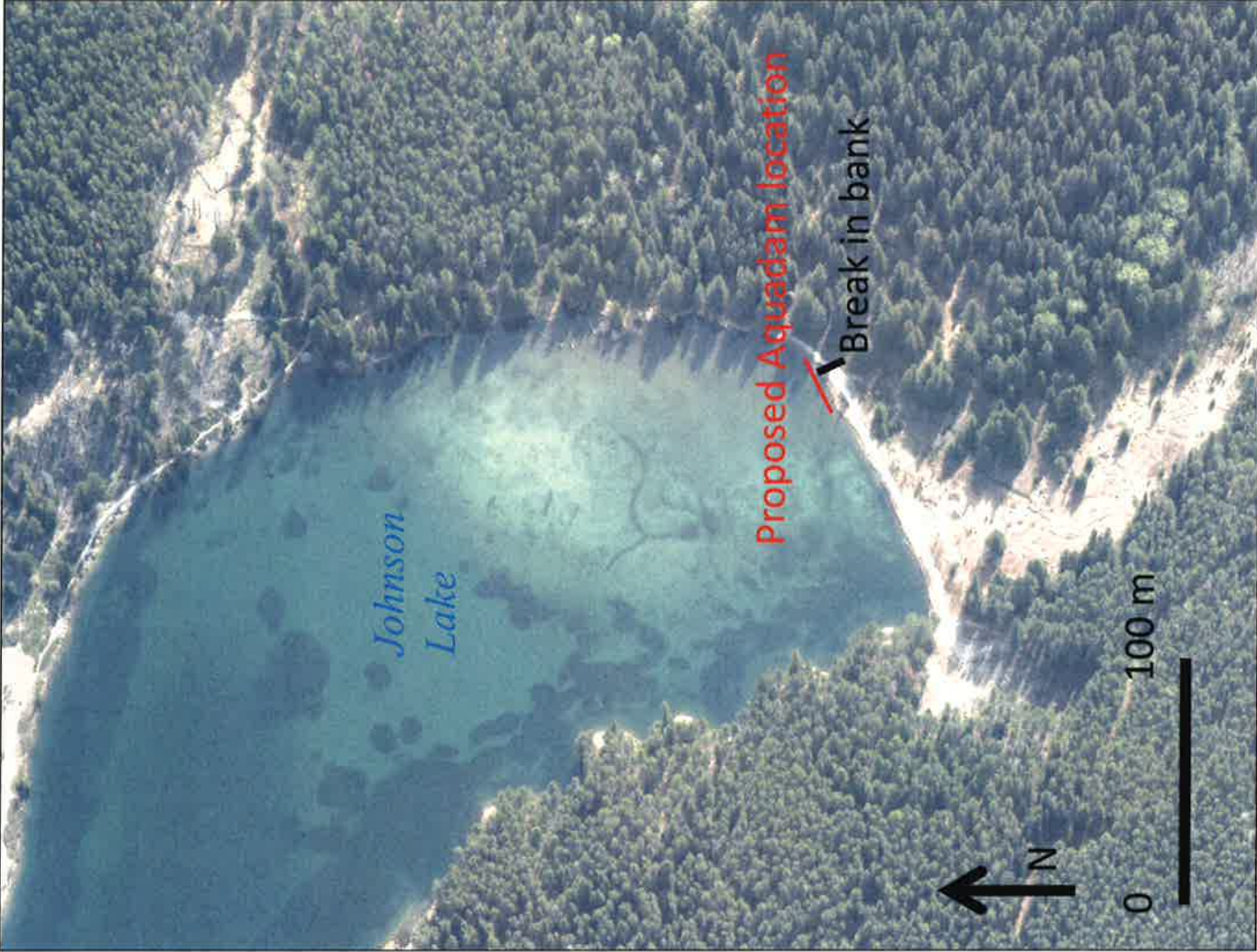
- .1 Site tests: conduct tests as follows in accordance with Section 01 45 00 - Quality Control and submit results.
 - .1 Concrete pours.
 - .2 Slump.
 - .3 Air content.
 - .4 Compressive strength at 7 and 28 days.
 - .5 Air and concrete temperature.
- .2 Inspection and testing of concrete and concrete materials will be carried out by testing laboratory designated by Departmental Representative for review to CSA A23.1. Ensure testing laboratory is certified to CSA A283.
- .3 Ensure test results are distributed for discussion at pre-pouring concrete meeting between testing laboratory and Departmental Representative.
- .4 Non-Destructive Methods for Testing Concrete: to CSA A23.1/A23.2.

3.4 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
- .2 Divert unused admixtures and additive materials from landfill to official hazardous material collections site as approved by the Departmental Representative.
- .3 Do not dispose of unused admixtures and additive materials into sewer systems, into lakes, streams, onto ground or in other locations where it will pose health or environmental damage.

- .4 Prevent admixtures and additive materials from entering drinking water supplies or streams.
- .5 Using appropriate safety precautions collect liquid or solidify liquid with inert, noncombustible material and remove for disposal. Dispose of waste in accordance with applicable local, Provincial/Territorial and National regulations.

END OF SECTION



Facing East
Largest distance between
proposed location and
shore/break = 3.5m

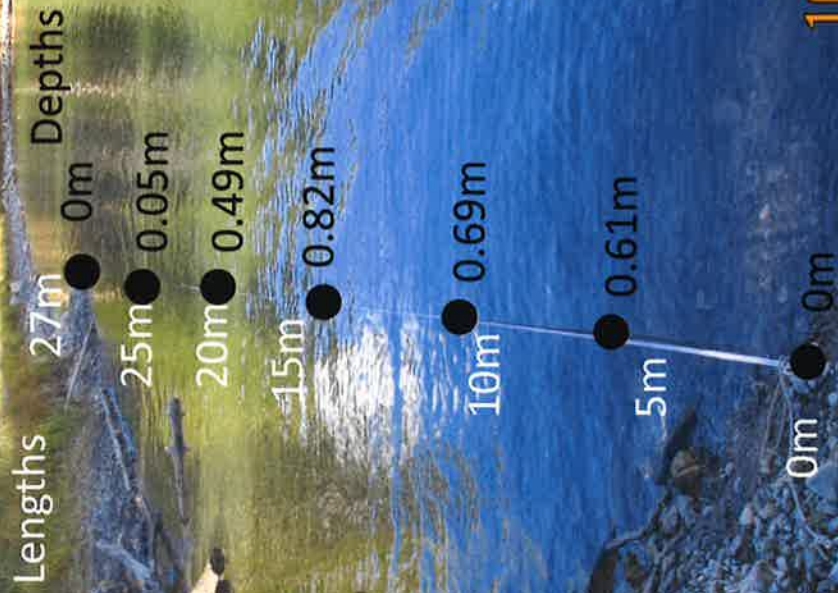
Proposed Aquadam location
Total Length = 27m
Max. Depth = 0.9m



10/02/2013 10:40



Facing West



Total length = 27m

Max. Depth = 0.9m

10/02/2013 10:49

Facing Northeast

0m

5m

10m

15m

2.5m

3.5m

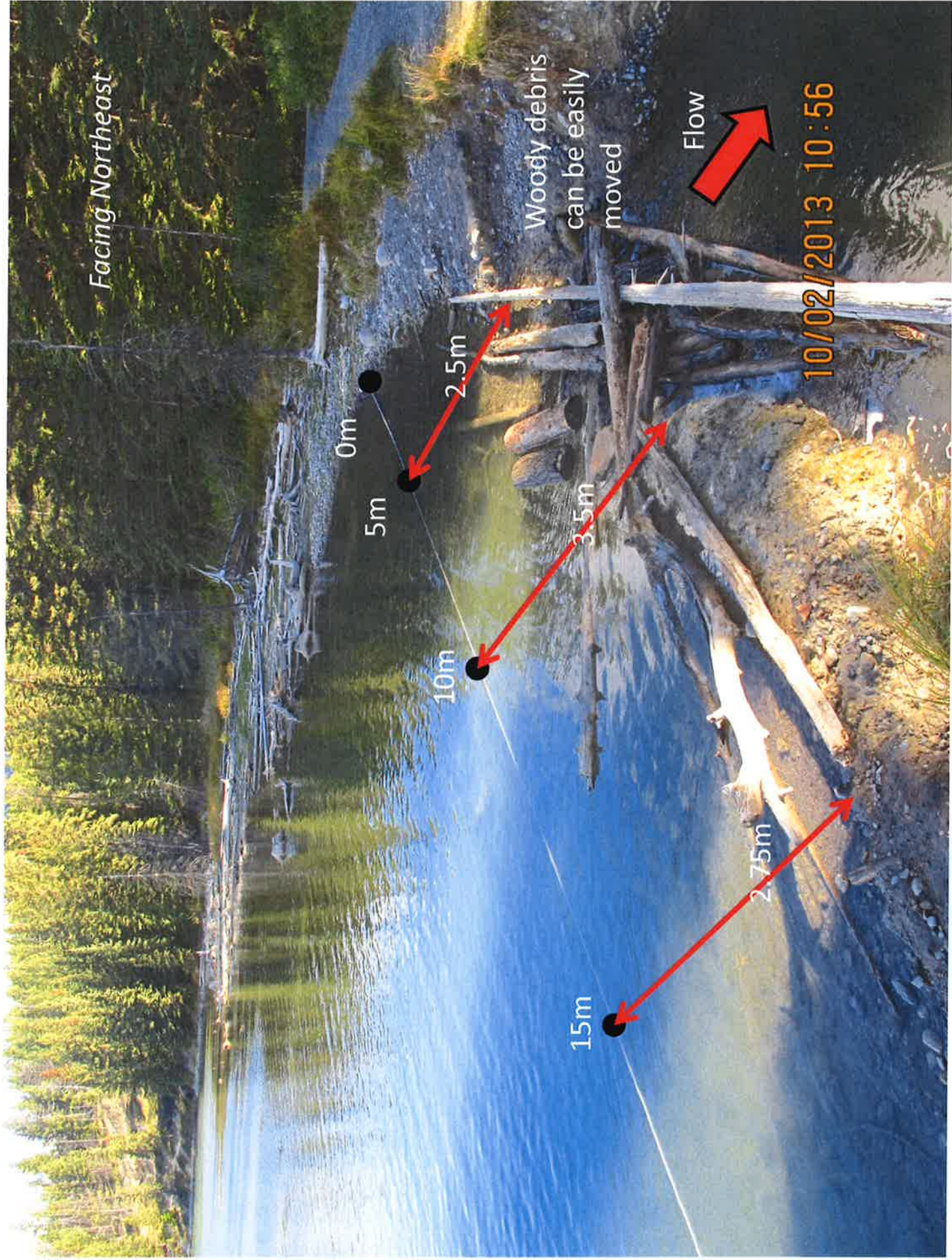
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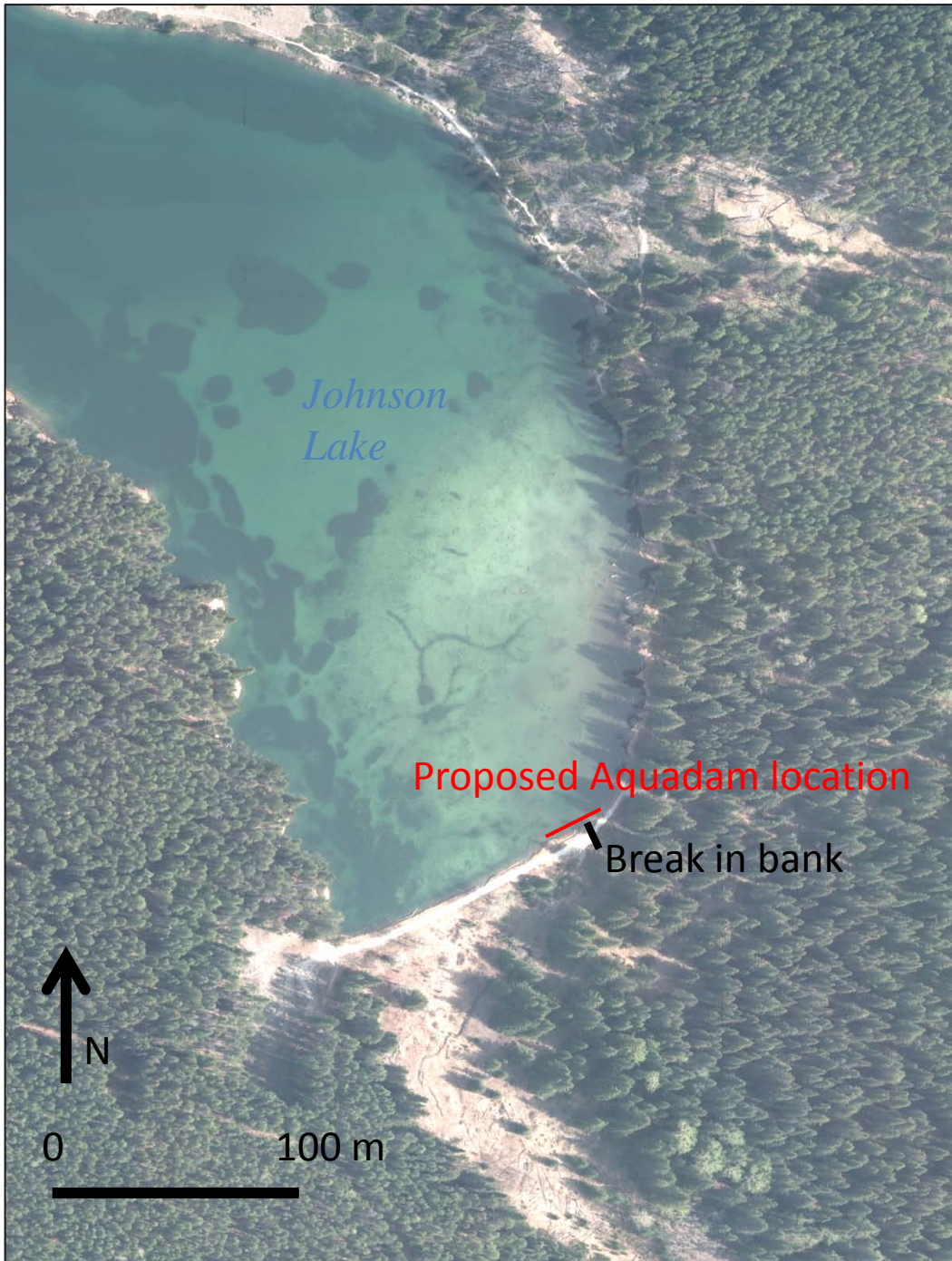
Woody debris
can be easily
moved

Flow



10/02/2013 10:56





*Johnson
Lake*

Proposed Aquadam location

Break in bank



0 100 m

Facing East
Largest distance between
proposed location and
shore/break = 3.5m

Proposed Aquadam location
Total Length = 27m
Max. Depth = 0.9m



10/02/2013 10:40

Facing West

Lengths

27m

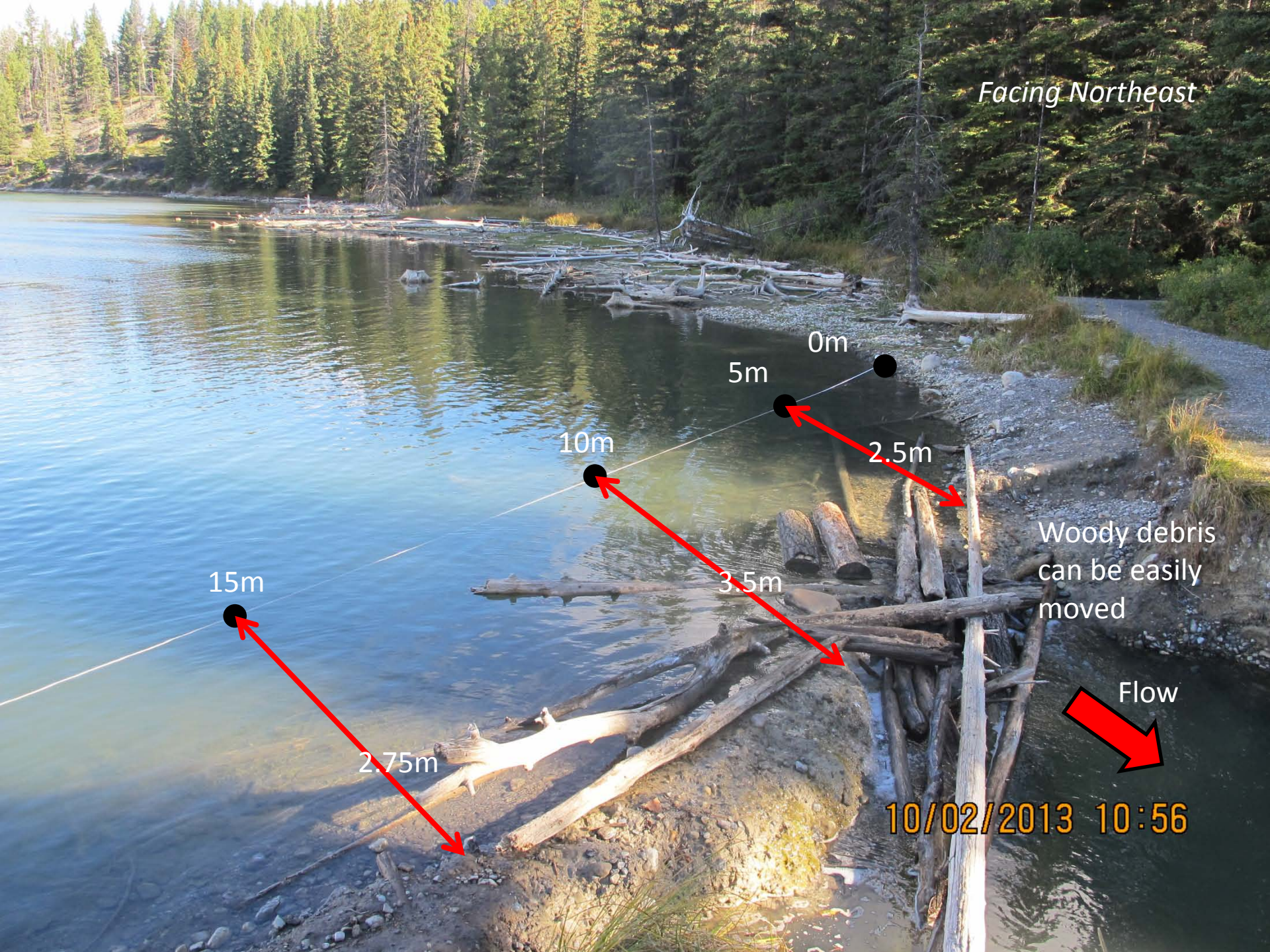
Depths



Total length = 27m
Max. Depth = 0.9m

10/02/2013 10:49

Facing Northeast



15m

2.75m

10m

5m

0m

2.5m

3.5m

Woody debris
can be easily
moved

Flow

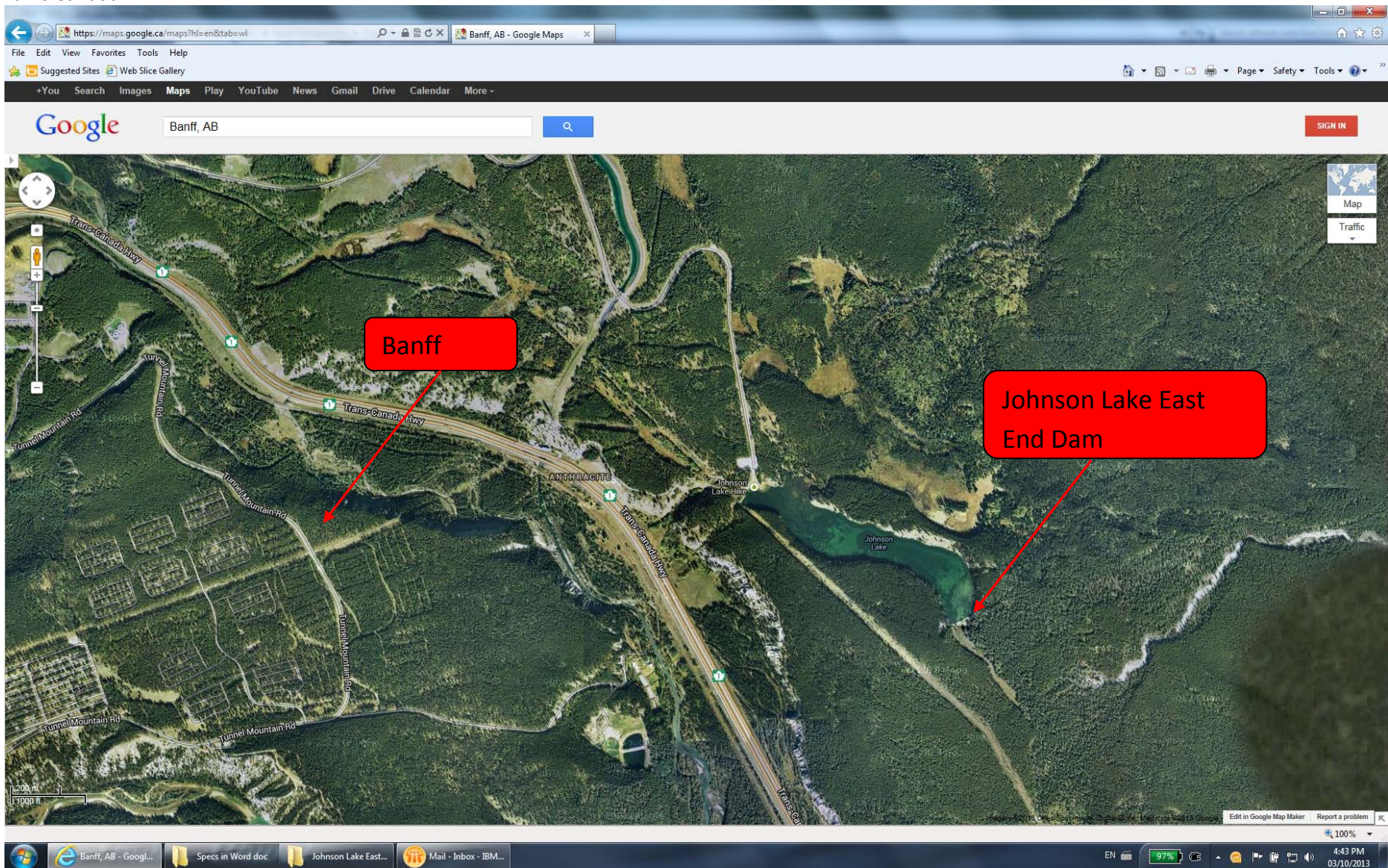
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Appendix A

Aqua Dam Details

Appendix B

Site Plan/Locations



Johnson Lake – East End Dam

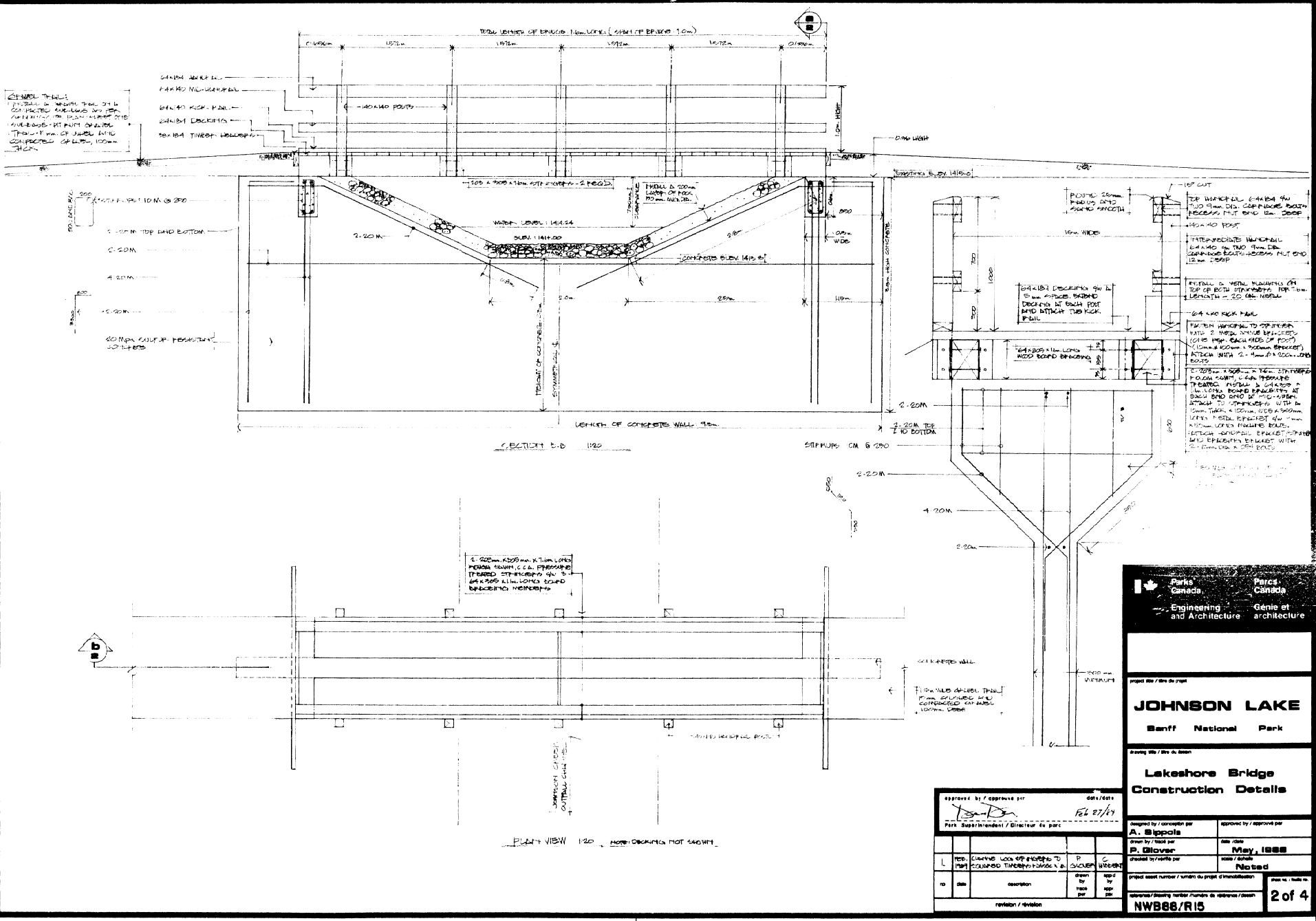


Johnson Lake – East End Dam



Appendix C

Spillway Design Details



Parks Canada / Parcs Canada
 Engineering and Architecture / Génie et architecture

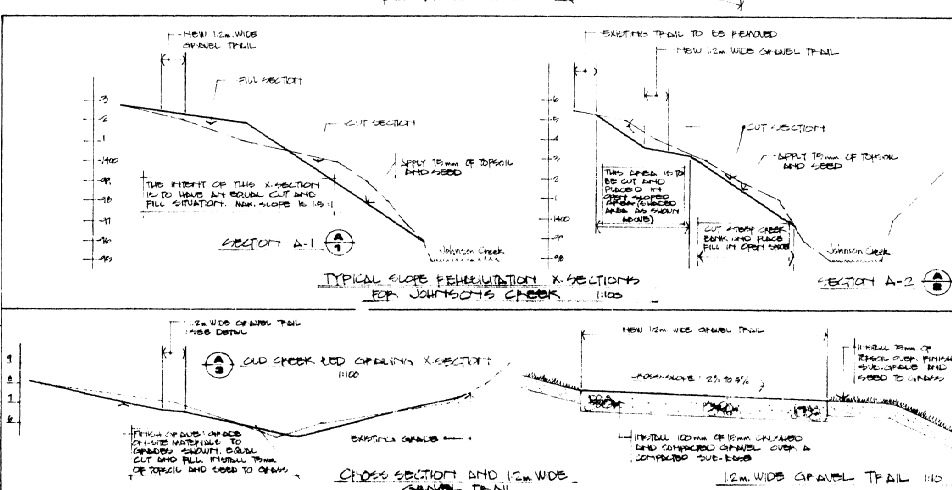
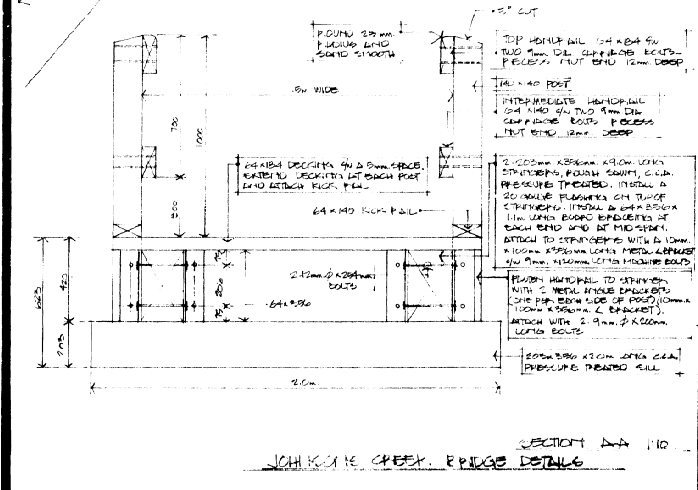
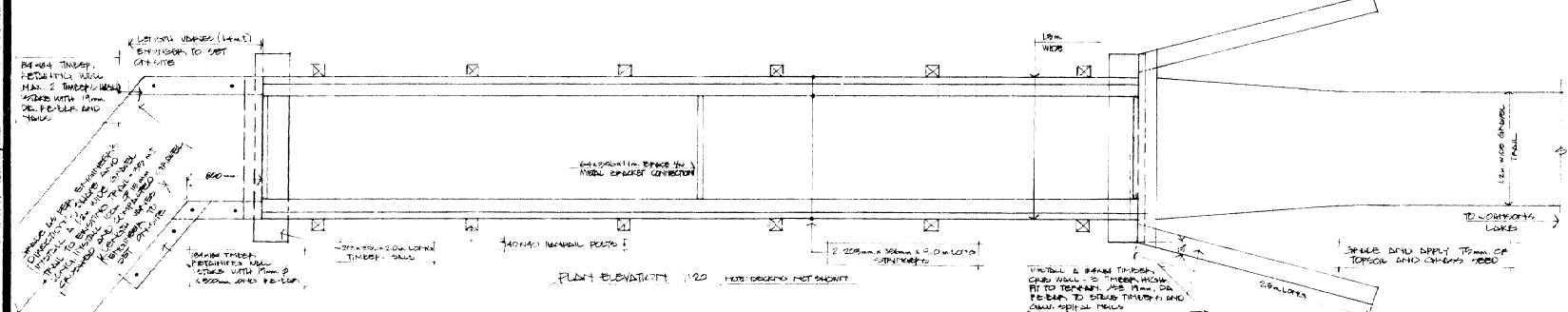
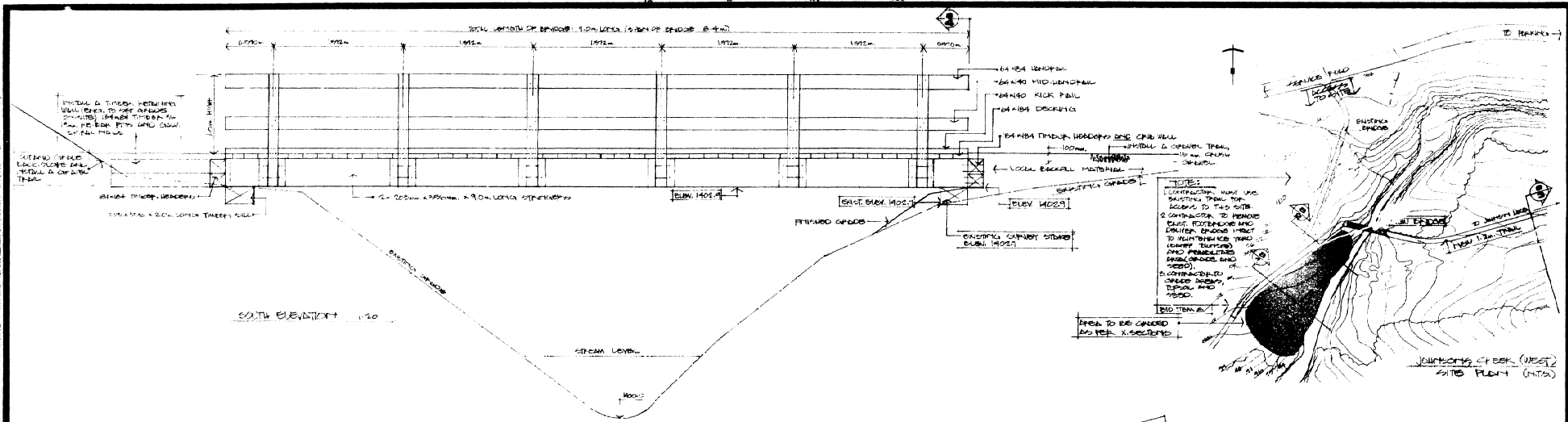
Project No. / No. du projet
JOHNSON LAKE
 Banff National Park

Drawing No. / No. du dessin
Lakeshore Bridge
Construction Details

approved by / approuvé par Park Superintendent / Directeur de parc	date / date Feb 27/94
designed by / conçu par A. Sippola	approved by / approuvé par date / date P. Glover May 1988
drawn by / tracé par checked by / vérifié par noted	date / date May 1988 noted

project sheet number / numéro de plan de construction
NWB86/R15

sheet no. / feuille no.
2 of 4



approved by / approve par: [Signature] Date/Date: Feb 27/91
 Park Superintendent, Director 60 2012

1	REV	DATE	BY	DESCRIPTION
1	REV	12/1/90	W. J. G.	ISSUED FOR CONSTRUCTION

Parcs Canada / Parks Canada
 Engineering and Architecture / Génie et architecture

JOHNSON LAKE
 Banff National Park

Creek Bridge And Construction Details

Designed by / conception par: P. Glover
 Checked by / vérifié par: P. Glover
 Approved by / approuvé par: [Signature]
 Date / Date: May, 1988
 Status: Noted
 Project / Drawing Number / Numéro de projet / Dessin: NWB88/R15
 Page / Page: 4 of 4

Mirafi[®] 160N



Mirafi[®] 160N is a needlepunched nonwoven geotextile composed of polypropylene fibers, which are formed into a stable network such that the fibers retain their relative position. Mirafi[®] 160N is inert to biological degradation and resists naturally encountered chemicals, alkalis, and acids. Mirafi[®] 160N meets AASHTO M288-06 Class 2 for Elongation > 50%.

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Mechanical Properties	Test Method	Unit	Minimum Average Roll Value	
			MD	CD
Grab Tensile Strength	ASTM D4632	lbs (N)	160 (712)	160 (712)
Grab Tensile Elongation	ASTM D4632	%	50	50
Trapezoid Tear Strength	ASTM D4533	lbs (N)	60 (267)	60 (267)
CBR Puncture Strength	ASTM D6241	lbs (N)	410 (1825)	
Apparent Opening Size (AOS) ¹	ASTM D4751	U.S. Sieve (mm)	70 (0.212)	
Permittivity	ASTM D4491	sec ⁻¹	1.5	
Flow Rate	ASTM D4491	gal/min/ft ² (l/min/m ²)	110 (4481)	
UV Resistance (at 500 hours)	ASTM D4355	% strength retained	70	

¹ ASTM D4751: AOS is a Maximum Opening Diameter Value

Physical Properties	Unit	Typical Value
Roll Dimensions (width x length)	ft (m)	15 x 300 (4.5 x 91)
Roll Area	yd ² (m ²)	500 (418)
Estimated Roll Weight	lb (kg)	215 (97)

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ETQR70





Appendix D

Directive 17-

Environmental Best Management Practices for Construction Projects



Banff National Park –Environmental Best Management Practices

For Construction Projects

PURPOSE

The following measures are intended to protect the integrity of the environment in the national park. Project proponents (applicants for building permits, and/or project managers), are responsible for their implementation. Additional specific measures required will be outlined in project specific environmental assessment.

Project Coordination

National Parks are special places- Development projects within National Park boundaries will require special attention. Individuals carrying out such projects will require a heightened awareness of environmental stewardship.

Project Manager- person responsible for project coordination on behalf of the proponent and contractors.

Environmental Surveillance Officer (ESO) or Environmental Monitor (EM) – assures appropriate level of environmental protection is in place and that compliance/conformance with project environmental commitments are met. They operate independently of the proponent or contractors.

CONDUCT OF WORK

Proponents must notify the Canadian Environmental Assessment Specialist (403-762-1419) of the proposed work schedule at least two weeks in advance so an environmental surveillance officer (ESO) can be appointed, and any surveillance activities accommodated.

If stipulated by the environmental surveillance officer (ESO), a start-up meeting will be held on site involving the proponent, engineering staff, project contractor(s) and the ESO. The meeting is to ensure key construction personnel are aware of the environmental concerns, laws, rules and regulations in Banff National Park.

Periodic on-site meetings with the ESO and the Project Manager may be required during the development phase to discuss environmental concerns. Outstanding problems or significant deviations from approved plans which cannot be resolved at the field level will be presented to the Park Superintendent, or his delegate, for final decision.

No work may commence before all necessary approvals and permits have been obtained from Parks Canada.

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Construction workers are required to obtain a National Park Pass. This temporary pass may be obtained from the front office at the Banff National Park administration building.

All contractors must have a valid Business license which may be obtained through contacting the Banff National Park Business Liaison Officer at 403-762-1530.

All park regulations, relevant federal and provincial acts, regulations, guidelines and codes of good practice will apply to all work and activities associated with this project.

Hours of Work: Work hours are generally 7 a.m. and 7 p.m., Monday to Saturday and typically there is no work on Sundays or statutory holidays.

1. SITE ACCESS

Only designated access routes are to be used by construction personnel only.

Vehicle parking is restricted to established roads or identified parking area(s).

It is the responsibility of the contractor to adhere to seasonal vehicle weight restrictions on specific roads such as the Minnewanka loop road. Road weight restrictions are implemented in the spring to minimize damage to road surfaces. The contractor is responsible to contact the ESO to acquire the restriction dates as the windows vary from year to year.

Construction site boundaries must clearly be delineated by flagging or fencing materials and maintained throughout the duration of the project.

Roads, sidewalks and other public accesses are to be maintained with minimal interference unless otherwise noted.

2. SANITARY AND GARBAGE

The contractor shall be required to provide regularly serviced sanitary (toilet) facilities for construction personnel.

The construction site must be maintained in a tidy condition.

All on-site garbage containers used for domestic garbage must be bear-proof.

Food waste is not to be thrown in construction waste bins.

Burning or burial of waste is not permitted.

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Trucks hauling excavation fill material and waste are responsible to ensure nothing escapes during transport.

3. WILDLIFE

The contractor shall ensure that there is no harassment of wildlife occurs as a result of the construction activity and that no action is permitted which will attract wildlife to the site.

The contractor will immediately notify Banff Dispatch at 403-762-1470, to inform of any wildlife encounters on or around the work site or crew accommodation.

The contractor is to report observations of wildlife species such as cougar, wolf, lynx, bear, wolverine, and moose, to Banff Dispatch at 403-762-1470 and/or may inform the ESO.

4. CULTURAL RESOURCES

The contractor will immediately inform the ESO and/or the Project manager of any items of historic interest or evidence of archaeological finds that are discovered on the development site (i.e.: old garbage dump sites, cabin sites, etc.). Where possible, the object is to be left in situ until the ESO arrives.

The ESO will provide direction to the Construction Project manager as to the method in which to proceed with the work through consultation with Park Archaeologists.

All historical and prehistoric finds must be protected and will remain the property of Parks Canada.

5. SITE PREPARATION

The work area must be clearly delineated using flagging tape. Use of spray paint is not permitted.

6. TOPSOIL/VEGETATION REMOVAL

The contractor must contact the ESO at least 5 days prior to commencement of tree/vegetation removal. This will enable the ESO time for pre-site inspection.

The topsoil layer in the BNP area is generally very thin. Successful site rehabilitation depends on careful salvaging of the limited topsoil/duff layer.

Existing top soil should be stripped and stock piled separately from subsoil to prevent mixing.

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Care must be taken during both grubbing and stripping operations to ensure that the trees and roots on the edge of the clearing limits are not disturbed or damaged. This phase will be closely monitored by the ESO.

In some instances where steep back slopes are involved, grubbing and stripping may not be permitted. Stumps should be cut flush with the ground, and the ground cover left undisturbed to promote slope stability. This will be determined by an on-site inspection by the ESO.

Material encountered below the topsoil layer, which is not suitable for construction purposes may be disposed of at designated location. Arrangements to dispose of the surplus material must be made through discussion with the ESO.

7. CONTAMINATED SOIL

The issue of contaminated soils and disposal practices will normally be identified through the EA process. However, where past and present land use practices have led to soil contamination, certain actions will be required. These include:

Soil testing at the expense of the proponent: Level of contamination will be in accordance with the Canadian Council of Ministers of the Environment guidelines, and acceptable levels will be decided by the park. Minimum acceptable standards for in-Park soil contamination and remediation will be to the "Parkland" level.

Contaminated soil disposal will be at the expense of the proponent. Written proof of disposal of contaminated soils will be required. The closest Class 3 landfill site to Banff National Park is the Francis Cooke Landfill in Exshaw, contact number is 403-673-2708.

8. DISPOSAL OF TREES

Generally, trees are to be cut so that they fall inside the cleared construction site parameters. Tree removal will be detailed on approved site plan or landscaping plan. If not the contractor must contact the ESO for instruction on site specific method of tree disposal

Trees larger than 15 cm (DBH) shall be cut into blocks not to exceed 35 cm. and stockpiled at a designated location for use as firewood and/or if deemed necessary, the contractor is responsible to haul the wood to a pre-approved location.

Trees under 15 cm (DBH) and other woody materials such as stumps, tops, and limbs can be disposed of by chipper and deposited at a designated site; or depending on fire hazard and weather conditions, on-site burning may be permitted through consultation with the ESO and Fire/Vegetation Specialist.

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Where possible, every effort will be made to minimize the number of trees cleared. Douglas Fir trees are considered a special resource, and therefore, require consultation with the ESO before removal.

9. CONSTRUCTION MATERIALS

Materials Storage

Construction material shall normally be stored within the confines of the construction site. Under no circumstances may construction materials be stockpiled in the trees along the perimeter of the site or upon any area designated for protection within the site. Off-site storage of materials in undisturbed areas may be allowed only from pre-approval by the ESO.

Trade Waste

Trade waste (construction waste) materials will be disposed of at the designated trade waste area only. There no longer is a trade waste facility in Banff National Park. The nearest trade waste facility is the Francis Cooke Regional Class 3 Landfill located in Exshaw, AB. For more information contact the facility directly at 403- 673-2708.

Toxic/Hazardous Materials

All toxic/hazardous materials will be stored and used in accordance with relevant Federal and Provincial legislation pertaining to these materials. Spill contingency plans and equipment will be on-site, and employees will be aware of such emergency procedures as required. The ESO will be made immediately aware of any and all spills of toxic or hazardous materials. All hazardous wastes will be disposed of at an approved site outside BNP. This material will be disposed of in conformance with all relevant Federal and Provincial legislation and regulations pertaining to the transport and disposition of hazardous wastes.

10. FUEL STORAGE

Permits for on-site storage of fuel or other inflammable liquids must be obtained from the ESO.

Fuel storage and refuelling areas will be designated and must be a minimum of 50 metres from any water body.

The designated storage area will be bermed to enclose 125 % of anticipated storage tank volume. The bermed storage area will be underlain with an impermeable liner. All contaminated rainwater, contained within the berm, will be collected and removed from the park. Other special protection measures may be required to prevent mechanical damage of the tank.

All soil material contaminated during refuelling operations will be collected and disposed of outside BNP at an appropriate facility. Written verification of such disposal will be provided to the ESO.

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Spill contingency plans will be developed and appropriate equipment to implement such plans will be in place, in the event of accidental spillage or tank malfunction. Fire protection equipment will be available on-site. The ESO or designate must be contacted immediately to be made aware of any spill. If the spill occurs outside of regular working hours, the contractor is to contact Banff Dispatch at 403-762-1470.

11. EXCAVATING

Excavation areas must be fenced and clearly delineated to restrict access by both people and wildlife. Where possible, work will be conducted in such a manner to minimize leaving open excavations overnight. Any open excavations must be covered securely overnight.

Disposal of surplus excavation material shall be handled in a similar manner to the disposal of surplus stripping material.

It is extremely important in all excavations to ensure that excavated material is not permitted to sluff into the surrounding tree cover, or to bury any plant material that is to be retained. Trees and shrubs on the perimeter of the site can be severely damaged by burial or damage involved in retrieving this material at a later date.

Rocks rolling down steep slopes during excavation or dumping of fill material can severely damage vegetation below. Special attention by equipment operators and extensive downslope protection work may be required.

Careful equipment operation is required to ensure that mechanical damage to trees and surrounding vegetation does not occur. If damage does occur, the contractor will be responsible to replace the vegetation at their own cost.

All equipment operators should be instructed that the operation of construction equipment off-site is not permitted. This applies both to the perimeter of the site, and to any areas within the site that are protected in a natural state.

Park Archaeologists must be informed of any projects in the Park that require excavation. This will be scheduled at the preliminary/design phase of the project. Archaeological/historical concerns will be cleared by Park Archaeological Division prior to initiation of excavation.

Material sources, material storage areas and width of excavation ditches, trucking requirements, etc., will be identified and recognized as part of the cost estimate of the project.

All open excavations will be signed and fenced appropriately in order to minimize hazards to both the general public and to wildlife.

12. FOUNDATION AND CONCRETE WORK

Indiscriminate disposal of concrete or concrete residues around the site perimeter is not permitted. A concrete truck cleanout area will be identified for each project through consultation with the ESO. Concrete residues will be disposed of at an approved location outside the Park at the proponent's expense.

13. POLLUTION OF RIVERS AND STREAMS

No rock, silt, cement, grout, asphalt, petroleum product, lumber, vegetation, domestic waste, or any deleterious substance shall be placed or allowed to disperse into any stream, river, pond, storm or sanitary sewer, or other water course.

All fuels, oils, lubricants and other petrochemical products will not be stored within 100 meters of any waterbody (including wetlands).

The crossing of any waterbody (including wetlands) by construction equipment, or the use of such equipment within waterbodies is strictly prohibited unless prior approval has been confirmed through the EA process.

Only approved chemically treated wood will be allowed near water courses. Sawdust and wood scraps will not be allowed to enter waterbodies.

Erosion control measures will be implemented on all construction sites in order to ensure that off-site run-off is minimized and sediments contained within site perimeters. All pumping of water will be subject to approval of the ESO.

Site rehabilitation will be an urgent priority. For construction areas adjacent to watercourses, special protection and / or reclamation measures may be required.

River or streambeds will not be used for borrow materials.

Excavated fill or debris will not be dumped into waterways.

14. POLLUTION PREVENTION AND SPILL REPORTING

Contaminated waste from demolition/construction must be disposed as outlined previously.

Fuel will not be stored on site without pre-approval. Refueling of excavation equipment will occur on hardened surfaces away from water resources only and care taken to avoid spillage.

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All fuel, lubricant, oil, hydraulic fluid, or chemical spills must be reported immediately to the Banff Emergency Services (9-1-1). And measures undertaken for immediate containment and clean up by personnel on site. A spill kit of sufficient size to contain and clean up 110% of the site's largest possible fuel/chemical spill must be retained on site. All personnel on site must be aware of the kit, its location and proper use.

Noise and air pollution on site from excavation equipment and trucks will be kept to a minimum by shutting off motors when not in use.

A radon test should be performed before the basement floor is poured so that venting can be installed if required.

Deposit of deleterious substances such as paint, stucco mix, solvents, and petroleum products into street gutters or storm sewers is not permitted.

Equipment and generator plants will operate in accordance with the Alberta Clean Air Act, and Federal Environmental Protection Service emission control regulations/guidelines.

Work schedules and equipment use may be controlled to prevent excessive noise and disturbance to Park visitors. Any such control measures should be specified in the contract documents.

Materials and work site areas will be wetted down as necessary, to prevent blowing dust and debris. Measures will be taken to contain and control and collect windblown debris.

All hazardous and potentially toxic materials used in development projects will be securely stored in a responsible manner during construction activities.

15. SITE REHABILITATION

The contractor must consult with the ESO for the acquisition of site specific native seed mixes and plantings acceptable for use in the park. Native species with low palatability to wildlife are preferred, to avoid enticement and conflict. Fruit bearing trees are generally not acceptable under this present strategy. Trans-plantings may be available from within the park **by permit only**.

Ensure all seed used or sod for lawns and other plantings, such as trees and shrubs, do not transport or carry non-native plants, noxious or restricted weeds. Should a noxious or restricted plant species appear at a future date, the proponent will be responsible for eradication at the direction of Parks Canada.

Fencing must meet "Architectural Motif Guidelines for Banff National Park, and will be designed to prevent wildlife access to lawns and gardens.

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Topsoil or other soil (sod) and mulch materials for restoration must be certified free of non-native plant seed.

All trees and plants not designated for removal from a site must be protected. Roots of trees to drip line must be protected during excavation and site grading to prevent disturbance and damage. Unnecessary traffic, dumping, and storage of materials over root zones can cause soil compaction and suffocation of roots.

Site rehabilitation will receive the highest level of attention. A landscape plan that identifies rehabilitation goals and identifies physical limitations (i.e. water, soil nutrients, suitable species, etc.) to rehabilitation success, will be required.

Any deviation from the Park approved landscape plan will require permission from the Superintendent or designate.

All survey stakes, flagging tape, etc. is to be removed at the completion of the project.

The Construction Project Manager and ESO will inspect the construction site for the following:

- a thorough site cleanup including general litter
- assess that any required topsoil is clean and weed free
- sources of topsoil introduced into the Park require ESO pre-approval
- the use of appropriate plant species and plant seed mix

16. **BLASTING** (see Park Directive #14 "*Control of Explosives*")

All blasting must conform to existing regulations and be accomplished under the supervision of a licensed blaster.

No blasting will be allowed under water or within 100 meters of spawning beds.

Storage of explosives will be subject to National Parks Regulations.

Fly rock shall not be permitted to damage surrounding vegetation. Use of blasting mats may be required.

17. **ENERGY EFFICIENCY**

To minimize demands placed on existing energy infrastructure, energy efficient and water saving fixtures must be incorporated into any new facility.

Exterior lighting must meet the Parks Canada "Dark Skies" lighting policy.

BANFF DISPATCH
NON-EMERGENCY –
403.762.1470

BANFF DISPATCH
EMERGENCY – 403.762.4506

HIGHWAY OR TOWN
EMERGENCY - 911