

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Canadian Standards Association (CSA)
 - .1 CAN/CSA-Z321-96 (R2006), Signs and Symbols for the Workplace.
 - .2 CSA O121-08 (R2013), Douglas Fir Plywood.
- .2 Fisheries Act, Departmental Representative of Justice, Canada, latest revision.
- .3 Navigable Waters Protection Act, Departmental Representative of Justice, Canada, latest revision.
- .4 National Building Code of Canada, National Research Council of Canada, 2015.
- .5 Standards and Guidelines for the Conservation of Historical Places in Canada, Section 4.4, Guidelines for Engineering Works, including Civil, Industrial and Military Works as found in <http://www.historicplaces.ca/en/pages/standards-normes.aspx>.

1.02 WORK OF THE PROJECT

- .1 Work of this Contract comprises general construction to fabricate new steel stoplogs and conduct lock repairs at the St. Andrews Lock & Dam.
- .2 The main items of Work of this Contract include, but are not limited to:
 - .1 Supply and fabricate nine new steel stoplogs.
 - .2 Supply and fabricate new steel stoplog lifting beam.
 - .3 Supply and fabricate new stop log guide slots and seal plates.
 - .4 Supply and fabricate two operating T-wrenches.
 - .5 Mobilize to Site.
 - .6 Install temporary access mats over all access areas that are not currently used for vehicular traffic.
 - .7 Ongoing maintenance of local and temporary access roads.
 - .8 Install temporary turbidity measures.
 - .9 Remove and dispose of sediment accumulated within cofferdam footprints off-Site; install temporary earthfill cofferdams, install sheet pile in downstream cofferdam and employ divers to install PVC liner.
 - .10 Fish rescue.
 - .11 Turbidity monitoring.
 - .12 De-water lock chamber.
 - .13 Ongoing de-watering of lock chamber.
 - .14 Prepare lock for concrete inspection including removing all sediment, hauling and disposing off-Site, pressure washing, and provide Departmental Representative access to inspect.
 - .15 Assist Departmental Representative with valve chamber and conduit inspection; assistance includes providing one labourer, one superintendent, and available on-Site tools and equipment to conduct inspection.
 - .16 Complete crack filling and concrete repairs with repair mortar.
 - .17 Install new stoplog guide slots and seal plates complete with concrete demolition and mortar replacement.

- .18 Supply and install new vertical timber binders on timber mitre gates.
- .19 Replace mitre gate sill timbers including facing boards.
- .20 Install, fit, commission, and remove steel stoplogs.
- .21 Remove temporary cofferdams and turbidity measures.
- .22 Remove temporary access mats.
- .23 Lift, transport and place PWGSC's tugboat and barge into the unfrozen lock water in the spring.
- .24 Site cleanup.
- .25 Demobilize from Site.
- .26 Return to Site for and complete post-spring cleanup.

1.03 PROJECT SITE

- .1 The Site of the Work of this Contract is located at the St. Andrews Lock & Dam in Lockport, Manitoba, approximately 50 kilometres northeast of Winnipeg.
- .2 National Historic Site:
 - .1 St Andrews Lock & Dam was designated as a national historic Site of Canada because the engineering work is the only surviving moveable dam of its type in the world. The heritage value of this Site is carried in the design and materials of the structure itself.
 - .2 The Character Defining Elements (CDE's) of this Site are classified as:
 - .1 the location over former rapids in the Red River;
 - .2 the current 240.1 metres length between abutments;
 - .3 the dam design as a moveable weir;
 - .4 its division into six 36.3-metres, 0.2 metre-wide bays by five concrete piers interconnected at their base;
 - .5 the original 270 metres long bridge superstructure consisting of 7 truss spans and a deck truss with upper chords carrying a road and lower chords supporting a suspended floor and a working floor for the curtain dam;
 - .6 the electrically powered frame cranes running on a trolley track along the working floor to raise and lower the hinged curtain frames and smaller curtain cranes mounted on a truck on tracks;
 - .7 the steel shoes set into the submerged dam serving as a sill for the movable component;
 - .8 90 wooden curtains hooked onto the curtain frames;
 - .9 the concrete lock and dam substructure;
 - .10 the solid timber mitre gates;
 - .11 the steel Pratt bridge trusses;
 - .12 the concrete and steel Strauss bascule bridge; and,
 - .13 the existence of a vehicular road-deck.
- .3 Inadequate protection of the listed CDE's may trigger additional reviews by the Departmental Representative. Repair methods and procedures of CDE's must be approved by the Departmental Representative.

1.04 PROJECT SCHEDULE

- .1 Provide Construction Progress Schedule in bar-chart format to Departmental Representative within 10 working days of Contract Award.
- .2 Departmental Representative will review and return schedule within 5 working days. Incorporate Departmental Representative review comments and resubmit

schedule within 5 working days.

- .3 Project Milestones:
 - .1 Source, supply and fabricate structural steel members and components by 1 September 2020.
 - .2 No instream activity permitted until 21 October 2020.
 - .3 Install temporary cofferdams by 31 October 2020.
 - .4 Supply and construct temporary hoarding measures by 15 November 2020.
 - .5 Remove temporary cofferdams by 1 March 2021.
 - .6 Achieve Substantial Completion by 15 March 2021.
 - .7 Achieve Final Completion by 31 July 2021.
- .4 Project Schedule Reporting:
 - .1 Update Project Schedule prior to each Progress Meeting throughout the project, or as requested by the Departmental Representative, 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 forecasts, defining problem areas, anticipated delays and impact with possible mitigation.
 - .3 Discuss Project Schedule at Progress Meetings, identify activities that are behind schedule and provide measures to regain slippage.
 - .4 Weather related delays with their remedial measure will be discussed and negotiated.

1.05 DOCUMENTS AT SITE

- .1 Maintain at job Site, one copy of 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 Environmental Protection Plan.
 - .12 Copies of all regulatory approvals.
 - .13 Other documents as specified.

1.06 PROJECT MEETINGS

- .1 Provide for physical space and make arrangement for meetings.
- .2 Meeting administration:
 - .1 Departmental Representative will schedule and administer project meetings throughout the progress of the work.
 - .2 Departmental Representative will prepare agenda for meetings.
 - .3 Departmental Representative will distribute written notice of each meeting two days in advance of meeting date to Contractor.
 - .4 Departmental Representative will preside at meetings.
 - .5 Departmental Representative will record the meeting minutes. Include significant proceedings and decisions. Identify actions by parties.

- .6 Departmental Representative will distribute copies of minutes within three days after meetings and transmit via email to meeting participants.
- .7 Representative of Contractor, Subcontractor and suppliers attending meetings will be qualified and authorized to act on behalf of the party each represents.
- .3 Preconstruction Meeting:
 - .1 Within 15 days of Contract Award, request a meeting of parties in Contract to discuss and resolve administrative procedures and responsibilities.
 - .2 Senior representatives of Departmental Representative, Contractor, major Subcontractors, field inspectors and supervisors will be in attendance.
- .4 Progress Meetings:
 - .1 During course of Work progress meetings will be scheduled monthly. During on-Site Work, progress meetings will be scheduled weekly.
 - .2 Contractor, major Subcontractors involved in Work and Departmental Representative are to be in attendance.

1.07 USE OF SITE AND EXISTING FACILITIES

- .1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, provincial and other regulations.
- .2 Keep within limits of work and avenues of ingress and egress.
- .3 Allow for on-going use of the premises by the Departmental Representative throughout construction. Co-operate with the Departmental Representative to schedule construction activities to minimize conflict with operations.
- .4 Carry out noise generating Work between 0700 to 2000 hours, and from 0800 to 2000 hours on weekends and holidays.
- .5 Advise Departmental Representative in writing to request permission to temporarily remove railings or undertake other minor Site modifications to improve access during Work. Permission may or may not be granted. Follow all conditions imposed by Departmental Representative as a condition of this permission.
- .6 Ensure Site conditions are equal to or better than that which existed before the Work started. Take video of the Site prior to and post construction activities for record keeping.
- .7 Comply with facility smoking restrictions and municipal by-laws. Set up and use designated smoking areas as approved by the Departmental Representative.
- .8 Maintain access to property including overhead clearances for use by emergency response vehicles.
- .9 Protect surrounding private and public property from damage during performance of Work. Be responsible for damage incurred.

1.08 CONSTRUCTION FACILITIES

- .1 Prepare Site Plan indicating proposed location and dimensions of area to be used by Contractor as the laydown area. Include temporary access and haul routes and measures to protect existing infrastructure.
- .2 Place access mats (e.g. rig mats, swamp mats) over all areas to be accessed by Contractor personnel or equipment that is not currently graveled or designed for such traffic.
- .3 Contractors and Subcontractors to provide their own offices as necessary.
 - .1 Provide temporary office for meetings, storage and office space as required.
 - .2 Insulate building and provide heating system suitable for visitors and storage.
 - .3 Provide private washroom facilities adjacent to office complete with flush or chemical type toilet, lavatory and mirror and maintain supply of paper towels and toilet tissue. Maintain in clean condition.
 - .4 Provide sanitary facilities for workforce in accordance with governing regulations and ordinances.
 - .5 Provide marked and fully stocked first-aid case in a readily available location.
 - .6 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials. Locate materials not required to be stored in weatherproof sheds on Site in manner to cause least interference with work activities.
- .4 Remove from Site all such work after use.
- .5 Provide, operate and maintain cranes, as required, to move materials and equipment at the Site. Cranes to be operated by qualified operator.
 - .1 Provide a minimum 100-ton crane to lift and transport PWGSC's tugboat and barge (maximum 50,000 lbs per vessel) from their temporary onshore storage location (located within 200 metres of the SALD lock), and place the two vessels into the ice-free lock water after spring breakup and prior to the SALD navigation season. Timing of the vessels' launch must be approved by the Departmental Representative and may not coincide with the Contractor's planned on-Site construction activities.

1.09 CONSTRUCTION SIGNAGE

- .1 Provide and erect project safety sign in a location designated by Departmental Representative.
 - .1 Build concrete foundation, erect framework, and attach signboard to framing.
 - .2 Submit a proposed design style to be reviewed and approved by Departmental Representative. Wording in both official languages.
 - .3 Graphic symbols in accordance with CAN/CSA-Z321.
 - .4 Indicate on sign, name of Departmental Representative, Contractor and Subcontractors.
 - .5 No other signs or advertisements, other than warning signs, are permitted on Site.
- .2 Maintain approved signs and notices in good condition for duration of project, and dispose of off-Site upon completion of project, or earlier,

if directed by Departmental Representative.

1.10 EXISTING UTILITIES

- .1 Establish location and extent of service lines in area of work before commencing Work. Notify Departmental Representative of findings.
- .2 Where unknown services are encountered, immediately advise the Departmental Representative.
- .3 Protect and maintain existing active service lines. Notify Departmental Representative, and obtain permission, to temporarily re-locate any existing services.
- .4 Notify Department Representative and Utility companies of any intended interruption of services and obtain required permission.
- .5 Where Work involves breaking into or connecting to existing services, provide 72 hours notice to the Departmental Representative of any potential service interruptions. Keep duration of interruptions to minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.
- .6 Provide temporary services when directed by Departmental Representative to maintain critical systems.

1.11 TEMPORARY UTILITIES

- .1 Temporary power and light
 - .1 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance, energy consumption and removal.
 - .2 Arrange temporary power for electric cranes and other equipment requiring in excess of above.
 - .3 Provide and maintain temporary lighting throughout project.
- .2 Communication service
 - .1 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.
- .3 Provide temporary heat and ventilation in temporary enclosed areas as required to:
 - .1 Facilitate progress of Work.
 - .2 Provide ambient temperatures and humidity levels for storage, installation and curing of materials.
 - .3 Provide adequate ventilation to meet health regulations for safe working environment.
 - .4 Maintain temperatures of minimum 5 degrees °C in areas where construction or mortar curing is in progress, or as required by activity being performed.
 - .5 Prevent accumulations of dust, fumes, mists, vapours or gases in areas occupied during construction.
 - .6 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
 - .7 Maintain strict supervision of operation of temporary heating and ventilating equipment.

1.12 TRAFFIC AND MAINTENANCE

- .1 Provide measures for protection and diversion of traffic, including curious public and facility operations staff. Include provision for 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; as required.
- .2 Place signs and other devices in locations recommended in Traffic Accommodation in Work Zones.
- .3 Meet with Departmental Representative prior to commencement of Work to prepare list of signs and other devices required for project. If situation on Site changes, revise list to approval of Departmental Representative.
- .4 Continually maintain traffic control devices in use:
 - .1 Check signs daily for legibility, damage, suitability and location. Clean, repair or replace to ensure clarity and reflectance.
 - .2 Remove or cover signs which do not apply to conditions existing from day to day.
- .5 Contractor's traffic on roads selected for hauling material to and from Site to interfere as little as possible with public traffic. Verify adequacy of existing roads and allowable load limit on these roads. Contractor is responsible for repair of damage to roads caused by construction operations.
- .6 Provide snow removal during period of Work.
- .7 Provide dust control during period of Work.

1.13 TEMPORARY BARRIERS AND ENCLOSURES

- .1 Erect temporary Site enclosures using construction grade lumber framing and exterior grade fir plywood to CSA 0121.
- .2 Design temporary work enclosures, complete with roof, over all work areas within the lock. Temporary enclosures are to be designed to withstand wind pressure, snow and ice loading, and extreme temperature conditions in accordance with the latest version on the Building Code of Canada. Submit shop drawings for all temporary enclosures that are stamped by a Professional Engineer registered with Engineers Geoscientists Manitoba.

1.14 REGULATORY REQUIREMENTS

- .1 Conform to Regulatory Requirements and pay all fees and give all notices required by them.
- .2 Obtain approvals necessary for the Work and the Contract from the regulatory agencies having jurisdiction, except those approvals obtained by the Departmental Representative as identified below.
- .3 Departmental Representative will obtain the approvals listed below:
 - .1 Fisheries Act: Authorization from Fisheries and Oceans Canada.
 - .2 Navigable Waters Protection Act: Provide notification to Transport Canada.
- .4 If the Contract Documents are at variance with Regulatory Requirements,

notify the Departmental Representative in writing, requesting direction, immediately after such variance becomes known.

- .5 The Departmental Representative may make Changes in the Work due to Regulatory Requirements, and such changes will be authorized by an approved Change Order.
- .6 If the Contractor fails to notify the Departmental Representative in writing and obtain the Departmental Representative's direction related to variations in Regulatory Requirements and performs work knowing it to be contrary to Regulatory Requirements, the Contractor accepts responsibility for correcting violations thereof, and bears the costs, expenses and damages attributable to the Contractor's failure to comply with the provisions of such Regulatory Requirements.
- .7 Comply with the 2015 National Building Code of Canada for the design and erection of any Contractor buildings or temporary structures.

1.15 SURVEY

- .1 Employ a qualified registered land surveyor, licensed to practice in Place of Work, acceptable to Departmental Representative.
- .2 Submit name and address of Surveyor to Departmental Representative.
- .3 On request of Departmental Representative, submit documentation to verify accuracy of Work.
- .4 Survey reference points
 - .1 Locate, confirm and protect control points prior to starting Site work. Preserve permanent reference points during construction.
 - .2 Make no changes or relocations without prior written notice to Departmental Representative.
 - .3 Report to Departmental Representative when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
 - .4 Require surveyor to replace control points in accordance with original survey control.
- .5 Establish two permanent benchmarks on Site, referenced to established bench marks by survey control points. Record locations, with horizontal and vertical data in Project Record Documents.
- .6 Establish lines and levels, locate and lay out, by instrumentation.
- .7 Maintain a complete, accurate log of survey and control work as it progresses.
- .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.

1.16 CLEANING

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris as per Contractor's Environmental Protection Plan as specified in Section 01 35 43 - Environmental Procedures.

1.17 CLOSEOUT PROCEDURES

- .1 Acceptance of Work procedures (apply to all interim, substantial, final and warranty completion milestones)
 - .1 Contractor's Inspection: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
 - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
 - .2 Request Departmental Representative inspection.
 - .2 Departmental Representative Inspection:
 - .1 Departmental Representative to inspect Work and identify defects and deficiencies.
 - .2 Contractor to correct deficiencies.
 - .3 Completion Tasks: submit written certificates that tasks have been performed as follows:
 - .1 Work: completed and inspected for compliance with Contract Documents.
 - .2 Defects: corrected and deficiencies completed.
 - .3 Equipment and systems: tested, adjusted and balanced and fully operational.
 - .4 Operation of systems: demonstrated to Departmental Representative.
 - .5 Work: complete and ready for final inspection.
 - .4 Final Inspection:
 - .1 When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor.
 - .2 When Work incomplete according to Departmental Representative, complete outstanding items and request re-inspection.
 - .5 Declaration of Substantial Performance: when Departmental Representative considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.
- .2 Project Record Documents
 - .1 Submit a complete set of digital Project Record Documents in native file format as well as in PDF format via a FTP Site to the Departmental Representative that includes all relevant Project Information as indicated below.
 - .2 Table of Contents: Include title of project, date of submission, names, addresses, and telephone numbers of Contractor with names of responsible parties.
 - .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
 - .4 Approved Shop Drawings.
 - .5 Material test reports.
 - .6 Red-line Drawings
 - .1 Record as-constructed information on a full size hard-copy set

- of Issued for Construction drawings kept at the Site; such as measured dimensions of elements, measure locations of utilities, field changes, changes made by change order, details not on original Drawings.
- .2 Use felt tip marking pens.
 - .3 Record information concurrently with construction progress.
 - .7 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
 - .8 Provide digital photos for Site records.
 - .9 Project Safety Plan and related information.
 - .10 Other information as requested by the Departmental Representative.
- .3 Warranty
- .1 Convene meeting one week prior to Contract completion with Contractor's Representative and Departmental Representative:
 - .1 Verify Project requirements.
 - .2 Departmental Representative to establish communication procedures for:
 - .1 Notifying construction warranty defects.
 - .2 Determine priorities for type of defects.
 - .3 Determine reasonable response time.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Manitoba Workplace Safety and Health Act and Regulation, 2016.

1.02 REFERENCE DOCUMENTS

- .1 "Hazardous Materials Sampling, St. Andrews Lock and Dam Gates, St. Andrews, Manitoba", prepared by Amec Foster Wheeler, Environment & Infrastructure, prepared for Public Works & Government Services Canada, March 2018.

1.03 DEFINITIONS

- .1 Hazardous Materials: dangerous substances, dangerous goods, hazardous commodities and hazardous products, may include but not limited to: asbestos PCB's, CFC's, HCFC's poisons, corrosive agents, flammable substances, ammunition, explosives, radioactive substances, or other material that can endanger human health or wellbeing or environment if handled improperly.

1.04 GENERAL REQUIREMENTS

- .1 Review the referenced "Hazardous Materials Sampling" report, the 1982 St. Andrews Lock & Dam Lock Gates Renewal Contract Drawings and Specifications, and conduct a Site survey to identify potential Hazardous Materials that may be encountered during execution of the Work.
- .2 Once Hazardous Materials are identified, include provisions within the Site-specific Health and Safety Plan (refer to Section 01 35 29.06) and the Demolition and Removal Plan (refer to Section 02 41 00.08) that:
 - .1 Protect the health and safety of all individuals that may contact the identified Hazardous Materials.
 - .2 Suitable off-Site disposal of the Hazardous Materials to protect people and the environment.
- .3 If unidentified potentially hazardous materials are encountered at the Site, stop work, take preventative measures and notify Departmental Representative immediately. Proceed only after receipt of written instructions have been received from Departmental Representative.

2 PRODUCTS

2.01 HAZARDOUS MATERIALS REVIEW

- .1 The referenced "Hazardous Materials Sampling" report provides test results, including but not limited to, the following potentially Hazardous Materials.
 - .1 Existing gate timbers:
 - .1 Pentachlorophenol (PCP).
 - .2 Polycyclic Aromatic Hydrocarbon (PAH).
 - .3 Benzo(a)pyrene.
 - .4 Naphthalene.
 - .2 Existing gate railings and metal works.

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- .1 Total Lead (TP).
- .2 Toxicity Characteristic Leaching Procedure (TCLP).

END OF SECTION

1 GENERAL

1.01 ADMINISTRATIVE

- .1 Submit to Departmental Representative submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 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.
- .5 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .6 Verify field measurements and affected adjacent work are co-ordinated.
- .7 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .8 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .9 Keep one reviewed copy of each submission on site.

1.02 SHOP DRAWINGS AND PRODUCT DATA

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
- .2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated. Indicate cross references to design Drawings and Specifications.
- .3 Allow 10 days for Departmental Representative's review of each submission.
- .4 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .5 Make changes in shop drawings as Departmental Representative may require,

consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.

- .6 Accompany submissions with transmittal letter, containing:
 - .1 Date.
 - .2 Project title and number.
 - .3 Contractor's name and address.
 - .4 Identification and quantity of each shop drawing, product data and sample.
 - .5 Other pertinent data.
- .7 Submissions include:
 - .1 Date and revision dates.
 - .2 Project title and number.
 - .3 Name and address of:
 - .1 Subcontractor.
 - .2 Supplier.
 - .3 Manufacturer.
 - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
 - .5 Details of appropriate portions of Work as applicable:
 - .1 Fabrication.
 - .2 Layout, showing dimensions, including identified field dimensions, and clearances.
 - .3 Setting or erection details.
 - .4 Capacities.
 - .5 Performance characteristics.
 - .6 Standards.
 - .7 Operating weight.
 - .8 Relationship to adjacent work.
- .8 After Departmental Representative's review, distribute copies.
- .9 Submit electronic copy of shop drawings for each requirement requested in Specification sections and as Departmental Representative may reasonably request.
- .10 Submit electronic copies of product data sheets or brochures for requirements requested in Specification sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .11 Submit electronic copies of test reports for requirements requested in Specification sections and as requested by Departmental Representative.
 - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.
 - .2 Testing must have been within 3 years of date of contract award for project.
- .12 Submit electronic copies of certificates for requirements requested in Specification sections and as requested by Departmental Representative.
 - .1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

- .2 Certificates must be dated after award of project contract complete with project name.
- .13 Submit electronic copies of manufacturer's instructions for requirements requested in Specification sections and as requested by Departmental Representative.
- .14 Submit electronic copies of manufacturer's field reports for requirements requested in Specification sections and as requested by Departmental Representative.
- .15 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit electronic copies of Operation and Maintenance Data for requirements requested in Specification sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Departmental Representative is for sole purpose of ascertaining conformance with general concept.
 - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
 - .2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.03 SAMPLES

- .1 Submit for review samples in duplicate as requested in respective Specification sections, or as requested by the Departmental Representative. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's site office.
- .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.

1.04 PHOTOGRAPHIC DOCUMENTATION

- .1 Submit electronic copy of colour digital photography in .jpg format, standard resolution, monthly with progress statement and as directed by Departmental Representative.
- .2 Project identification: name and number of project and date of exposure indicated.
- .3 Frequency of photographic documentation is daily, or as directed by Departmental Representative.

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Manitoba Workplace Safety and Health Act, January 2020.
- .2 Manitoba Workplace Safety and Health Regulation, September 2019.

1.02 SUBMITTALS

- .1 Submit Site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:
 - .1 Results of Site-specific safety hazard assessment.
 - .2 Results of safety and health risk or hazard analysis for Site tasks and operation.
- .2 Submit electronic copies of Contractor's authorized representative's work Site health and safety inspection reports to Departmental Representative weekly.
- .3 Submit copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS SDS - Safety Data Sheets in accordance with Contractor's approved Site-specific Health and Safety Plan.
- .6 Departmental Representative will review Contractor's Site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within 7 days after receipt of comments from Departmental Representative.
- .7 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.
- .8 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for Site personnel prior to commencement of Work, and submit additional certifications for any new Site personnel to Departmental Representative.
- .9 Submit On-Site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.03 FILING OF NOTICE

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

1.04 SAFETY ASSESSMENT

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

1.05 MEETINGS

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

1.06 GENERAL REQUIREMENTS

- .1 Develop written Site-specific Health and Safety Plan based on hazard assessment prior to beginning Site Work and continue to implement, maintain, and enforce plan until final demobilization from Site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.07 RESPONSIBILITY

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

1.08 COMPLIANCE REQUIREMENTS

- .1 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.
- .2 Comply with Manitoba Workplace Health and Safety Act, January 2020 and Manitoba Workplace Health and Safety Regulation, September 2019.

1.09 UNFORSEEN HAZARDS

- .1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Manitoba Workplace Safety and Health Act and Regulation and advise Departmental Representative verbally and in writing.
- .2 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, advise Health and Safety Co-ordinator and follow procedures in accordance with Manitoba Workplace Safety and Health Act and Regulation and advise Departmental Representative verbally and in writing.

1.10 HEALTH AND SAFETY CO-ORDINATOR

- .1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:
 - .1 Have Site-related working experience specific to activities associated with heavy lifting, fall arrest, confined entry and working around water.
 - .2 Have working knowledge of occupational safety and health regulations.

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

1.11 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on Site in accordance with Manitoba Workplace Safety and Health Act and Regulation, and in consultation with Departmental Representative.

1.12 CORRECTION OF NON-COMPLIANCE

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

1.13 WORK STOPPAGE

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

END OF SECTION

1 GENERAL

1.01 REFERENCE STANDARDS

- .1 Fisheries Act, Departmental Representative of Justice, Canada, latest revision.
- .2 Measures to Avoid Causing Harm to Fish and Fish Habitat, Department of Fisheries and Oceans Canada (DFO), 2016.

1.02 SUBMITTALS

- .1 Submit Environmental Protection Plan for review and approval by Departmental Representative prior to mobilization to Site. Do not mobilize to Site until Departmental Representative review comments are incorporated and authorization by the Departmental Representative has been provided. Include overview of known or potential environmental issues to be addressed during construction; e.g., construction generated waste, wastewater, working in and around waterways, erosion and sediment control and protection of existing vegetation.
- .2 Submit copies of environmental Accident Reports within 24 hours of occurrence.

1.03 ENVIRONMENTAL PROTECTION PLAN

- .1 Prepare and implement an Environmental Protection Plan (EPP). Completed EPP consists of written procedures and drawings that address the environmental protection issues relevant to the Site-specific activity being performed, and detail temporary environmental control measures that the Contractor will undertake to comply with all applicable legislation, regulations and approvals during the course of construction.
- .2 Prepare the EPP specific to the Work and the Site. Ensure effective implementation of the EPP by assigning responsibility for the implementation, and maintenance of the work prescribed by the EPP, including temporary erosion control measures, to one individual.
- .3 The finalization of the EPP to the mutual satisfaction of the Departmental Representative and the Contractor does not constitute an approval or assurance from the Departmental Representative that the "temporary environmental control measures" detailed in the EPP are sufficient to ensure compliance with all applicable legislation, regulations or conditions of approval. The Contractor is ultimately responsible to ensure all measures, used on the Work, are sufficient to ensure compliance with all applicable authorities. This may mean increasing the number of installations, providing alternate devices or modifying procedures.
- .4 If at any time during the performance of the Work it is determined that the devices or procedures detailed in the EPP (any specific measures, locations or quantities proposed) are inappropriate or insufficient, the Departmental Representative will notify the Contractor in writing and the Contractor will modify the EPP accordingly.

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- .5 The Departmental Representative may suspend work in cases where in the Departmental Representative's opinion the Contractor fails to comply with procedures stated in the EPP. If the Contractor fails to adhere to finalized EPPs, the Departmental Representative may make other arrangements to have the Work done, and deduct the cost thereof from any money owing to the Contractor.
- .6 Site-specific items to be addressed include, but is not limited to the following: haul roads, material stockpile locations, lay down area, Site access routes, handling contaminated material, disposal of waste materials, and reporting procedures for spills of deleterious or hazardous materials.

1.04 NOTIFICATION OF ACCIDENTS

- .1 Advise Departmental Representative as soon as possible of any accidents.
- .2 Conduct accident investigations and provide digital copies Accident Reports to the Departmental Representative.

1.05 CLEANING

- .1 Remove waste materials from Site at daily regularly scheduled times or dispose of as directed by Departmental Representative.
- .2 Provide on-Site waste disposal containers for collection of waste materials and debris.
- .3 Store volatile waste in covered metal containers, and remove from premises at end of each working day.
- .4 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .5 Upon completion of the Work remove waste products and debris other than that caused by others, and leave Site clean.
- .6 Waste Management and Disposal
 - .1 Implement a recycling/reuse program that includes separate collection of waste materials as appropriate to the project waste and the available recycling and reuse programs in the project area.
 - .2 Clean materials that are contaminated before placing in collection containers and ensure that waste destined for landfill does not get mixed in with recycled materials.

1.06 DISPOSAL OF WASTE MATERIALS

- .1 Do not release, dump, spill or dispose of any substance into the environment that causes, or could cause, impairment of, or damage to, the environment or human, health or safety. This includes any water that has contacted potentially cementitious materials. Identify cleaning processes and designated cleaning areas within the EPP.
- .2 Ensure compliance with all regulatory legislation and obtain necessary

regulatory permits regarding the disposal and cleaning of waste materials.

- .3 Should the Contractor fail to obtain and comply with the required regulatory approvals and permits; the Departmental Representative may, without further notice, arrange the clean-up of such wastes and other substances at the expense of the Contractor.

1.07 PRODECUDRES FOR SPILLS OF DELETERIOUS OR HAZARDOUS MATERIALS

- .1 Immediately report any release of silt or other deleterious substance into waterbody to Departmental Representative, Manitoba Conservation Emergency Response Program (204-944-488) and the Federal Department of Fisheries and Oceans (DFO), as required.
- .2 In the event of the release of silt or other deleterious substance into a waterbody, take all reasonable measures to contain the release, and repair any damage at its expense.
- .3 Immediately report spills or releases of hazardous materials and any other substances that cause or could cause impairment of or damage to the environment or human health or safety to the Departmental Representative and governing regulatory agencies, as required. Take all reasonable measures to contain and clean up the spill in accordance with the applicable legislation and regulations at the Contractors' expense.
- .4 Ensure spill kits are readily available at all equipment refueling areas.

1.08 SURFICIAL AQUATIC RESOURCES

- .1 Unless otherwise provided for in the Contract Documents, do not divert, alter, or disrupt water flows in rivers, streams, and other surface bodies of water.
- .2 Prevent bark, slash, wood chips, sawdust, ashes, organic debris, topsoil, fuel and lubricants, or other substances harmful to aquatic life from entering a river, stream, or other surface bodies of water.
- .3 Do not perform construction operations within the wetted perimeter of a river, stream, and other surface bodies of water unless such work is part of the Contract Work, and is included within the relevant regulatory approvals for the project.
- .4 Use Construction Equipment with bio-friendly hydraulic fluids, free from external oil and grease when operating in, or within the wetted perimeter, of a river, stream, and other surface bodies of water.
- .5 Silt Fence Management:
 - .1 Be responsible for, and maintain the fabric in silt fences.
 - .2 Inspect the fabric, posts, and pins, in the silt fencing at intervals appropriate to weather events. Based on inspections, maintain the fencing to perform for the purpose intended.
 - .3 Remove silt accumulations and dispose of silt at approved off-Site disposal facilities.
 - .4 Unless otherwise specified in the Contract Documents, or otherwise requested by the Departmental Representative, remove

temporary silt fencing prior to the Total Performance of the Work.

- .6 Protect fish and fish habitat in rivers, streams, and other surface bodies of water located within the Site in accordance with the Contract Documents and Regulatory Requirements. Fish capture and release is covered under Section 35 20 22 - Dewatering.
- .7 Implement best management practices for working in or near a waterbody as per DFO's Measures to Avoid Harm. Turbidity monitoring is covered under Section 35 20 22 - Dewatering.

1.09 VEGETATION

- .1 Use rig mats over existing vegetated ground for all temporary access routes or Contractor laydown areas to minimize disturbance. Stripping of topsoil and vegetation is not permitted.
- .2 Protect trees and shrubs with fencing around their root zones with metal fence or 2" x 4" frame with orange snow fence at least 1.2 m high. Extend tree protection fence at least 1 m beyond the drip line.
- .3 Replace and re-plant any lost or damaged vegetation, resulting from construction activities, with vegetation of similar age and growth. Care for new vegetation until healthy.
- .4 Do not import any materials to the Site that are contaminated with weed seeds. Clean dirty construction and reclamation equipment to prevent importing weed seeds.

1.10 HAZARDOUS MATERIALS

- .1 Transport hazardous materials to and from the Site in accordance with Regulatory Requirements.
- .2 Use and store hazardous materials in accordance with Regulatory Requirements.
- .3 Remove spilled hazardous materials, including hazardous liquid wastes, in accordance with Regulatory Requirements, and reclaim land and other property. Report spills to governing regulatory agencies and Departmental Representative.
- .4 Dispose of hazardous waste materials, including hazardous liquid wastes, in accordance with Regulatory Requirements.

1.11 HANDLING EQUIPMENT FUELS AND LUBRICANTS

- .1 Prevent handling and fuelling operations from contaminating the ground, surface water, and ground water. Use containment berms and an impermeable base course or other system to contain spilled fuel.
- .2 Clearly mark and barricade fuel storage areas and non-portable transfer lines. Use markers that are visible under all weather conditions.
- .3 Store waste Construction Equipment lubricants in a tank or closed container, and dispose of off-Site in accordance with the Regulatory Requirements.

- .4 Carry the following protection materials in all fuel and service vehicles:
 - .1 10 kg of suitable sorbant material.
 - .2 30 m2 of 6 mil polyethylene.
 - .3 A shovel.
 - .4 An empty fuel barrel with the lid removed.

1.12 HISTORICAL RESOURCES

- .1 St. Andrews Lock and Dam has been acknowledged as historically significant at both a Provincial and Federal level.
- .2 Minimize disturbance of Work to protect the heritage resource.

1.13 POLLUTION CONTROL

- .1 Maintain temporary emission and pollution control features.
- .2 Control emissions from equipment in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area.
 - .1 Provide temporary enclosures where directed by Departmental Representative.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control.

1.14 LIGHT

- .1 Direct all stationary floodlights to shine downward at an angle less than horizontal. Provide shielding for all floodlights and do not direct at residences.

END OF SECTION

1 GENERAL

1.01 SUBMITTALS

- .1 Submit a Quality Control Plan for review and approval by Departmental Representative within 14 days after date of Notice to Proceed and prior to commencement of Work. Do not mobilize to Site until Departmental Representative review comments are incorporated and authorization by the Departmental Representative has been provided. The Contractor's Quality Control Plan should include:
 - .1 Contractor's procedures to demonstrate supplied products and materials are in accordance with the Specifications.
 - .2 Contractor's procedures to verify work is undertaken in accordance with the Specifications, and as per the approved environmental and work Plans as requested in the Specifications.
 - .3 Table listing all submittal requirements for the Work.
 - .4 Procedure to rectify deficiencies and provide proof of repair.
 - .5 Provide, or provide reference to, a Quality Control procedure for each product, material, work method or tolerance specification required as per the Specifications and identified manufacturer's written instructions.
- .2 Submit digital copies of all test results as required by the Drawings, Specifications, Contractor's approved Quality Control Plan, or as requested by the Departmental Representative.
- .3 Submit digital copies of all test results for all corrective actions taken, that demonstrate the deficiency has been corrected and is compliant with the Contract Documents.

1.02 QUALITY CONTROL

- .1 Establish and maintain an effective quality control system including quality control procedures and testing to ensure compliance with the requirements of the Contract Documents.
- .2 Provide labour and facilities to obtain and handle samples and materials on-Site. Provide sufficient space to store and cure test samples.
- .3 Conduct tests incorporated in the quality control system and as required in the Specifications.
- .4 Engage qualified personnel, professional engineers, and independent CSA certified materials engineering and testing companies to carry out designs and to perform tests when required by the Specifications or approved work plans.
- .5 If the quality control testing identifies quality deficiencies, the extent of removal and replacement of potentially deficient materials will be at the discretion of the Departmental Representative, and at the expense of the Contractor.

- .6 Departmental Representative may order additional quality control testing if part of 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 correction.
- .7 If the quality control testing identifies ongoing quality deficiencies, submit to the Departmental Representative in writing, proposed revisions to the quality control procedures and testing that will prevent quality deficiencies. Continue the work only when the proposed quality control revisions have been reviewed with no exceptions taken by the Departmental Representative.

1.03 QUALITY ASSURANCE

- .1 The Departmental Representative may perform quality assurance testing and inspection as the Departmental Representative deems appropriate.
- .2 Co-operate with the Departmental Representative and provide assistance to the Departmental Representative for quality assurance testing, inspection, and sampling; provide access including off-Site locations; and provide equipment and labour to obtain samples.

1.04 REJECTED WORK

- .1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which does not comply with the Contractor's approved Quality Control Plan or has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
- .2 Make good other Contractor's work damaged by such removals or replacements promptly.
- .3 If in opinion of Departmental Representative, it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, 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.

1.05 TESTS AND MIX DESIGNS

- .1 Furnish mortar and repair test results and mix designs as per product manufacturer's written instruction, the Specifications, and the approved Contractor work Plans.

1.06 MILL TESTS

- .1 Submit mill test certificates as required in Specification sections, or as requested by Departmental Representative.

END OF SECTION