

McElhanney Consulting Services Ltd.



PROJECT MANUAL

PARKS CANADA AGENCY WESTERN AND NORTHERN REGION

Elk Island National Park Living Waters Boardwalk

McElhanney Project No. 2511 00680 00

Parks Canada Project No. PRO 515

ELK ISLAND NATIONAL PARK, AB

ISSUED FOR TENDER

June 30, 2017

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Basic Impact Analysis – Living Waters Boardwalk Improvement Project, Elk Island Nation Park, Alberta
ENC Testing Inc. 16-1051 – Geotechnical Investigation

END OF SECTION

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

- .1 In preparation for and during construction of this project, the Contractor shall review the requirements of Section 01 35 43 – Environmental Procedures to ensure the desired minimal adverse effects are achieved. The Departmental Representative and Parks Canada’s Environmental Surveillance Officer (ESO) will refer to Section 01 35 43 – Environmental Procedures in determining compliance.
- .2 All requirements noted within the Contract Documents shall be completed by the Contractor unless specifically stated otherwise.
- .3 Without limiting the scope of work, the work of this Contract generally comprises the following:
 - .1 Construction of a boardwalk, including but not limited to: clearing and grubbing, excavation, helical pile installation, boardwalk installation, and appurtenances.
 - .2 Landscaping and Miscellaneous construction as indicated on Drawings and Specifications.

1.2 DEFINITIONS

AT specifications specified for the work can be found at the following AT website address:

http://www.transportation.alberta.ca/images/Standard_Specifications_for_Highway_Construction_2013.pdf

Changes in Definition, - The following changes in definitions have been made to the “AT Specifications”:

- .1 Consultant – The word “Consultant” shall mean Departmental Representative or his duly appointed representative.
- .2 Department – The word “Department” shall mean Parks Canada Agency.
- .2 Changes in Definition, - The following changes in definitions have been made to the MHI Specifications:
 - .1 Elk Island National Park is referred to as “EINP”, “Park” or “The Park”.
 - .2 Any reference to “Parks Canada Agency”, “Parks Canada”, “PCA” or “The Owner”, shall refer to Parks Canada Agency and shall include any affiliate or sub group of Parks Canada.

1.3 PROJECT LOCATION

- .1 The project is located in Elk Island National Park (EINP). The following are key locations relative to the project:
 - .1 South Gate: intersection of Hwy 16 & Elk Island Parkway

1.4 CONTRACT METHOD

- .1 Construct Work under unit price contract items as noted in specification sections.

1.5 CONSTRUCTION SCHEDULE

- .1 The contractor is required to provide and maintain a work schedule as described in Section 01 32 16 and the final completion date must be met as a requirement of this contract.

1.6 WORK SEQUENCE

- .1 The Contractor shall schedule work progress to allow Owner / Departmental Representative unrestricted access to inspect all phases of the Work.
- .2 The Contractor shall commence Work immediately after award of contract.
- .3 Construction site shall be closed to general public.
- .4 Coordinate Progress Schedule during construction.
- .5 Maintain fire access/control.
- .6 Obtain Substantial Completion of the Work by November 6, 2017.
- .7 Obtain Final Completion of the Work by November 20, 2017.

1.7 SITE SUPERINTENDENT

- .1 Prior to commencing the Work, the Contractor shall designate a Site Superintendent as outlined in Contract.
- .2 Should the Site Superintendent be deemed not qualified to perform the required duties of a Site Superintendent, the Contractor will be responsible for providing a Site Superintendent who is acceptable to the Departmental Representative. Refer to Contract.

1.8 WORK SITE SAFETY - THIS CONTRACTOR IS "PRIME CONTRACTOR"

- .1 The Contractor shall, for the purposes of the Occupational Health and Safety Act (Alberta), and for the duration of the Work of this Contract:
 - .1 be the "prime contractor" for the "work site", and do everything that is reasonably practicable to establish and maintain a system or process that will ensure compliance with the Act and its regulations, as required to ensure the health and safety of all persons at the "work site".
 - .2 The Contractor shall direct all Subcontractors, Sub-subcontractors, Other Contractors, employers, workers and any other persons at the "work site" on safety related matters, to the extent required to fulfill its "prime contractor" responsibilities pursuant to the Act, regardless of:
 - .1 whether or not any contractual relationship exists between the Contractor and any of these entities, and
 - .2 whether or not such entities have been specifically identified in this Contract.

1.9 CONTRACTOR USE OF PREMISES

- .1 The Contractor is not permitted to extract and process native material for the production of granular aggregate anywhere inside EINP unless specifically directed by the Departmental Representative.
- .2 The contractor has sole use of site until Substantial Performance within project boundaries indicated at start up meeting subject to Section 01 14 00. The road into the area will be shared with visitors and Parks Canada Staff.
- .3 Maintain continued access to parking lot and public washroom facilities during construction.
- .4 Co-ordinate use of premises under direction of Departmental Representative.
- .5 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

1.10 CONTRACTOR ACCOMMODATIONS

- .1 There is no work camp area located within the National Park Site. Contractor may camp with their own gear on site at locations as directed by Departmental Representative. Services may not be available for Contractor campers.
- .2 Campgrounds may be available for fee as indicated at each campground.

1.11 DOCUMENTS REQUIRED

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

1.12 MEASUREMENT PROCEDURES

- .1 Contractor Use of the Site:
 - .1 Measurement: No measurement shall be made.
 - .2 Payment: The price shall include the cost of all requirements of Division 01 including but not limited to fencing, staging area, Environmental requirements

including plans, temporary facilities, erosion control measures, and all work and materials not covered elsewhere.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 INTENT

- .1 The Work shall be designed, constructed, and commissioned in a manner which is compliant with local authorities.
- .2 The Contractor shall be required to apply for and receive all relevant permits prior to starting Work.

1.2 ACCESS AND EGRESS

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial, federal, and other regulations. Maintain access during construction.

1.3 USE OF SITE AND FACILITIES

- .1 The Work Site specified in these specifications shall only be used for the purposes of the Work. The Work Site will be made available by the Owner to the Contractor for its non-exclusive use for the duration of the Work, unless otherwise provided in the Contract Documents. The Contractor shall include in the tender, payment to taxes properly levied by law (Federal, Provincial and Municipal) including the cost of any collection of permits and business licenses.
- .2 Site is limited by existing buildings and access.
- .3 Execute work with least possible interference or disturbance to normal use of area. Contractor shall maintain adequate drainage and siltation control at the Worksite. Make arrangements with Departmental Representative to facilitate work as stated.
- .4 Security fencing is required to ensure public protection in accordance with OH & S guidelines. Security fencing is required around staging area.
- .5 Snow fencing (black in colour) is required at perimeter of work area as described by the drawings. Departmental Representative may request additional fencing if the limits of work are being impeded.
- .6 Closures: protect work temporarily until permanent enclosures are completed.

1.4 HOURS OF WORK

- .1 Work in EINP is permitted during daylight hours from 06:00 to 22:00, 7 days per week, unless stipulated otherwise in the Contract documents.
- .2 The Contractor will not be permitted to work during the period of any Alberta or British Columbia statutory holiday long weekend, including one day prior to and one day following. The Contractor will not be permitted to work during the following Civic Holidays or long weekends unless prior written approval is granted by the Departmental Representative:
 - .1 Statutory and Civic Holidays (2017)

- .1 Victoria Day Weekend: From 22:00 Thursday May18, 2017 to 06:00 Tuesday, May 23, 2017.
- .2 Canada Day weekend: From 22:00 Thursday June 29, 2017 to 06:00 Tuesday, July 4, 2017.
- .3 Heritage Day weekend: From 22:00 Thursday August 3, 2017 to 06:00 Tuesday August 8, 2017.
- .4 Labour Day long weekend: From 22:00. Thursday, August 31, 2017 to 06:00 Tuesday, September 5, 2017.
- .5 Thanksgiving Day long weekend: From 22:00. Thursday, October 5, 2017 to 06:00 Tuesday, October 10, 2017.

1.5 WORK CONDUCTED OVER OR ADJACENT TO WATERWAYS

- .1 All components of the Work shall be conducted in accordance with Section 01 35 43 - Environmental Procedures.
- .2 All components of the Work shall be conducted without equipment entering into wetlands, water bodies, streams and rivers. Refer to Section 01 35 43 - Environmental Procedures for details.
- .3 All waste materials from the Work shall be contained and collected in a manner to prevent any contact with the river valleys and waterways. All collected waste materials shall be disposed of in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project.

1.6 SPECIES AT RISK

- .1 Refer to the Basic Impact Analysis of the Living Waters Boardwalk Improvement Project for information regarding: Ecological effects, cultural resources, and visitor experience.

1.7 FISH HABITAT ASSESSMENTS

- .1 Contractor shall adhere to recommendations for measures and standards to mitigate serious harm to fish as identified in the BIA.
- .2 Work within a 30 m buffer of watercourses requires the close oversight of a Qualified Environmental Professional (QEP) / Qualified Aquatic Environmental Specialist (QAES) supplied by the Contractor.

1.8 USE OF PUBLIC AREAS

- .1 Steel tracked equipment with cleats will not be allowed on pavement designated for future use. Asphalt, granular, embankment and excavation materials may be hauled on existing highway but this shall be by standard highway trucks not exceeding legal highway load limits.
- .2 The Contractor shall ensure that its vehicles and equipment do not cause nuisance in public areas. All vehicles and equipment leaving the Work Sites and entering public roadways shall be cleaned of mud and dirt clinging to the body and wheels of the vehicle. All vehicles arriving at or leaving the Work Sites and transporting materials shall be

loaded in a manner which will prevent dropping of materials or debris on the roadways, and where contents may otherwise be blown off during transit such loads shall be covered by tarpaulins or other suitable covers. Spills of materials in public areas shall be removed or cleaned immediately by the Contractor at no cost to the Owner. All activities shall be in accordance with Section 01 35 43 - Environmental Procedures and the Environmental Protection Plan prepared for the project.

1.9 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 Sites and of properties on and adjoining the Work Sites 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 properties including, but not limited to, buildings, structures, roads, walls, fences, slopes, sewers, culverts and landscaped areas.
- .3 The Departmental Representative may, but shall not be obligated to survey and record the condition of the Work Sites and of properties on or adjoining the Work Sites prior to the commencement of construction by the Contractor. If requested, the Departmental Representative will provide a copy of the survey records to the Contractor for reference.
- .4 Whenever supplied with survey records, the Contractor shall satisfy itself as to the accuracy and completeness of the survey records provided by the Departmental Representative for any area before commencing construction in that area. Commencement of construction in any area shall be interpreted to signify that the Contractor has accepted such survey records as being a true record of the existing conditions prior to construction.
- .5 The provision of the records of a survey of existing conditions by the Departmental Representative shall in no way limit or restrict the Contractor's responsibility to exercise proper care to prevent damage to all properties within or adjacent to the Work Sites, whether all such properties are covered by the survey or not.

1.10 WORK BY OTHERS

- .1 Co-ordinate work with that of other Contractors.

1.11 EXISTING SERVICES

- .1 Notify Departmental Representative and private and public utility companies one week prior to intended interruption of services and obtain required permission.
- .2 Where Work involves breaking into or connecting to existing services, give Departmental Representative 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .3 Provide for vehicular traffic control as needed.
- .4 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.12 BUILDING SMOKING ENVIRONMENT

- .1 Smoking is only allowed in designated areas.

1.13 WASTE DISPOSAL

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DESCRIPTION

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

1.2 MEASUREMENT PROCEDURES

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE

- .1 The Contractor shall schedule and administer project meetings throughout the progress of the work as requested by the Departmental Representative including the following items;
 - .1 Prepare agenda for meetings.
 - .2 Distribute written notice of each meeting four days in advance of meeting date to all parties.
 - .3 Contractor to provide physical space and make arrangements for meetings in coordination with Departmental Representative.
 - .4 Departmental Representative to preside at meetings.
 - .5 Record the meeting minutes and include significant proceedings and decisions with identification of actions by parties.
 - .6 Reproduce and distribute copies of minutes within three days after meetings and transmit to meeting participants and, affected parties not in attendance.
- .2 Representative of Consultant, Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of party each represents.

1.2 PRECONSTRUCTION MEETING

- .1 Within 15 days after award of Contract, the Contractor shall request a meeting of parties in contract to discuss and resolve administrative procedures and responsibilities.
- .2 Senior representatives of Departmental Representative, Consultants, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .3 The Contractor shall establish time and location of meeting and notify parties concerned at minimum 5 days before meeting.
- .4 Incorporate mutually agreed variations to Contract Documents into Agreement, prior to signing.
- .5 Agenda to include:
 - .1 Appointment of official representative of participants and Reporting Relationships in the Work.
 - .2 Schedule of Work: in accordance with Section 01 32 16 - Construction Progress Schedules.
 - .3 Schedule of submission of shop drawings, samples, colour chips. Submit submittals in accordance with Section 01 33 00 - Submittal Procedures.
 - .4 Requirements for temporary facilities, site sign, offices, storage sheds, utilities, fences in accordance with Section 01 52 00 - Construction Facilities.
 - .5 Site security in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.
 - .6 Proposed changes, change orders, procedures, approvals required, mark-up percentages permitted, time extensions, overtime, administrative requirements.
 - .7 Record drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .8 Maintenance manuals in accordance with Section 01 78 00 - Closeout Submittals.

- .9 Take-over procedures, acceptance, warranties in accordance with Section 01 78 00 - Closeout Submittals.
- .10 Monthly progress claims, administrative procedures, photographs, hold backs.
- .11 Appointment of inspection and testing agencies or firms by Contractor.
- .12 Insurances, transcript of policies.
- .13 Review of Health and Safety Plan and appointment of Health and Safety Co-ordinator.

1.3 PROGRESS MEETINGS

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Bar Chart (GANTT Chart): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.
- .3 Baseline: original approved plan (for project, work package, or activity), plus or minus approved scope changes.
- .4 Construction Work Week: Monday to Friday, inclusive, will provide five day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.
- .5 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .6 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .7 Milestone: significant event in project, usually completion of major deliverable.
- .8 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.
- .9 Project Planning, Monitoring and Control System: overall system operated by Consultant to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately 10 working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 The Contractor shall submit to Departmental Representative within 15 working days of Award of Contract, Bar (GANNT) Chart as Master Plan for planning, monitoring and reporting of project progress.

1.4 PROJECT SCHEDULE

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
 - .1 Mobilization
 - .2 Demolition.
 - .3 Helical Pile Installation
 - .4 Boardwalk Installation
 - .5 Floating dock installation
 - .6 Bench installation
 - .7 Pedestal installation
 - .8 Cleaning
 - .9 Demobilization

1.5 PROJECT SCHEDULE REPORTING

- .1 The Contractor shall update Project Schedule every two weeks reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.6 PROJECT MEETINGS

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

- .1 This work shall be considered incidental to contract and no payment shall be made for this item.

1.2 ADMINISTRATIVE

- .1 The Contractor shall submit to the Departmental Representative all submittals listed for review. The submissions shall be prompt and in orderly sequence so as to not cause a delay in Work. Failure to submit in ample time is not considered sufficient reason for an extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete and approved.
- .3 The Contractor shall review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.
- .4 The Contractor shall notify Departmental Representative in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .5 The Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .6 The Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .7 The Contractor shall keep one reviewed copy of each submission on site.

1.3 SAMPLES

- .1 Submit for review samples in duplicate or as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples to Departmental Representative at bi-weekly site meetings.
- .3 Notify Departmental Representative in writing, at time of submission of deviations in samples from requirements of Contract Documents.
- .4 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in samples which Departmental Representative may require, consistent with Contract Documents.

- .6 Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

1.4 CERTIFICATES AND TRANSCRIPTS

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

1.5 REQUIRED CONTRACTOR SUBMITTALS

- .1 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
- .3 Construction Phase Submittals
- .4 Project Completion Submittals

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prior to commencing construction activities or delivery of materials to site, the Contractor shall submit an Environmental Protection Plan (EPP) for review and approval by the Departmental Representative. The Environmental Protection Plan shall present comprehensive overview of known or potential environmental issues which must be addressed during construction.
- .3 Address topics at level of detail commensurate with environmental issue and required construction tasks.
- .4 Environmental protection plan will include:
 - .1 Names of persons responsible for ensuring adherence to Environmental Protection Plan.
 - .2 Names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.
 - .3 Names and qualifications of persons responsible for training site personnel.
 - .4 Descriptions of environmental protection personnel training program.
 - .5 Erosion and sediment control plan which identifies type and location of erosion and sediment controls to be provided including monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.
 - .6 Drawings showing locations of proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.
 - .7 Traffic control plans including measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plans include measures to minimize amount of mud transported onto paved public roads by vehicles or runoff.
 - .8 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use

areas including methods for protection of features to be preserved within authorized work areas.

- .9 Spill Control Plan: including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.
- .10 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.
- .11 Air pollution control plan detailing provisions to assure that dust, debris, materials, and trash, do not become air borne and travel off project site.
- .12 Contaminant prevention plan that: identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, Provincial, and Municipal laws and regulations for storage and handling of these materials.
- .13 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities, such as concrete curing water, clean-up water, dewatering of ground water, disinfection water, hydrostatic test water, and water used in flushing of lines.
- .14 Historical, archaeological, cultural resources biological resources and wetlands plan that defines procedures for identifying and protecting historical, archaeological, cultural resources, biological resources and wetlands.
- .15 Pesticide treatment plan: to be included and updated, as required.
- .16 Include an equipment access plan.

1.3 FIRE PREVENTION AND CONTROL

- .1 Carry fire extinguisher for use on each machine and at locations as required in the event of fire. Basic fire fighting equipment recommended includes three shovels, two pulaskis, and two five gallon backpack pumps) shall be maintained at the construction site at a location known and easily accessible to Contractors' staff. 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.
- .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, fire services should be contacted at 911. Closest fire station is over 30 minutes away.
- .5 Fires and burning of rubbish on site not permitted.

1.4 DISPOSAL OF WASTES

- .1 All garbage must be stored and handled in conformance with the Elk Island National Park Garbage Regulations.

- .2 All surplus and waste materials shall be removed from the job site to approved sites. Disposal of all wastes shall be in compliance 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.
- .3 The closest construction waste site for this project is within 100 km. Contractor shall remove all demolition, construction, and trade waste from the site and dispose of materials at designated site on a regular basis or when directed by Departmental Representative. All users and vehicles must report to the transfer scales prior to the disposal of any material. Various rate schedules apply for unsorted waste, scrap metal, asphalt shingles, appliances, and painted wood.
- .4 No food, domestic garbage or hazardous wastes may be deposited in the trade waste site. Obtain bear proof garbage containers on-site for domestic garbage generated on-site by Contractor's personnel.
- .5 Dispose of all 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.
- .6 Maintain the site in a tidy condition, free from the accumulation of waste products, debris and litter.
- .7 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.
- .8 No separate payment will be made for waste disposal. Costs of this work shall be considered incidental to the contract.
- .9 Do not burn or bury rubbish and waste materials on-site. Clean concrete shall be deposited in an area designated for this purpose, and in accordance with demolition drawings and specification sections 01 74 21 Construction Demolition.
- .10 Remove all demolition, construction, and trade waste from the site and dispose outside of Historic Site land to a provincial approved landfill. Other salvaged or dispose materials to location as directed here within this document.

1.5 CANADIAN ENVIRONMENTAL ASSESSMENT ACT

- .1 Execution of the work is subject to the provisions within the Canadian Environmental Assessment Act Guidelines Order of 2003 and subsequent amendments. This project and its components, has been subject to an environmental assessment.
- .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 problem.

1.6 WILDLIFE

- .1 Avoid or terminate activities on-site that attract, disturb or harass wildlife and vacate the area and stay away from the immediate location if sheep, bears, cougars display aggressive behaviour or persistent intrusion. Wildlife must be allowed to pass through the site freely.
- .2 Notify the Departmental Representative immediately of bear, snake or cougar activity, dens, nests, or wildlife encounters on or around the site. Other wildlife encounters should be reported within 24 hours.
- .3 During the Environmental Briefing, all personnel shall be instructed on procedures to follow in the event of wildlife appearance near or within the work site and any other wildlife concerns.
- .4 Pets will not be permitted on site.
- .5 Work within the requirements for migratory birds for work from April 1 to mid June.

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

1.8 DRAINAGE

- .1 The Contractor shall prepare erosion and sediment management plan that identifies type and location of erosion and sediment controls to be provided. The desired end result is to allow no release into watercourses of sediments or deleterious substances. Similarly, there is to be no sediment or deleterious substance release into areas of vegetation growth or sensitive areas that would adversely alter growing or hydraulic conditions. This plan shall be to the satisfaction of the Departmental Representative. The plan will include monitoring and reporting to assure that control measures are in compliance with erosion and sediment control plan, federal, provincial and municipal laws and regulations.
- .2 Storm Water Pollution Prevention Plan (SWPPP) to be substituted for erosion and sedimentations control plan.
- .3 Provide temporary drainage and pumping as necessary to keep excavations and site free from water.
- .4 Do not pump water containing suspended materials into waterways, sewer or drainage systems.

- .5 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with Authority Having Jurisdiction requirements and 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.

1.9 SITE CLEARING AND PLANT PROTECTION

- .1 Protect trees on site and adjacent properties where indicated or as directed by the Departmental Representative. Any materials that inadvertently fall outside the work limits is to be removed promptly in a manner that does not damage trees or vegetation in that location.
- .2 When working adjacent to existing trees the Contractor shall exercise all possible care to avoid injury to vegetation. Where roots or limbs over 25 mm in diameter and bark are damaged during operations, trim damaged portion. The Departmental Representative will inspect all trimmed areas and approve them.
- .3 Tree removal shall be limited to trees identified for removal by the Departmental Representative.
- .4 Protect roots of trees to dripline during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones.
- .5 No stripping or vegetation removal shall occur outside the designated areas or as directed by Departmental Representative or Environmental Surveillance Officer (ESO).
- .6 Restrict tree removal to areas indicated or designated by the Departmental Representative.
- .7 Any contamination found during demolition will be tested, removed and disposed of in accordance with regulatory requirements including being hauled to a licensed landfill facility outside the site. Contaminated sites must be cleaned up to meet the standards established by the CCME Environmental Quality Guidelines for Soil and Water 2007 (with updates to 2012) and CCME Canada-Wide Standards for Petroleum Hydrocarbons in Soil 2008 for Residential/Parkland use.

1.10 CONTRACTOR'S EMPLOYEE BRIEFING

- .1 The Contractor shall conduct briefing sessions for all employees and subcontractor employees highlighting the requirements of this section, including operation of equipment.
- .2 An initial site meeting with Contractor, and Departmental Representative will take place prior to construction commencing.
- .3 Departmental Representative may conduct briefing sessions for all employees and subcontractor employees highlighting the requirements of this specification section, and other requirements of the area including operations of equipment strictly within confines of the site; harassment or attraction of wildlife; pollution and garbage management; vehicle access and parking; and care of the environment in the work area.

1.11 CONTRACTOR'S OPERATIONS

- .1 Confine all operations to the work limits as staked or designated by the Departmental Representative. No activities of any kind may be carried out beyond these work limits without Departmental Representative's written approval.
- .2 Do not store or stockpile construction materials in the trees bordering or being preserved on-site. Do not unreasonably encumber the site with products.
- .3 Storage areas shall be located within the project boundaries on disturbed or hardened areas. Storage locations to be approved by Departmental Representative.
- .4 Storage locations shall be completely cleaned up and returned to original condition prior to Contractor de-mobilization in the spring, in the fall and finishing the project.
- .5 Equipment maintenance shall only be carried out in designated areas or as approved by the Departmental Representative. The use of on-site areas for equipment oil changes and other servicing will not be permitted.
- .6 Obtain permit from Authority Having Jurisdiction for on-site storage of fuel or other inflammable liquids. Observe all restrictions and conditions imposed by the permit regarding special protection and berming to control spills and tank damage, fire protection considerations, provisions for the disposal of fouled material and used petroleum products.
- .7 Conduct operations at all times in such a manner as to preserve the natural features and vegetation in the area. Cut and fill slopes shall be blended with adjoining topography. Material from fill slopes will not be permitted to sluff or roll into surrounding tree cover or to bury any plant material designated to be retained.
- .8 When, in the opinion of the Departmental Representative, negligence on the part of the Contractor results in damage or destruction of vegetation, or other environmental or aesthetic features beyond the staked or designated work area, the Contractor shall be responsible, at his expense, for complete restoration including the replacement of trees, shrubs, topsoil, grass, etc., to the satisfaction of the Departmental Representative.
- .9 Failure to comply with or observe environmental protection measures as identified in these specifications and the environmental assessment report may result in work being suspended pending rectification of the problems and operators of equipment being charged.
- .10 All wash from equipment and tools from concrete pour operations such as tools, concrete pumper and delivery trucks to be contained in such a manner not to dispose debris, cement and fines onto a hard surface or other surfaces that would allowed it to eventually enter the storm system, sanitary system, body of water or water course.
- .11 Review construction access requirements with the Departmental Representative both at start-up and an ongoing basis.
- .12 The contractor shall ensure that the environment beyond the work limits is not negatively impacted or damaged by worker's vehicles or machinery and shall instruct workers so that the 'footprint' of the project is kept within defined boundaries. Areas around buildings

requiring excavator or equipment access in natural areas should confine access as close to the edge of the walls as possible. Access requirements, once approved, will be flagged by the Environmental Surveillance Officer.

- .13 Work On and Adjacent to Steep Slopes: avoid equipment operation on steep slopes (e.g. when placing angular rock in eroded area and work on elevator shaft); Provide barriers in place to prevent rolling of debris down slopes onto highway or into vegetated areas.

1.12 EQUIPMENT MAINTENANCE, FUELING, AND OPERATION

- .1 Provide, operate, and maintain equipment as indicated in Environmental Assessment Amendment of this Project Manual and as follows:
 - .2 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) before delivery to the work site.
 - .3 Equipment fuelling sites will be identified by the Contractor and approved by the Departmental Representative. Except for chain saws, any fuelling closer than 100 metres to any streams, wetlands, water bodies or waterways shall require the authorization and oversight of the Departmental Representative.
 - .4 Diesel and gasoline delivery vehicles, including bulk tankers shall be parked more than 100 metres from any streams, wetlands, water bodies or watercourses. Gravity fed fuel systems are not allowed. Manual or electric pump delivery systems shall be used. Fuelling personnel shall maintain presence at and immediate attention to the fuelling operation.
 - .5 Mobile fuel containers (e.g. slip tanks, small fuel carboys) shall remain in the service vehicle at all times.
 - .6 Equipment used on the project shall be fuelled with E10, and low sulphur diesel fuels and shall conform to local emission requirements. The Contractor is to ensure that unnecessary idling of vehicles is avoided.
 - .7 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.
 - .8 The Contractor shall ensure that all equipment is inspected daily for fluid/fuel leaks and maintained in good working order.
 - .9 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.

1.13 NOISE AND VIBRATION CONTROL

- .1 Low impact demolition equipment and methodologies shall be employed that do not generate significant noise or vibration levels in proximity to the sensitive wildlife habitat.
- .2 Demolition activities shall take place with the use of low noise and low ground vibration inducing equipment and techniques for the project site. For example, equipment could include but is not limited to a processor or pulverizer attached to an excavator.
- .3 High impact equipment known to cause higher noise levels and potential for higher ground vibrations shall be prohibited. Blasting, portable rock crushers and large jackhammers are not permitted.
- .4 Contractor to submit for review a written procedure for concrete demolition at least 2 weeks prior to commencement of site work. Written procedure shall include descriptions of equipment, methods, and tools.

1.14 WORK ADJACENT TO WATERWAYS

- .1 Do not operate construction equipment in waterways.
- .2 Do not use waterway beds for borrow material without Departmental Representative's approval.
- .3 Do not dump excavated fill, waste material or debris in waterways.
- .4 Design and construct temporary crossings to minimize erosion to waterways.
- .5 Do not skid logs or construction materials across waterways.

1.15 POLLUTION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this contract.
- .2 Control emissions from equipment and plant to local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area, by providing temporary enclosures.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for the Work. The Contractor shall prepare a dust management plan as part of their EPP to be approved by the Departmental Representative.
- .5 The Contractor shall prevent any deleterious and objectionable materials from entering streams, rivers, wetlands, water bodies or watercourses that would result in damage to aquatic and riparian habitat. Hazardous or toxic products shall be stored no closer than 100 metres from any watercourse.
- .6 A Spill Response Plan will be prepared by the Contractor as part of the EPP and shall detail the containment and storage, security, handling, use and disposal of empty containers, surplus product or waste generated in the application of these products, to the satisfaction of the Departmental Representative and the ESO and in accordance with all

applicable federal and provincial legislation. The EPP shall include a list of products and materials to be used or brought to the construction site that are considered or defined as hazardous or toxic to the environment. Such products include, but are not limited to, sealer, grout, cement, concrete finishing agents, adhesives and sand blasting agents.

- .7 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 any watercourse.
- .8 An impervious berm shall be constructed around fuel tanks and any other potential spill area. The berms shall be capable of holding 110% of tank storage volumes and shall be to the satisfaction of the Departmental Representative and the ESO before start-up. Measures such as collection/drip trays and berms lined with occlusive material such as plastic and a layer of sand, and double-lined fuel tanks can prevent spills into the environment.
- .9 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.
- .10 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.
- .11 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 contact the Local Fire Department immediately. Spill response cards will be distributed during the initial Environmental Briefing with basic instructions and phone numbers.
- .12 In the event of a major spill, all other work shall be stopped and all personnel devoted to spill containment and clean-up.
- .13 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.

1.16 NOTIFICATION

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 Contractor: after receipt of such notice, inform Departmental Representative of proposed corrective action and take such action for approval by Departmental Representative.

- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

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

1.2 REFERENCES

- .1 AT - Standard Specifications for Highway Construction (Current Edition).
- .2 Canadian Standards Association (CSA) CAN/CSA-A23.2-04, Methods of Test and Standard Practices for Concrete

1.2 TESTING BY THE CONTRACTOR

- .1 The Contractor shall be fully responsible and bear all costs for all quality control testing and shall conduct such testing in the following manner:
 - .1 Provide testing facilities and personnel for the tests and inform the Departmental Representative in advance to enable the Departmental Representative to witness the tests if it so desired;
 - .2 Notify the Departmental Representative when sampling will be conducted;
 - .3 Within one Day after completion of testing, submit test results to the Departmental Representative; and
 - .4 Identify test reports with the name and address of the organization performing all tests, and the date of the tests.
- .2 All testing required to meet the specifications is considered Quality Control testing and shall be conducted by a certified material and testing agency to be engaged and paid by for the contractor at no additional cost to the Work.
- .3 Testing required to provide quality control to assure that the Work strictly complies with the Contract requirements shall include, but not be limited to:
 - .1 All testing specified in the Contract Documents; and
 - .2 Any other testing required as a condition for deviation from the specified Contract procedures.
- .4 Approval of tested samples will be for characteristics or use named in such approval and shall not change or modify any Contract requirements.
- .5 Testing agencies, their inspectors, and their representatives are not authorized to revoke, alter, relax, enlarge or release any requirement of the Contract Documents, nor to approve or accept any part of the Work.

1.3 INSPECTION

- .1 The Contractor shall allow the Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.
- .2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by 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 INDEPENDENT INSPECTION AGENCIES

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

1.5 PROCEDURES

- .1 The Contractor shall notify the Departmental Representative in advance of requirement for tests, in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 The Contractor shall provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.6 REJECTED WORK

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

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

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

1.7 REPORTS

- .1 The Contractor shall submit electronic copies of all inspection and test reports to Departmental Representative in accordance with Section 01 33 00 Submittal Procedures.
- .2 The Contractor may provide copies of inspection and test reports to Trade Contractor of work being inspected or tested and manufacturer or fabricator of material being inspected or tested.

Part 2 Products

- .1 Materials and products shall be in accordance with the most current version of the AT - Standard Specifications for Highway Construction (Current Edition), or as directed by the Departmental Representative.

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

- .1 The Contractor shall provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

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

1.4 DEWATERING

- .1 The Contractor shall provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

1.5 WATER SUPPLY

- .1 The Contractor shall provide continuous supply of potable water for construction use.

1.6 TEMPORARY HEATING AND VENTILATION

- .1 Provide temporary heating required during construction period, including attendance, maintenance and fuel.
- .2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders are not permitted.
- .3 The Contractor and the Department Representative shall determine the level of propane in Department Representative's propane tank(s) prior to start construction. The Contractor is fully responsible for the propane tank(s) and provide fuel at their cost. At the Contractor's discretion, the Contractor shall remove and dispose of the propane tanks as part of the Work.
- .4 Provide temporary heat and ventilation in enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Protect Work and products against dampness and cold.
 - .3 Prevent moisture condensation on surfaces.
 - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .5 Provide adequate ventilation to meet health regulations for safe working environment.

- .5 Maintain temperatures of minimum 10 degrees C in areas where construction is in progress.
- .6 Ventilating:
 - .1 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .2 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .3 Dispose of exhaust materials in manner that will not result in harmful exposure to persons.
 - .4 Ventilate storage spaces containing hazardous or volatile materials.
 - .5 Ventilate temporary sanitary facilities.
 - .6 Continue operation of ventilation and exhaust system for time after cessation of work process to assure removal of harmful contaminants.
- .7 Permanent heating system of building is not available for use.
- .8 The Contractor shall pay all costs for maintaining temporary heat.
- .9 Maintain strict supervision of operation of temporary heating and ventilating equipment to:
 - .1 Conform with applicable codes and standards.
 - .2 Enforce safe practices.
 - .3 Prevent abuse of services.
 - .4 Prevent damage to finishes.
 - .5 Vent direct-fired combustion units to outside.
- .10 The Contractor shall be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

1.7 TEMPORARY POWER AND LIGHT

- .1 The Contractor shall be responsible for all temporary power during construction for temporary lighting and operating of power tools.
- .2 Provide and maintain temporary lighting throughout project as required to maintain safe working conditions.

1.8 TEMPORARY COMMUNICATION FACILITIES

- .1 Provide and pay for temporary cell phone and data device lines necessary for own use.

1.9 FIRE PROTECTION

- .1 Provide and maintain temporary fire protection equipment during performance of Work required by insurance companies having jurisdiction and governing codes, regulations and bylaws.
- .2 Burning rubbish and construction waste materials is not permitted.

- .3 Elk Island National Park do not provide or have any fire protection services.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
 - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (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-0121-08, Douglas Fir Plywood.
 - .3 CAN/CSA-S269.2-M1987(R2003), Access Scaffolding for Construction Purposes.
 - .4 CAN/CSA-Z321-96(R2001), Signs and Symbols for the Occupational Environment.
- .3 U.S. Environmental Protection Agency (EPA) / Office of Water
 - .1 EPA 832R92005, Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices.

1.2 SUBMITTALS

- .1 The Contractor shall provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

1.3 INSTALLATION AND REMOVAL

- .1 The Contractor shall prepare site plan indicating the proposed location and dimensions of the area to be fenced and used by the Contractor, including the number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Indicate use of supplemental or other staging area.
- .3 Provide construction facilities in order to execute work expeditiously.
- .4 Remove from site all such work after use.

1.4 SCAFFOLDING

- .1 Scaffolding shall be erected and maintained by the Contractor in accordance with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, ramps, ladders, swing staging, and platforms.

1.5 HOISTING

- .1 The Contractor shall provide, operate and maintain hoists cranes required for moving of workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.

- .2 Hoists cranes to be operated by qualified operator.

1.6 SITE STORAGE/LOADING

- .1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

1.7 CONSTRUCTION PARKING

- .1 Limited parking will be permitted on site provided it does not disrupt performance of Work.
- .2 The Contractor shall provide and maintain adequate access to project site for authorized personnel.
- .3 Follow vehicle parking limitations and permit requirements with the local authorities.
- .4 Personal vehicles shall not be parked on any natural or undisturbed areas. Parking will be confined to parking lots and roads or as approved by the Departmental Representative.

1.8 OFFICES

- .1 A Construction Office may be included, at the Contractors discretion and expense. Coordinate exact location with Departmental Representative.
- .2 No access to Parks Canada Buildings will be provided. Departmental Representative may grant access to use of one of the building meeting rooms for full project team weekly/bi-weekly meetings only.
- .3 The Contractor shall supply and make available a marked and fully stocked first-aid case in a readily available location.

1.9 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.

1.10 SANITARY FACILITIES

- .1 Provide portable sanitary facilities.
- .2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.11 CONSTRUCTION SIGNAGE

- .1 Signs and notices for safety and instruction in both official languages Graphic symbols to CAN/CSA-Z321.

- .2 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.
- .3 Company signage is allowed on trailers or vehicles, not elsewhere on site.

1.12 PROTECTION AND MAINTENANCE OF TRAFFIC

- .1 Maintain and protect traffic on affected roads during construction period except as otherwise specifically directed by Departmental Representative.
- .2 Provide measures for protection and diversion of traffic, including provision of watch-persons and flag-persons, erection of barricades, placing of lights around and in front of equipment and work, and erection and maintenance of adequate warning, danger, and direction signs
- .3 Protect travelling public from damage to person and property.
- .4 Contractor's traffic on roads selected for hauling material to and from site to interfere as little as possible with public traffic.
- .5 Verify adequacy of existing roads and allowable load limit on these roads. Contractor: responsible for repair of damage to roads caused by construction operations.
- .6 Provide necessary lighting, signs, barricades, and distinctive markings for safe movement of traffic.
- .7 Dust control: adequate to ensure safe operation at all times.
- .8 Lighting: to assure full and clear visibility for full width of haul road and work areas during night work operations.
- .9 Snow Removal. Contractor is responsible for snow clearing within their work site including parking lots, sidewalks, etc as shown in the drawings 'Limit of Work'.

1.13 CLEAN-UP

- .1 Remove construction debris, waste materials, packaging material from work site daily.
- .2 Clean dirt or mud tracked onto paved or surfaced roadways.

1.14 FIRE PROTECTION FACILITIES

- .1 Provide fire extinguisher and other equipment on site and maintain emergency vehicle access at all times.

1.15 DISRUPTION

- .1 Provide dust protection and schedule noisy work accordingly, as not to affect general public, traffic, and adjacent facilities.
- .2 No excessive noise will be permitted. Demolition methods that contribute to excessive noise will not be permitted. Low vibration and noise demolition equipment shall be used throughout the project. Best management practices will be followed by the Contractor to

reduce noise on site. Equipment and vehicles shall be in good working condition and fitted with proper noise suppressing devices. Combine noisy operations to occur in the same time period. The Contractor is to take care when dropping materials from a height, for example, when dumping concrete material into the basement. Minimize drop heights at material transfer locations. Shut or throttle down equipment (e.g. backhoes, loaders, generators, bobcats) whenever they are not in actual use. If in the opinion of the Departmental Representative there is excessive noise, the Contractor will adjust the work schedule of the activity, reduce the sound levels (e.g. use of sound barriers), or implement alternative demolition processes or quieter equipment.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- .1 The Contractor shall provide temporary erosion and sedimentation control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of the local authority.
- .2 Inspect, repair, and maintain erosion and sedimentation control measures during construction until permanent vegetation has been established.
- .3 Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

- .1 The work concerning temporary barriers and enclosures shall be incidental to contract and will not be measured for payment.

1.2 REFERENCES

- .1 Canadian General Standards Board (CGSB)
 - .1 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
 - .2 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA O121-08, Douglas Fir Plywood.

1.3 INSTALLATION AND REMOVAL

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

1.4 GUARD RAILS AND BARRICADES

- .1 The Contractor shall provide secure, rigid guard rails and barricades around deep excavations and open edges of floors and roofs.

1.5 WEATHER ENCLOSURES

- .1 The Contractor shall provide weather tight closures to unfinished door and window openings, tops of shafts and other openings in floors and roofs where required to keep partially demolished materials within existing buildings, and not allowing wind-blown debris to depart and be dispersed in an un-authorized manner.

1.6 ACCESS TO SITE

- .1 The Contractor shall provide and maintain access roads, sidewalk crossings, and ramps as may be required for access to Work.

1.7 FIRE ROUTES

- .1 The Contractor shall maintain access to property including overhead clearances for use by emergency response vehicles.

1.8 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

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

1.9 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 Site Grading

1.1 GENERAL

- .1 This section specifies requirements for temporary erosion and sediment control efforts, conforming to grades, dimensions and typical cross sections shown on plans or established by Engineer.

1.2 RELATED WORK

- .1 Refer to section 01 35 43 for Environmental Protection Plan requirements

1.3 DEFINITIONS

- .1 **Topsoil:** The top layer of soil containing organic material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .2 **Topsoil Stripping:** Excavation and stockpiling of material capable of supporting good vegetative growth and suitable for use in top dressing, landscaping and seeding.
- .3 **Rough grading:** used to establish the rough grade (within 100 mm) of the final, finished grade. However, rough grading will also be used to ensure positive drainage from the construction site, in collaboration with erosion and sediment control measures also employed onsite. Rough grading is typically the second activity undertaken on site, after the top soil is stripped and is followed immediately by installation of erosion control measures.
- .4 **Sub grade Elevation:** Elevation immediately below pavement or engineered structure.
- .5 **Housekeeping Pad:** A gravel pad of washed rock, installed at all entrances and exits of the construction site. A housekeeping pad is used to minimize the mud tracked from onsite, offsite on machinery wheels. Provisions (such as fencing) is to be installed to ensure site traffic leaving the site passes over the housekeeping pads installed.
- .6 **Approvals:** Federal, provincial, and/or municipal regulatory agencies may require that the work plan of activities before, during or after the construction activities be reviewed and approved (with mitigative measures in place as part of the work plan). Such agencies may issue permits or authorizations which may include special work instructions or mitigative requirements which must be followed for the duration of construction activities.
- .7 **Erosion and Sediment Plan (E&S plan):** shows the site and anticipated erosion and sediment control measures required for the contractor to follow.
- .8 **Perimeter Erosion and Sedimentation measures:** temporary surface structures used to inhibit the transportation of eroded soil by runoff water from a disturbed site. The minimum acceptable standard product for this application will be Silt Fence, as supplied by Nilex and installed as per manufacturer recommendations (<http://nilex.com/sites/default/files/Nilex-Silt-Fence-Brochure.pdf>)
- .9 **Anti Erosion Matting:** temporary surface matting installed to reduce the erosion of surface soils from the finished grade of the site. Anti-erosion matting may be biodegradable or not, as noted on the engineering drawings; and may be used to ensure soil stability prior to vegetation growth establishment. The minimum acceptable standard product for this application will be S75 Erosion Control Blanket, as supplied by Nilex and installed as per manufacturer recommendations

<http://nilex.com/sites/default/files/Nilex%20Erosion%20Control%20Blanket%20Specifications.pdf>

- .10 **Internal Erosion and Sedimentation measures:** Temporary surface structures and surface preparation techniques used to reduce the velocity of run off water or include the soil stability, on site; thus reducing erosion and sedimentation run-off. Techniques include temporary anti erosion matting (biodegradable), equipment track rilling (perpendicular to the direction of run off flow), hydroseeding (using tackifier), tarping of stock piles (to reduce wind erosion), or any other method approved by the engineer.

1.4 REQUIREMENTS OF REGULATORY AGENCIES

- .1 Adhere to municipal, provincial, and national codes, which often have local requirements for erosion and sediment control measures.
- .2 Construction activities occur near or in a water body, special consideration is required. The Contractor must not proceed with any activity (including site stripping, excavation, alteration of drainage course, etc) of any kind prior to written authorization from the engineering and applicable approvals in place (such as from Department of Fisheries and Oceans, provincial environmental regulatory agencies, and/or municipal authorities). It is the contractors responsibility to ensure all approvals required for the construction activities are available in legible hard-copy on site at all times during the duration of the construction project. All requirement outlines in approval must be followed.

1.5 TRAFFIC PROVISIONS

- .1 N/A

1.6 MEASUREMENT FOR PAYMENT

- .1 Unless otherwise noted in these documents:
- .1 **Produce Environmental Protection Plan:** This includes the production of all elements noted in the section 01 35 43 Environmental Procedures, including Erosion sedimentation plan to be submitted to the consultant for review and approval.
- .2 **Implementation and maintenance of Environmental Protection Plan:** this item is handled as a lump sum (L.S.) for this contract. 50% will be paid upon implementation of the approved plan and 50% will be paid upon removal of the temporary measures (as per the approved plan) after construction activities are completed and permanent erosion control measures are in place. This L.S. item includes but is not limited to:
- .1 **Perimeter Erosion and Sedimentation measures:** Installation, maintenance and removal of temporary erosion and sediment control measures; to be installed along the entire downstream side of any area disturbed by construction activities (such as silt fencing). Payment will be as part of the lump sump for the Erosion and Sediment control measures.
- .2 **Internal Erosion and Sedimentation measures:** Installation, maintenance and removal of an temporary erosion and sediment control measures; to be installed over disturbed areas, internal to the construction site (such as track riling, temporary anti-erosion matting, wind tarping or other required activities). Payment will be as part of the lump sump for the Erosion and Sediment control measures.

- .3 All other element as required under the Environmental Protection Plan, referenced in section 01 34 43.

Part 2 Products

.1 MATERIALS

- .1 The Contractor shall supply all labor, materials and equipment required for erosion and sediment control procedures required, as approved by the Engineer prior to construction activities.

Part 3 Execution

.1 EROSION AND SEDIMENT PLAN

- .1 Erosion and Sedimentation Control Plan to be submitted to the engineer including:
 - .1 Sketch (plan view) of similar scale to engineering construction drawing, of construction site and proposed E&S activities, clearly identifying the location, products, methods and procedures proposed to achieve successful erosion and sediment control
 - .2 Written description of installation procedure, schedule of installation and maintenance of the proposed erosion and sediment control plan.

.2 PERIMETER EROSION AND SEDIMENTATION MEASURES

- .1 To be installed as per manufacture recommendations and to the satisfaction of the engineer

.3 INTERNAL EROSION AND SEDIMENTATION MEASURES

- .1 To be installed as per manufacture recommendations and to the satisfaction of the engineer

.4 HOUSEKEEPING PAD

- .1 Pad to be composed of 20-40mm clean gravels, minimum depth of 300mm, installed at the site entrance, entirely on the site
- .2 Minimum plan dimensions to be 6m wide (min) wide by 6m long (min)
- .3 Maintenance to include ensuring minimum depth and dimensions of gravel maintained, gravel are sweep off road and back onto site at the end of each day.
- .4 Provisions (such as fencing or baracades) are to be used to direct all site traffic through the housekeeping pad, to ensure its use by all site traffic.

.5 ANTI EROSION MATTING

- .1 To be installed as per manufacture recommendations and to the satisfaction of the engineer

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

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

1.2 REFERENCES

- .1 Within text of each specifications section, reference may be made to reference standards.
- .2 The Work shall conform to these reference standards, in whole or in part as specifically requested in specifications.
- .3 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves right to have such products or systems tested to prove or disprove conformance.
- .4 Cost for such testing will be borne by Departmental Representative in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.3 QUALITY

- .1 Products, materials, equipment and articles 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 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 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.
- .4 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 project delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.
- .2 In event of failure to notify Departmental Representative at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Departmental Representative reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 STORAGE, HANDLING AND PROTECTION

- .1 The Contractor shall handle and store products in manner to prevent damage, deterioration and soiling and in accordance with manufacturer's instructions when applicable.
- .2 The Contractor shall store products subject to damage from weather in weatherproof enclosures.
- .3 The Contractor shall store cementitious products clear of earth or concrete floors, and away from walls.
- .4 The Contractor shall remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

1.6 TRANSPORTATION

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

1.7 QUALITY OF WORK

- .1 The Contractor shall ensure the Quality of Work is of the highest standard, executed by licensed or qualified 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.

1.8 CO-ORDINATION

- .1 The Contractor shall ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

1.9 PROTECTION OF WORK IN PROGRESS

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

1.10 EXISTING UTILITIES

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities including Owners utilities, with minimum of disturbance to Work, and/or building occupants. Make arrangements with Departmental Representative.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

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

1.2 EXISTING SERVICES

- .1 Before commencing work, the Contractor shall arrange and pay to establish location and extent of service lines in area of Work and notify Departmental Representative of findings.
- .2 The Contractor shall remove abandoned service lines within 2 m of structures. Cap or otherwise seal lines at cut-off points as directed by Departmental Representative.

1.3 QUALIFICATIONS OF SURVEYOR

- .1 The Contractor shall procure a qualified registered land surveyor, licensed to practice in Place of Work, acceptable to the Departmental Representative.

1.4 SURVEY REFERENCE POINTS

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

1.5 SURVEY REQUIREMENTS

- .1 Establish two permanent bench marks on site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .2 Establish lines and levels, locate and lay out, by instrumentation.
- .3 Stake for helical pile installation.

1.6 RECORDS

- .1 Maintain a complete, accurate log of control and survey work as it progresses.
- .2 On completion of foundations and major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.
- .3 Record locations of maintained, re-routed and abandoned service lines.

1.7 SUBMITTALS

- .1 Submit name and address of Surveyor to Departmental Representative.
- .2 On request of the Departmental Representative, the Contractor shall submit documentation to verify accuracy of field engineering work.
- .3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.8 SUBSURFACE CONDITIONS

- .1 Promptly notify Departmental Representative in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.
- .2 After prompt investigation, should Departmental Representative determine that conditions do differ materially, instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 SUBMITTALS

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

1.2 MATERIALS

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

1.3 PREPARATION

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

1.4 EXECUTION

- .1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.
- .2 Fit several parts together, to integrate with other Work.

- .3 Remove and replace defective and non-conforming Work.
- .4 Remove samples of installed Work for testing.
- .5 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.
- .6 Restore work with new products in accordance with requirements of Contract Documents.
- .7 Refinish surfaces to match adjacent finishes: Refinish continuous surfaces to nearest intersection. Refinish assemblies by refinishing entire unit.

1.5 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 PROJECT CLEANLINESS

- .1 The Contractor shall;
 - .1 Maintain Work in tidy condition, free from accumulation of waste products and debris, including that caused by Departmental Representative.
 - .2 Remove waste materials from site at daily regularly scheduled times or dispose of outside of property. Do not burn waste materials on site.
 - .3 Clear snow and ice from access to building including parking lot and sidewalks, bank/pile snow in designated areas only as directed by Departmental Representative.
 - .4 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
 - .5 Provide on-site containers for collection of waste materials and debris.
 - .6 Provide and use marked separate bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
 - .7 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
 - .8 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.
 - .9 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

1.2 FINAL CLEANING

- .1 When Work is Substantially Performed the Contractor shall:
 - .1 Remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
 - .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
 - .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
 - .4 Remove waste products and debris including that was caused by Departmental Representative.
 - .5 Remove waste materials from site at regularly scheduled times or dispose of outside of property. Do not burn waste materials on site.
 - .6 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
 - .7 Sweep and wash clean paved areas.

1.3 WASTE MANAGEMENT AND DISPOSAL

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 DEMOLITION WORK

- .1 Demolition work includes, but is not limited to, the removal of the existing wood deck boardwalk, plastic floating dock, steel guardrail, wood guardrail, wood piles, storage benches, and interpretive pedestals.

1.2 WASTE MANAGEMENT GOALS

- .1 Prior to start of Work the Contractor shall conduct a meeting with the Departmental Representative to review and discuss Waste Management Goals.
- .2 Waste Management Goal: as much as possible of total Project Waste to be diverted from landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.

1.3 DEFINITIONS

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Inert Fill: inert waste - exclusively asphalt and concrete.
- .3 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .4 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .5 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .6 Separate Condition: refers to waste sorted into individual types.
- .7 Source Separation: acts of keeping different types of waste materials separate beginning from first time they became waste.

1.4 STORAGE, HANDLING AND PROTECTION

- .1 Store, materials to recycled and salvaged are to be removed from site to recycling facility without storing on site. Materials to be recycled on site are to be placed in final location with minimum of rehandling. Stockpiles of concrete in areas other than final buried location will not be permitted.
- .2 Unless specified otherwise, materials for removal become Contractor's property.
- .3 Separate recyclable materials from salvaged items. Transport and deliver non-salvageable items to licensed disposal facility. Transport and deliver recyclable items to recycling facilities.

- .4 Protect surface drainage, mechanical and electrical from damage and blockage.
- .5 Separate and store materials produced during dismantling of structures in designated areas.
- .6 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
 - .1 On-site source separation is recommended.
 - .2 Remove co-mingled materials to off-site processing facility for separation.

1.5 LIST OF SALVAGE ITEMS

- .1 The interpretive panels from the interpretive pedestals are to be salvaged for reuse.

1.6 DISPOSAL OF WASTES

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil, and paint thinner into waterways, storm, or sanitary sewers.
- .3 Remove materials from deconstruction as deconstruction/disassembly Work progresses.

1.7 USE OF SITE AND FACILITIES

- .1 Execute work with least possible interference or disturbance to normal use of premises.

1.8 SCHEDULING

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

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 APPLICATION

- .1 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

3.2 CLEANING

- .1 Remove tools and waste materials on completion of Work, and leave work area in clean and orderly condition.
- .2 Clean-up work area as work progresses.

.3 Source separate materials to be reused/recycled into specified sort areas.

.4 Dispose of materials at licensed facilities.

3.3 DIVERSION OF MATERIALS

.1 On-site sale of recyclable materials is not permitted.

3.4 CANADIAN GOVERNMENTAL DEPARTMENTS CHIEF RESPONSIBILITY FOR THE ENVIRONMENT

.1 Schedule G - Government Chief Responsibility for the Environment:

Province	Address	General Inquires	Fax
Alberta	Alberta Environment and Parks Main Floor, Great West Life Building 9920 - 108 Street Edmonton, Alberta T5K 2G8	1-877-944-0313	780-427-4407

END OF SECTION

1.1 General

1.2 MEASUREMENT PROCEDURES

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

1.3 RELATED SECTIONS

- .1 Section 01 78 00 – Closeout Submittals

1.4 INSPECTION AND DECLARATION

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

1.5 CLEANING

- .1 In accordance with Section 01 74 11 - Cleaning.
- .2 Remove waste and surplus materials, rubbish and construction facilities from the site in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

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

1.2 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative four final hard copies and two flash drives in pdf format of operating and maintenance manuals in English.
- .6 Furnish evidence, if requested, for type, source and quality of products provided.
- .7 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .8 Pay costs of transportation.

1.3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

- .9 Provide marked up red-line drawings to the Consultant for them to update the drawings, 1:1 scaled CAD files in dwg format on CD.

1.4 CONTENTS - EACH VOLUME

- .1 Table of Contents: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties.
 - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
 - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.5 AS-BUILTS AND SAMPLES

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

- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.6 RECORDING ACTUAL SITE CONDITIONS

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

1.7 FINAL SURVEY

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

1.8 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to location as directed; place and store.

- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

1.9 STORAGE, HANDLING AND PROTECTION

- .1 Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.
- .2 Store in original and undamaged condition with manufacturer's seal and labels intact.
- .3 Store components subject to damage from weather in weatherproof enclosures.
- .4 Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.

Part 2 Products

2.1 NOT USED

Part 3 Execution

3.1 NOT USED

END OF SECTION

Part 1 General

1.1 METAL WORK INCLUDES

- .1 Structural Steel for Hollow Structural Sections, Channels, Angles, and Miscellaneous Plates.
- .2 Miscellaneous Steel for Pedestrian Railing and Base Plates.
- .3 Anchor Bolts and Base Plate Bolts.
- .4 Signs and Plaques
- .5 Floating Dock

1.2 RELATED SECTIONS

- .1 Section 01 33 00 Submittal Procedures.
- .2 Section 31 62 17 Helical Piles

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Refer to Section 31 62 17 for payment procedures for the Helical Pile installation.
- .2 Payment for the supply and installation of the guardrail Metal Fabrications:
 - .1 Will be made linear meter of guardrail and it's connection to the boardwalk, successfully installed and approved by the Departmental Representative.
 - .2 Payment will be made under "**Unit Price Item 3.3 Guardrail**".
 - .3 The location shall be coordinated with the Departmental Representative and in order to ensure suitability for use with the boardwalk.
 - .4 Prefabrication as per the Contract Drawings will be considered incidental to the work.
 - .5 Payment will be made under "**Lump Sum Price Item 3.2 Floating Dock**".
- .3 No additional payment shall be made if locations are not as shown on the Contract Drawings.
- .4 Includes all labour, materials, welding, falsework and other incidentals necessary to complete the work.
- .5 Mobilization and demobilization required for this Work shall be incidental to "**Lump Sum Price Item – Mobilization / Demobilization**" and no additional payment will be made for remobilization of equipment if all milling work cannot be completed at once.
- .6 Environmental mitigations required in accordance with Section 01 35 43 –Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment shall be made to the Contractor.

1.4 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A53/A53M-12, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
 - .2 ASTM A307-14, Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength.
 - .3 ASTM A325-14, Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
 - .4 ASTM A653/A653M-15, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - .5 ASTM A780/A780M-09(2015), Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
 - .6 ASTM A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate and Flat Bar.
 - .7 ASTM B221-14, Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - .8 ASTM B632/B632M-08, Standard Specification for Aluminum-Alloy Rolled Tread Plate.
- .2 Canadian Standards Association (CSA International)
 - .1 CAN/CSA G40.20/G40.21-13, General Requirements for Rolled or Welded Structural Quality Steel.
 - .2 CAN/CSA G164 M92 (R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.
 - .3 CSA-S16-14, Design of Steel Structures.
 - .4 CSA W47.1-09 (R2014), Certification of Companies for Fusion Welding of Steel.
 - .5 CSA W48-14, Filler Metals and Allied Materials for Metal Arc Welding.
 - .6 CSA W59-13, Welded Steel Construction (Metal Arc Welding), Includes Update No. 1 (2014), Update No. 3 (2015), Update No. 4 (2015).
- .3 The Environmental Choice Program

- .1 CCD-047a-98, Paints, Surface Coatings.
- .2 CCD-048-98, Surface Coatings - Recycled Water-borne.

1.5 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide Departmental Representative prior to fabrication, with two copies of steel producer certificates, in accordance with CSA G40.20/G40.21.
 - .3 Submit two copies of WHMIS MSDS Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's:
 - .1 For finishes, coatings, primers and paints.
- .2 Shop Drawings
 - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.

1.6 QUALITY ASSURANCE

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover exposed stainless steel surfaces with pressure sensitive heavy protection paper or apply strippable plastic coating, before shipping to job site.
 - .2 Leave protective covering in place until final cleaning of building. Provide instructions for removal of protective covering.

1.8 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CAN/CSA G40.20/G40.21, Grade 350W.
- .2 Steel pipe: to ASTM A53/A53M standard weight, galvanized finish.
- .3 Welding materials: to CSA W59.
- .4 Welding electrodes: to CSA W48 Series.
- .5 Bolts: to A325.
- .6 Anchor bolts: to ASTM A325.
- .7 Grout: non shrink, non metallic, flowable, 15 MPa at 24 hours.
- .8 Supply and install Floating Dock System as per CanadaDocks (or approved equivalent). Dock system must include the following:
 - aluminum frames
 - aluminum joists
 - decking
 - must allow light and water to penetrate through
 - non-slip surface
 - environmental friendly
 - ada compliant
 - uv and static electricity protection
 - reinforced polypropylene
 - foam filled dock floats
 - ramp transition units
 - hinge connections
 - hdg carriage bolts c/w washers & hex nuts
 - chain retainers c/w washers & hex nuts
 - aluminum handrail

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self tapping shake proof flat headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.

- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 FINISHES

- .1 Galvanizing: hot dipped galvanizing with zinc coating 600g/m² to CAN/CSA G164.
- .2 Shop coat primer: to CAN/CGSB 1.40.
- .3 Zinc primer: zinc rich, ready mix to CAN/CGSB 1.181.

2.4 SHOP PAINTING

- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7 degrees C.
- .3 Clean surfaces to be field welded; do not paint.

Part 3 Execution

3.1 ERECTION

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 All welding to be performed by fabricator certified by Canadian Welding Bureau (CWB) to the requirements of CSA W47.1 Division 1 or 2.1.
- .3 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .8 Touch up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch up galvanized surfaces with zinc rich primer where burned by field welding.

3.2 ERECTION

- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
- .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.

END OF SECTION

Part 1 General

1.1 DESCRIPTION

- .1 This section applies to all wood products listed as preservative treated (P.T.) on the drawings.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for Wood Treatment shall be considered incidental to the work. Wood Treatment shall not be measured separately for payment.
- .2 Environmental mitigations required in accordance with Section 01 35 43 –Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment shall be made to the Contractor.

1.3 REFERENCES

- .1 American Wood-Preservers' Association (AWPA)
 - .1 AWPA M2-[01], Standard for Inspection of Treated Wood Products.
 - .2 AWPA M4-[06], Standard for the Care of Preservative-Treated Wood Products.
- .2 Canada Green Building Council (CaGBC)
 - .1 LEED Canada-NC Version 1.0-[2004], LEED (Leadership in Energy and Environmental Design): Green Building Rating System Reference Package For New Construction and Major Renovations.
- .3 Canadian Standards Association (CSA International)
 - .1 CSA O80 Series-[97(R2002)] - O80S2-[05], Wood Preservation.
 - .2 CSA O80.20-1.1-[M97(R2002)], This Standard applies to the fire-retardant treatment of lumber by pressure processes..
 - .3 CSA O80.27-1.1-[M97(R2002)], This Standard covers the fire-retardant treatment of Douglas Fir, hardwood, softwood, and Poplar plywood by pressure processes.
 - .4 CSA O80.201-[M89], This Standard covers hydrocarbon solvents for preparing solutions of preservatives.
 - .5 CSA O322-[02], Procedure for Certification of Pressure-Treated Wood Materials for Use in Preserved Wood Foundations.
- .4 South Coast Air Quality Management District (SCAQMD), California State (SCAQMD)
 - .1 SCAQMD Rule 1113-[04], Architectural Coatings.

1.4 SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Submit two copies of WHMIS MSDS Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's.

- .2 Quality assurance submittals:
 - .1 Submit certificates in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 For products treated with preservative by pressure impregnation submit following information certified by authorized signing officer of treatment plant:
 - .1 Information listed in AWPA M2 and revisions specified in CSA O80 Series, Supplementary Requirement to AWPA M2 applicable to specified treatment.
 - .2 Moisture content after drying following treatment with water-borne preservative.
 - .3 Acceptable types of paint, stain, and clear finishes that may be used over treated materials to be finished after treatment.

1.5 QUALITY ASSURANCE

- .1 Plant inspection of products treated with [preservative] [and] [fire-retardant] by pressure impregnation will be carried out by designated testing laboratory to AWPA M2, and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.
- .2 Each piece of lumber and plywood for preserved wood foundations to be identified by CSA O322 certified stamp.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover wood products to exposed weather before shipping to job site.
 - .2 Leave protective covering in place until the enclosed wood material is being installed.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products

2.1 MATERIALS

- .1 Preservative: to CSA-O80 Series, [chemical] [oil-borne] [water-borne], for [clear] [stained] finish.
- .2 Preservatives: maximum VOC limit 350 g/L.

Part 3 Execution

3.1 APPLICATION: PRESERVATIVE

- .3 Treat wood material labeled pressure treated to CSA O80 using preservative to obtain minimum net retention of 6.4 kg/m³ of wood.
- .4 Following water-borne preservative treatment, dry material to maximum moisture content of 19%.

3.2 APPLICATION: FIELD TREATMENT

- .5 Comply with AWPA M4 and revisions specified in CSA O80 Series, Supplementary Requirements to AWPA M2.
- .6 Remove chemical deposits on treated wood to receive applied finish.

END OF SECTION

Part 1 General

1.1 STRUCTURAL WOOD WORK INCLUDES

- .1 Structural Wood for all beams, joists, decking, handrails, and miscellaneous members for the construction of the boardwalk.
- .2 Wood benches to be supplied by the company shown on the drawings (or approved equivalent) and installed as per the manufacture's recommendations.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Payment for the supply and installation of Structural Wood:
 - .1 Will be made per square meter of boardwalk, successfully installed and approved by the Departmental Representative.
 - .2 Payment will be made under "**Unit Price Item 3.1 Boardwalk**".
 - .3 Payment for the standard benches will be made under "**Unit Price Item 4.1 Standard Bench**".
 - .4 Payment for the storage benches will be made under "**Unit Price Item 4.2 Storage Bench**".
 - .5 The location shall be coordinated with the Departmental Representative and in order to ensure suitability for use with the boardwalk.
 - .6 Prefabrication as per the Contract Drawings will be considered incidental to the work, if applicable.
- .2 No additional payment shall be made if locations are not as shown on the Contract Drawings.
- .3 Includes all labour, materials, fasteners, falsework and other incidentals necessary to complete the work.
- .4 Mobilization and demobilization required for this Work shall be incidental to "**Lump Sum Price Item – Mobilization / Demobilization**" and no additional payment will be made for remobilization of equipment if all milling work cannot be completed at once.
- .5 Environmental mitigations required in accordance with Section 01 35 43 –Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment shall be made to the Contractor.

1.3 REFERENCES

- .1 American Society for Testing and Materials International, (ASTM)
- .2 American Society for Testing and Materials International (ASTM)
 - .1 ASTM A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

- .3 American Wood Preservers' Association (AWPA)
 - .1 AWPA A2, Standard Methods for Analysis of Water-bourne Preservatives and Fire Retardant Formulations.
 - .2 AWPA A3, Standard Methods for Determining Penetration of Preservatives and Fire Retardants.
- .4 Canadian Standards Association (CSA International)
 - .1 CSA B111, Wire Nails, Spikes and Staples.
 - .2 CSA O80 Series, Wood Preservation.
 - .3 CSA O80.20, Fire-Retardant Treatment of Lumber by Pressure Processes.
 - .4 CAN/CSA O86, Consolidation Engineering Design in Wood.
- .5 Forest Stewardship Council (FSC)
 - .1 FSC-STD-01-001, FSC Principle and Criteria for Forest Stewardship.
 - .2 FSC-STD-20-002, Structure and Content of Forest Stewardship Standards V2-1.
 - .3 FSC Accredited Certified Bodies.
- .6 National Lumber Grades Authority
 - .1 NLGA Standard Grading Rules for Canadian Lumber.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Product Data:
 - .1 Submit manufacturer's printed product literature, specifications and data sheet in accordance with Section 01 33 00 - Submittal Procedures.

1.5 QUALITY ASSURANCE

- .2 Lumber identification: by grade stamp of an agency certified by Canadian Lumber Standards Accreditation Board.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Packing, Shipping, Handling and Unloading:
 - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Storage and Protection:
 - .1 Cover wood products to exposed weather before shipping to job site.
 - .2 Leave protective covering in place until the enclosed wood material is being installed.

1.7 WASTE MANAGEMENT AND DISPOSAL

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

- .2 Divert unused metal materials from landfill to metal recycling facility approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 All wood products: to NLGA standard Grading Rules for Canadian Lumber grade species, and dimension as noted on the drawings. Kiln dry decking to 15% maximum moisture content.
- .2 Nails: to CSA B111, galvanized or stainless steel finish; sizes as recommended in CAN/CSA O86.
- .3 Product information for fasteners to be used shall be provided to the Department Representative for approval in accordance with Section 1.5.
- .4 The benches shall be provided as specified by the manufactures shown on the drawings (or approved equivalent).

2.2 FABRICATION

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.

Departmental Representative and/or Consultant may reject any structural or decking components with excessive warping, cupping, twisting, or obvious signs of defect.

Part 3 Execution

3.1 INSTALLATION

- .1 Install all wood products in accordance with CAN/CSA O86 except where specified otherwise.
- .2 Apply preservative to end cuts where pressure treated lumber is specified.

3.2 CLEANING

- .1 Remove tool marks, bruises, and scratches.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

- .1 Materials and installation for Helical Pile Foundations on a Design-Build basis.

1.2 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Measure supply and installation of steel piling per pile installed inclusive of shop drawings and certification by the Contractor's Engineer for all incidental Work.
 - .1 Payment for Helical Piles will be made under "**Unit Price Item 3.4 – Design and Build – Helical Piles**" and shall include all labour, equipment and material to satisfactorily complete this item of work.
 - .2 No separate payment will be made for failed piling attempts, soil conditions, dewatering, grading work required for piling equipment access, quality control, shop drawing production, Contractor's Engineer inspections and certifications and shall be considered incidental to the work.
 - .3 No payment shall be made until the Contractor's Engineer has provided certification in writing that each pile is capable to withstand the design loads provided in the Contract Drawings.
- .2 Mobilization and demobilization required for this Work shall be incidental to "**Lump Sum Price Item– Mobilization / Demobilization**" and no additional payment will be made for remobilization of equipment if all milling work cannot be completed at once.
- .3 Environmental mitigations required in accordance with Section 01 35 43 –Environmental Procedures, for the Work in this Section shall be incidental to the Contract and no separate payment shall be made to the Contractor.

1.3 REFERENCES

- .1 Definitions
 - .1 Design and Build: The Term "Design" refers to all detailed design activities (survey, investigation, drawings, specification) based on general requirements contained in these specifications and shown on the drawings. "Build" refers to construction of Contractor's Detailed design after design has been reviewed by the Departmental Representative. Contractor's responsibility for error and omissions in submission is not relieved by Departmental Representatives review of submittals.
- .4 All standards listed below shall be the latest issue at the time of tender.
- .5 American Society for Testing and Materials International, (ASTM)
 - .1 ASTM A252, Welded and seamless steel pipe piles
 - .2 ASTM A53 Welded and seamless pipe
 - .3 Canadian Standards Association (CSA International).
 - .4 CAN/CSA G40.21, Structural Quality Steels
 - .5 CAN/CSA W48.1, Mild Steel Covered Arc-Welding Electrodes
 - .6 CAN/CSA W48.5, Mild Steel Electronics for Clux-core Arc-Welding

- .7 CAN/CSA W47.1, Certification of companies for fusion welding of steel structures
- .6 Provincial Occupational health and safety regulations.

1.2 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data: submit manufacturer's printed product literature, specifications and datasheet.
- .3 Shop drawings indicating the pipe size, helical pile diameter, required torque installation, and loading design, signed and sealed by and engineer registered in the Province of Alberta.
- .4 Sub-surface investigation report: when site conditions differ from those indicated, submit written notification to Departmental Representative and await further instructions.
- .5 Submit screw pile layout and shop drawings sealed by a professional engineer registered in the Province of Alberta.
- .6 Submit schedule of planned sequence of pile installation to Departmental Representative for review, as specified.
- .7 Provide Data Logging and Field verification by a qualified professional engineer registered in the Province of Alberta. Submit letter of compliance sealed by a screw pile Engineer as verification that piles have been installed as per design.
- .8 At least 2 weeks prior to fabrication, submit to Departmental Representative, two copies of steel producer certificates in accordance with ASTM A1011/A1011M, and mill test reports in accordance with CAN/CSA G40.20/G40.21.
- .9 Provide Departmental Representative with copy of certification for fusion welding in accordance with CSA W47.1 and CSA W47.1S1.
- .10 Spliced piles: when authorized, submit design details of splice complete with signature and stamp of qualified professional engineer registered or licensed in Province of Alberta or where work is to be completed.
- .11 Equipment:
 - .1 Submit prior to pile installation for approval by Departmental Representative, list and details of equipment for use in installation of piles.
 - .2 Non-impact methods; submit characteristics to evaluate performance.
 - .3 Submit driveability analysis as specified, to Departmental Representative for approval of hammers.

1.3 QUALITY ASSURANCE

- .1 Inspection and testing of helical piling material will be carried out by testing laboratory designated by Departmental Representative at any time during course of Work.

- .2 Materials inspected or tested by Departmental Representative which fail to meet contract requirements will be rejected.
- .3 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, Contractor to pay costs for additional tests or inspections. Departmental Representative to approve corrected work.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 During delivery and storage, take measures to protect piling from damage.
- .2 Store off of the ground with protection from elements and excess soil, water and contaminants.

1.5 WASTE MANAGEMENT AND DISPOSAL

- .1 Separate waste materials for recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Separate for recycling and place in designated containers Steel, Metal and Plastic waste in accordance with Waste Management Plan.
- .4 Divert unused metal materials from landfill to metal recycling facility for disposal approved by Departmental Representative.

Part 2 Products

2.1 MATERIALS

- .1 Helical piles to be designed to the codes as outlined within this Section under: References. Material grades, thicknesses and connections are to be designed as per the Design Drawings or as deemed acceptable by the Contractor's Design-Build Engineer. Acceptable Proprietary products are:
 - .1 Magnum Helical Pile Systems,
 - .2 Other products proposed shall be reviewed for compliance with these requirements and shall be judge for acceptability by the Departmental Representative.

Part 3 Execution

3.1 INSTALLATION

- .1 Do welding in accordance with CSA W59 and CSA W59S1, except where specified otherwise.
- .2 All welding to be performed by fabricators certified by Canadian Welding Bureau (CWB) to the requirements of CSA W47.1 Division 1 or 2.1.

- .3 Do not begin pile installation until required quality control tests have been completed and test results approved by Departmental Representative.
- .4 Do pile installation Work in accordance with the Contractor's Design-Build Engineer.
- .5 Submit full details of method and sequence of installation of piling to Departmental Representative for approval prior to start of pile installation work. Details must include templates, bracing, setting and installation sequence and number of piles for driving.
- .6 Helical Piles shall be placed not closer than 3 helix diameters from adjacent pile U.N.O. Piles shall be placed within 38 mm of design drawings and shall be plumb to 38 mm. Screw piles not within tolerance may require load testing at Engineers Discretion.

3.2 OBSTRUCTIONS

- .1 If obstruction encountered during installing, leave obstructed pile and proceed to install remaining piles. Return and attempt to complete install of obstructed pile later.
- .2 Advise Departmental Representative immediately if impossible to install pile to full penetration, and obtain direction from Departmental Representative on further steps required to complete Work.

3.3 SPLICING

- .1 Use full length piles unless splicing is approved on site by Departmental Representative.

3.4 CLEANING

- .1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner and in accordance with Section 01 35 43 - Environmental Procedures.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Section 31 62 17 – Helical Piles

1.2 GENERAL

- .1 Helical Piling; Pile testing shall be completed under the supervision of the Contractor's Engineer in order to ensure the helical piles meet the specifications defined in the approved shop drawings.

1.3 MEASUREMENT AND PAYMENT PROCEDURES

- .1 Pile testing shall be considered incidental to the work. Pile testing shall not be measured separately for payment.

1.4 REFERENCES

- .1 American Society for Testing and Materials International (ASTM)
 - .1 ASTM D1143, Standard Test Method for Piles Under Static Axial Compressive Load.
 - .2 ASTM D4945, Standard Test Method for High Strain Dynamic Testing of Piles.

1.2 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .1 Submit detailed procedure for helical pile testing with the Helical Pile Design and Build shop Drawings.
- .2 Quality assurance submittals:
 - .1 Test reports: submit 3 copies of pile test reports for piles certified by the Contractor's Engineer, indicating compliance with specifications for specified performance characteristics and physical properties.

Part 2 Products
NOT USED

Part 3 Execution
NOT USED

END OF SECTION

Part 1 General

1.1 MEASUREMENT PROCEDURES

- .1 Hydraulic Seeding:
 - .1 Hydraulic Seeding will be measured by the hectare acceptably installed resulting in full grass growth, 75% germination and growth of specified seed mixture, within the dimensions indicated on the Drawings or as approved by the Departmental Representative. Payment for hydraulic seeding shall be full compensation for all labour, equipment, materials and incidentals required to place the materials in accordance with the requirements of the Specifications, IFC Drawings and direction of the Departmental Representative. Payment shall be paid under **“Unit Price Item 5.0 –Hydraulic Seeding”**
 - .2 Measurement: Measurement shall be made by field measurement of work completed in square meters. Areas of blending into existing turf grass will not be measured for payment.
 - .3 Payment: The price shall include seed, mulch, tackifier, water, hauling, loading and unloading, and installation and all work and materials incidental thereto.
 - .4 Maintenance is incidental and will not be paid for separately.
 - .5 Mobilization and demobilization required for this Work shall be incidental to **“Lump Sum Price Item 1 – Mobilization / Demobilization”**, and no additional payment will be made.

1.2 MAINTENANCE PLAN

- .1 Contractor to provide a detailed maintenance plan indicating how weeds will be monitored and treated.

1.3 SUBMITTALS

- .1 Product Data.
 - .1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures.
 - .2 Provide product data for:
 - .1 Seed.
 - .2 Mulch.
 - .3 Tackifier.
 - .4 Fertilizer.
 - .3 Submit in writing to Parks representative 14 days prior to commencing work:
 - .1 Volume capacity of hydraulic seeder in litres.
 - .2 Amount of material to be used per tank based on volume.
 - .3 Number of tank loads required per hectare to apply specified slurry mixture per hectare.

1.4 QUALITY ASSURANCE

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

- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, installation instructions and warranty requirements.

1.5 SCHEDULING

- .1 Schedule hydraulic seeding to coincide with preparation of soil surface.

1.6 WASTE MANAGEMENT AND DISPOSAL

- .1 Do not dispose of unused fertilizer into sewer systems, into lakes, streams, onto ground or in locations where it will pose health or environmental hazard.

Part 2 Products

2.1 MATERIALS

- .1 Seed: "Canada pedigreed grade" in accordance with Government of Canada Seeds Act and Regulations.

- .1 Grass mixture: "Certified", "Canada No. [1] [2] Lawn Grass Mixture" in accordance with Government of Canada "Seeds Act" and "Seeds Regulations".

- .1 Mixture composition:

Riparian Mix

Seed mixture to be planted in Riparian restoration sites:

- .1 20% Fowl Bluegrass
- .2 20% Bluejoint Reed Grass
- .3 10% Awned Wheatgrass
- .4 10% Slender Wheatgrass
- .5 10% Hairy Wild Rye
- .6 10% Canada Wild Rye
- .7 10% Tufted Hair Grass
- .8 10% Northern Wheatgrass

*Indicates that seed may be hard to purchase or will need to be collected from local sources within the National Park. May be substituted with seeds identified already in the mixture. If Native Sedges can be easily acquired, a substitution of up to 20% of the seed mix can be made.

- .2 Aspen dominated forest restoration sites:

- .1 Mixture composition:

Dry/Upland Mix

- .1 20% Awned Wheatgrass
- .2 15% Slender Wheatgrass
- .3 10% Northern Wheatgrass

- .4 10% Western Wheatgrass
- .5 10% Canada Wild Rye
- .6 5% Hairy Wild Rye
- .7 5% Tufted Hair Grass
- .8 5% Bluejoint Wheatgrass
- .9 5% Green Needle Grass
- .10 5% June Grass
- .11 2% * Mountain Rice Grass
- .12 2% * Hooker's Oat Grass
- .13 2% * Fringed Brome
- .14 2% * Sweetgrass
- .15 2% * Purple Oat Grass

*Indicates that seed may be hard to purchase or will need to be collected from local sources within the National Park. May be substituted with seeds identified already in the mixture.

- .2 Mulch: specially manufactured for use in hydraulic seeding equipment, non-toxic, water activated, green colouring, free of germination and growth inhibiting factors with following properties:
 - .1 Type I mulch:
 - .1 Nilex MulchMax101wood
- .3 Tackifier: water soluble vegetable carbohydrate powder.
- .4 Water: free of impurities that would inhibit germination and growth.
- .5 Fertilizer:
 - .1 To Canada "Fertilizers Act" and "Fertilizers Regulations".
 - .2 Complete synthetic, slow release with 35% of nitrogen content in water-insoluble form.
- .6 Inoculants: inoculant containers to be tagged with expiry date.

Part 3 Execution

3.1 WORKMANSHIP

- .1 Do not spray onto structures, signs, guide rails, fences, plant material, utilities and other than surfaces intended.
- .2 Clean-up immediately, any material sprayed where not intended, to satisfaction of Parks Representative.
- .3 Do not perform work under adverse field conditions such as wind speeds over 10km/h, frozen ground or ground covered with snow, ice or standing water.
- .4 Provide signage to identify what areas have been seeded and advise people to stay off.

3.2 PREPARATION OF SURFACES

- .1 Fine grade areas to be seeded free of humps and hollows. Ensure areas are free of deleterious and refuse materials.
- .2 Obtain Parks Representative approval of grade and topsoil depth before starting to seed.

3.3 HYDRAULIC SEEDING APPLICATION

- .1 Hydraulic seeding as per manufacturer's recommendation.

3.4 MAINTENANCE DURING ESTABLISHMENT PERIOD

- .1 Perform following operations from time of seed application until acceptance by Departmental Representative.
- .2 Grass Mixture:
 - .1 Repair and reseed dead or bare spots to allow establishment of seed prior to acceptance.
 - .2 Mow grass at least once per month. Remove clippings which will smother grass.
 - .3 Control weeds by mechanical or chemical means utilizing acceptable integrated pest management practices.
 - .4 Water seeded area to maintain optimum soil moisture level for germination and continued growth of grass. Control watering to prevent washouts.

3.5 ACCEPTANCE

- .1 Seeded areas will be accepted by Parks Representative provided that:
 - .1 Plants are uniformly established. Seeded areas are free of rutted, eroded, bare or dead spots.
 - .2 Areas seeded are free from weeds.
- .2 Areas seeded in fall will achieve final acceptance in following spring, one month after start of growing season provided acceptance conditions are fulfilled.

3.6 MAINTENANCE DURING WARRANTY PERIOD

- .1 Contractor is required to ensure germination of grass.
- .2 Removal of weeds during maintenance period.
- .3 Periodic cutting as required for best establishment.

3.7 CLEANING

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

END OF SECTION