

Part 1 General

1.1 DESCRIPTION OF DAMS

- .1 Public Works and Government Services Canada (PWGSC) owns and operates the Portage Dam and the Little Chaudière Dam, two flow control structures on the French River, which is the outflow of Lake Nipissing.
- .2 The dams are essential to controlling water levels in Lake Nipissing and to regulating the flow of water in the French River.
- .3 **Lake Nipissing**
 - .1 Summer Operating Range: EL. 195.75m to 195.95m
 - .2 Highest Recorded Water Level: EL. 196.8m
- .4 **Portage Dam**
 - .1 Built 1992.
 - .2 Length: 26.55 m between abutment faces.
 - .3 Top of gate sill: 191.53m ±
 - .4 Gates: three (3) vertical lift gates, each 7.69m wide between roller faces and 5.15m high, operated with electric motor driven hoists.
- .5 **Little Chaudière Dam**
 - .1 Built 1996.
 - .2 Length: 16.9m between abutment faces.
 - .3 Top of gate sill: EL. 191.5m ±
 - .4 Gates: two (2) vertical lift gates, each 7.69m wide between roller faces and 5.15m high. Whilst being fitted with motors, hoists, and a gain heating system, the Little Chaudière Dam is not currently electrified. Gates are moved using emergency operating system (mechanical manual over-ride), consisting of an electric drill with an appropriate bit with which motor is turned mechanically; electric drill itself is powered with a portable generator.

1.2 LOCATION AND ACCESS TO DAMS

- .1 The Dams are located on territory of Dokis First Nation <http://www.dokisfirstnation.com>. This community located approximately 16 kilometres South-West of Lake Nipissing on the French River. The community is accessed by a 25 km gravel road that runs off Highway 64 leading to the two nearest urban centres of North Bay (via Highway 17) and Sudbury (via Highway 69); these centres are both approximately 120 km from the community.
- .2 Little Chaudière Dam can only be accessed by water. It is approximately 45 minutes by motorboat from Dam Office. The area around the dam is steep and rocky.
- .3 Portage Dam is a few hundred metres from Dam Office and is fully accessible by foot and vehicles.
- .4 There is no cellular telephone service in Dokis.

1.3 SCHEDULING OF WORK & DAM OPERATION DURING WORK

- .1 PWGSC owns enough steel stoplogs (designed to be used for maintenance activities) to dewater one sluice at a time.
- .2 During the summer, it is not expected that the dams will have to pass water, hence if Contractor so chooses and if Contractor provides additional dewatering materials, all sluices of dam (either Portage or Little Chaudière) may be closed off all at once.
- .3 Nevertheless, weather conditions are variable and in case of anticipated extreme flooding, the dams will have to be used to pass water. In that case, Departmental Representative will provide Contractor with as much warning as possible. Be prepared to evacuate area around gates and render area suitable for safely passing water in a maximum time as follows:
 - .1 June and July: 48 hours
 - .2 September and October: 24 hours
- .4 No work is permitted between November and May.

1.4 CODES AND STANDARDS

- .1 Reference is made to CGSB, ASTM, CSA, and other National and International standards. When quoted, these form an integral part of and are to be read in conjunction with the specification as if reproduced herein. If reference has no edition specified then latest edition is applicable.
- .2 Meet or exceed requirements of contract documents and of specified standards, codes and referenced documents.
- .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.

1.5 ABBREVIATIONS

- .1 **ASTM.**—American Society for Testing Materials.
- .2 **CAN, CAN3, CAN/CGSB.**—National standards of Canada (published by Canadian General Standards Board).
- .3 **CGSB.**—Canadian General Standards Board.
- .4 **CPM.**—Critical Path Method. Bar chart construction schedule format.
- .5 **CSA.**—Canadian Standards Association.
- .6 **MSDS.**—Material Safety Data Sheet.
- .7 **SSPC.**—Steel Structures Painting Council, former name of Society for Protective Coatings.
- .8 **WHMIS 2015.**—Workplace Hazardous Material Information System as revised in 2015.

1.6 DEFINITIONS

- .1 **Plans.**—Drawings listed in "List of Drawings".
- .2 **Specification.**—Subject matter listed in "Index to Specification", additionally addenda, and all relative written communication sent by Departmental Representative to Contractor in connection with Work.

- .3 **Department.**—Public Services and Procurement Canada (formerly known as Public Works and Government Services Canada).
- .4 **Hazardous Materials.**—Products, substances, or organisms used for the purpose for which they was originally intended, but that may cause adverse effect on environment or adversely affect health of persons, animals, or plants when released into environment.

1.7 DATUM

- .1 Is that established by the Geodetic Survey of Canada.

1.8 REFERENCE DIRECTIONS

- .1 “*Left*” and “*right*” are taken when facing downstream.

1.9 SUBMITTALS

- .1 **Site layout drawings.**—Submit within 2 weeks of Award. Show location of trailers and toilets. Describe how access will be made to Little Chaudière Dam.
- .2 **Construction progress schedule**
 - .1 Submit within 2 weeks of award.
 - .2 Use bar chart format.
 - .3 Show which operations are taking place at what time and indicating anticipated progress stages within time of completion. Show at minimum: electrical work; sequence of sluice dewatering and gate removal; and gate installation and commissioning work. Ensure detail of schedule is commensurate with complexity of tasks.
 - .4 When Departmental Representative has reviewed schedule, take necessary measures to complete work within scheduled time.
 - .5 Do not change schedule without notifying Departmental Representative.
- .3 **Cost breakdown.**—Before submitting first progress claim, breakdown Contract Price in detail as directed by Departmental Representative. Upon approval by Departmental Representative, cost breakdown will be used as basis for progress payments.

1.10 TAXES

- .1 Pay all taxes properly levied by law, Federal, Provincial and Municipal.

1.11 FEES, PERMITS, CERTIFICATES

- .1 Pay all fees and obtain all permits certificates, and licenses as required by Municipal, Provincial, Federal, or Other Authorities before starting Work.
- .2 Provide authorities with plans and information for acceptance certificates.
- .3 Submit inspection and compliance certificates as evidence that Work meets requirements of authority having jurisdiction.

Part 2 Products

2.1 ACCEPTANCE OF MATERIALS

- .1 Materials shall be new and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

- .2 Where materials are specified to CSA, CGSB, ASTM, or similar standards, submit a written request to Departmental Representative for approval of relevant items. Include relevant test data bearing a recent date of test, manufacturer's details and other documents which will substantiate its quality, conformance and cost.
- .3 Do not use materials or products in Work until written approval has been received from Departmental Representative.
- .4 Base tender on exact material and equipment specified. Alternatives may be submitted for consideration during contract by following same procedure as for submittal of materials specified to ASTM, CGSB, or other standards. Bear cost of additional work and modifications to design due to use of alternatives.

2.2 HAZARDOUS MATERIALS

- .1 **Hazardous materials already on site.**—Refer to Section 01 14 25 *Designated Substances Report*.
- .2 **Hazardous materials brought to site.**—Comply with requirements of Workplace Hazardous Materials Information System 2015 (WHMIS 2015) regarding use, handling, storage, and disposal of hazardous materials and regarding labelling and provision of Material Safety Data Sheets (MSDS).
- .3 **Hazardous materials discovery.**—Stop work immediately when material resembling a hazardous material is encountered during Work. Take preventative measure and promptly notify Departmental Representative. Do not proceed until written instructions have been received from Departmental Representative.

2.3 COMMON PRODUCT REQUIREMENTS

- .1 Pay costs of transportation of products required in performance of work.
- .2 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions. Provide all required temporary storage facilities.
- .3 Store packaged or bundled products in original and un-damaged condition with manufacturer's seal and labels intact. Do not remove packaging or bundling until required in work.
- .4 Unless otherwise indicated, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products, but obtain written instructions directly from manufacturers.
- .5 Ensure equipment is installed so that permanent labels, trademarks and nameplates on products are in visible and prominent locations.
- .6 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to be same colour and finish as original. Do not paint over name plates.

Part 3 Execution

3.1 COORDINATION

- .1 Coordinate the work of all subcontractors and provide them with all copies of drawings and specifications required for their work.

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3.2 DESIGNATED SUPERINTENDENT

- .1 Designate a Superintendent who is an employee of Contractor to be present and available at all times for duration of project.

3.3 PRELIMINARY EXAMINATION OF DAM SITES

- .1 Examine the two dam sites and conditions likely to affect work and be familiar and conversant with existing conditions. Be aware of all difficulties involved and the logistics of delivering and operating plant and of delivering, handling, and storing materials on site. Pay particular attention to areas where vehicles are not permitted.
- .2 Submit photographs of surrounding properties, objects and structures liable to be damaged.
- .3 Before starting work, establish location and extent of services lines in area of work and notify Departmental Representative of findings.
- .4 Be completely familiar with every detail and intent of this Specification and scope of work to be performed, and regulatory requirements governing this Work.

3.4 LITTLE CHAUDIÈRE DAM - ACCESS BY WATER - BARGE

- .1 Provide self-propelled vessel complete with operator(s) with which to access Work by water whenever access from shore is not possible. Note that there is no access to Little Chaudière Dam other than by water.
- .2 Vessel must be stable, seaworthy, and in good running order for duration of Work.
- .3 Be responsible for the provision, handling and storage of all safety equipment associate with use of barge and ensure that at all times approved personal floatation devices are worn by all persons.

3.5 WORK AREA

- .1 Secure work area against access by unauthorized persons and supplement existing dam fencing with temporary fencing as required. Equip all gates with locks and keys. Maintain temporary fence in good repair.
- .2 Provide all storage for materials, tools, and equipment required for Work. Do not place storage areas on dam deck.
- .3 Do not unreasonably encumber site with materials or equipment. Move stored products or equipment that interferes with operations of Departmental Representative.

3.6 SIGNAGE

- .1 Provide common-use signs related to traffic control, information, instruction, use of equipment, public safety devices, etc., in both official languages or by use of commonly understood graphic symbols and to approval of Departmental Representative.
- .2 No advertising will be permitted on this project.
- .3 Maintain approved signs and notices in good condition for duration of project and dispose of off-site, on completion of project or earlier, as directed by Departmental Representative.

3.7 WORK LAYOUT

- .1 Undertake all layout and dimensional-control work.

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- .2 Check reference plan dimensions against field measurements and confirm required sizes and exact counts of items.
- .3 Notify Departmental Representative immediately of all discrepancies between field measurements and dimensions shown on plans or reference drawings.
- .4 Be responsible for rectification of errors resulting from un-verified dimensions and quantities.

3.8 TEMPORARY UTILITIES

- .1 **Little Chaudière Dam.**—Note that there is no electric power at all at Little Chaudière Dam.
- .2 **Portage Dam.**—Provide in written form (email is acceptable) a minimum of 48 hours notice (working days, not weekends) if existing utilities at Portage Dam must be interrupted. Disconnect as close to the dam as possible. Contractor is not permitted to take electric power from the dam
- .3 **General.**—Provide and maintain for the duration:
 - .1 Temporary light, power and potable water to fulfil the requirements of construction.
 - .2 Sufficient portable chemical toilet conveniences, maintained in a sanitary condition, for use of all persons on-site. Do not place toilets on dam deck. Locate toilets minimum 5 metres from water's edge.
- .4 Remove from site all such temporary utilities at end of Work.

3.9 FIRE SAFETY REQUIREMENTS

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.
- .2 Do not burn rubbish or light other fires on site.
- .3 Comply with the National Building Code of Canada 2010 (NBC) as amended for fire safety in construction and the National Fire Code of Canada 2010 (NFC) as amended for fire prevention, fire fighting and life safety.
- .4 Retain all fire safety documents and standards on site.

3.10 EXPLOSIVES

- .1 Do not use explosives.

3.11 PROTECTION & RECTIFICATION

- .1 Before starting Work, visit dam site with Departmental Representative and observe pre-construction condition. Take a series of photographs representing pre-construction condition of all features in and around Work area. Note turning radii and all overhead and other obstructions which will affect use of cranes. Provide a duplicate of digital images to Departmental Representative for reference.
- .2 Protect finished work until take-over.
- .3 Protect surrounding private and public property from damage during performance of Work. Be responsible for damage incurred to surrounding properties where these are damaged by Contractor during Work.
- .4 Repair restore, or replace any and all utilities damaged due to Work or activities in connection with Work.

- .5 Repaired, replaced, or refinished items to be at least equal to those that existed immediately before damage occurred.
- .6 Rectify staging areas after completion of work to at least the condition it was before start of work.

3.12 WORK PROGRESS MEETINGS

- .1 To be held every 2 weeks from start of Work to final demobilization. Progress meetings will take place on site of work unless otherwise directed.
- .2 Departmental Representative will arrange progress meetings and will assume responsibility for recording minutes of meetings and forwarding copy to Contractor.
- .3 Contractor will assume responsibility for ensuring a responsible member of the Contractor's firm attends meetings and for distributing minutes to all subcontractors.
- .4 Submit 48 hours before each progress meeting:
 - .1 All information required by Departmental Representative or relevant to agenda for upcoming progress meeting; and,
 - .2 Updated Schedule showing progress to date Show revised projections of progress and completion. Identify problem areas, anticipated delays, and impact on schedule. Departmental Representative will review Work progress based on approved Work schedule.
- .5 At every Progress Meeting, review entries on as-built drawings.

3.13 CLOSEOUT PROCEDURES AND SUBMITTALS

- .1 Conduct inspection of work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
- .2 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection of work to identify obvious defects or deficiencies.
- .3 The Departmental Representative and Contractor will perform inspection of work to identify obvious defects and deficiencies. Contractor will correct work accordingly.
- .4 Submit written certificate that following has 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 Equipment and system have been tested and are fully operational.
 - .4 Operation of system has been demonstrated to Departmental Representative.
 - .5 Work is complete and ready for final inspection.
- .5 When items noted above are completed, request a final inspection of work by Departmental Representative. If work is deemed incomplete by Departmental Representative complete outstanding items and request re-inspection.

3.14 PROJECT RECORD DOCUMENTS (AS-BUILTS)

- .1 As work progresses, maintain accurate records to show deviations from contract drawings. Record at least the following information:
 - .1 Location and type of repairs done to gates or their hoists.
 - .2 As-built electrical information.

- .3 Other information as requested by Departmental Representative.
- .2 Take periodic progress photographs of Work and submit electronically.
- .3 Just before inspection for issuance of final certificate of completion, supply to the Departmental Representative one (1) set of white prints with all deviations neatly inked in.

3.15 WARRANTIES

- .1 Before completion of work collect all manufacturer's guarantees or warranties and deposit with Departmental Representative.
- .2 Under Company Letter Head submit 12 month guarantee.
- .3 Upon notice from Departmental Representative, any failures or defects in material or workmanship shall be corrected by Contractor at no further cost to her Majesty within 12 months of date of acceptance.

END OF SECTION

Part 1 General**1.1 REGULATORY REQUIREMENTS**

- .1 Designated Substance Reports (DSR) provide a means for project participants to receive formal indication regarding the potential presence of designated substances within the project. Project representatives and appropriate proxies are then capable of detailing health and safety programs for project participants to mitigate potential exposures to the identified designated substances
- .2 A Designated Substances Survey (DSS) of the French River Dams and all of its components was initially conducted in 2009 with re-assessments having been conducted in 2010, 2011, 2012 and 2014. This investigation is required to meet the requirements of Section 30 of the *Ontario Occupational Health and Safety Act* (OSHA), the revised statutes of Ontario, 1990, Chapter 0.1.
 - .1 The following reports will be provided to the Contractor:
 - .1 DST Consulting Engineers Inc. *Designated Substances and Hazardous Materials Survey, French River Dams*. March 3, 2009.
 - .2 Genivar. *Asbestos and Lead Re-Assessment Report*. March 31, 2011.
 - .3 Genivar. *Asbestos and Lead Re-Assessment Report*. March 28, 2012.
 - .4 WSP. *Asbestos and Lead Re-Assessment Report*. March 31, 2014.
 - .2 Contractors requesting tenders from subcontracts must furnish these reports to the subcontractors. Reports must be read in their entirety including text and tables as applicable.
- .3 As of July 1, 2010, the 11 designated substances are:
 - .1 **Acrylonitrile**.—O. Reg. 835 *Designated Substance - Acrylonitrile*, as amended by O. Reg. 490/09.
 - .2 **Arsenic**.—O. Reg. 836 *Designate Substance - Arsentie*, as amended by O. Reg. 490/09.
 - .3 **Asbestos**
 - .1 O. Reg. 837 *The Regulation Respecting Asbestos*, as amended by O. Reg. 490/09.
 - .2 O. Reg. 347 *General - Waste Management*, as amended by O. Reg. 337/09.
 - .3 O. Reg. 278/05 *Designated Substance - Asbestos on Construction Projects and in Buildings and Repair Operations*, as amended by O. Reg. 493/09.
 - .4 PWGSC Departmental Policy DP 057 *Asbestos Management*.
 - .4 **Benzene**.—O. Reg. 839 *Designated Substance - Benzene*, as amended by O. Reg. 490/09.
 - .5 **Coke oven emissions**.—O. Reg. 840 *Designated Substance - Coke Oven Emissions*, as amended by O. Reg. 490/09.
 - .6 **Ethylene oxide**.—O. Reg. 841 *Designated Substance - Ethylene Oxide*, as amended by O. Reg. 490/09.
 - .7 **Isocyanates**.—O. Reg. 842 *Designated Substance - Isocyanates*, as amended by O. Reg. 490/09.
 - .8 **Lead**
 - .1 O. Reg. 843 *Designated Substance - Lead*, as amended by O. Reg. 490/09.

- .2 O. Reg. 347 *General - Waste Management*, as amended by O. Reg. 337/09.
- .3 Hazardous Products Act's *Surface Coating Material Regulations* SOR/2005-109.

.9 Mercury

- .1 O. Reg. 844 Designated Substance.—Mercury, as amended by O. Reg. 490/09.
- .2 O. Reg. 347 General.—Waste Management, as amended by O. Reg. 337/09.
- .10 **Silica**.—O. Reg. 845 Designated Substance.—Silica, as amended by O. Reg. 490/09.
- .11 **Vinyl Chloride**.—O. Reg. 846 Designated Substance.—Vinyl Chloride, as amended by O. Reg. 490/09.

- .4 All contractors requesting tenders from subcontractors shall furnish this specification section and its annexed reports to subcontractors.

1.2 WORK AREA

- .1 The work area is located at Portage Dam and Little Chaudière Dam.

Part 2 Products

2.1 GENERAL

- .1 It is possible that other Designated Substances are present in non-visible areas. These are not expected to be disturbed in the course of Work.
- .2 Before starting work, confirm with the Departmental Representative that no additional designated substances have been brought into the project area.
- .3 Should any designated substance be encountered in the course of the project, stop work, take preventative measures, and notify the Departmental Representative immediately. Do not proceed until written instructions have been received from the Departmental Representative.

2.2 SURVEY RESULTS

- .1 **Arcylonitrile**.—Not identified.
- .2 **Arsenic**.—Not identified.
- .3 **Asbestos**.—Identified in areas below, but these are not to be disturbed by work of this contract.
 - .1 **Dam Workshop**.—White caulking at exterior window. 1% chrysotile. Not friable and good condition in February 2014.
 - .2 **Dam Office/Garage**.—Drywall joint compound throughout interior except washroom. 2% chrysotile. Not friable and good condition in February 2014.
- .4 **Benzene**.—Not identified.
- .5 **Coke Oven Emissions**.—Not identified.
- .6 **Ethylene Oxide**.—Not identified.
- .7 **Isocyanates**.—Not identified.
- .8 **Lead**.—Identified. This material is not to be disturbed by work of this contract. The current threshold limit for surface coating materials is that materials with lead concentrations that exceed 90 ppm (0.009% by weight) are considered to be lead-based surface coatings according to

Hazardous Products Act's Regulations Amending the Surface Coating Materials Regulation SOR/2010-224. Samples from the following areas are considered to be lead-based by current standards.

.1 Little Chaudière Dam

- .1 Blue paint on mechanical equipment housings (0.79% lead).
 - .1 Paint on gates and gains is not mentioned in the laboratory reports. However, given that it is the same colour as the paint on the mechanical equipment housings, it can be assumed that it is the same type of paint.
- .2 Yellow paint on railings, original layer (0.0120% lead).

.2 Boathouse

- .1 White paint on sliding door, exterior side (0.35% lead)
- .2 White paint on north side door, exterior and interior sides (0.35% lead)
- .3 White paint on south side door, exterior side and hinge frame (0.35% lead)
- .4 White paint on west side windows, exterior side (0.35% lead)

.3 Portage Dam

- .1 Yellow paint on railings (0.0097% to 0.33% lead).
- .2 Blue paint on mechanical equipment housings (0.79% lead).
 - .1 Paint on gates and gains is not mentioned in the laboratory reports. However, given that it is the same colour as the paint on the mechanical equipment housings, it can be assumed that it is the same type of paint

.4 Dam Workshop Building

- .1 White paint on exterior window trim (9.4% lead)

- .9 **Mercury.**—Not identified.
- .10 **Silica.**—Identified. Free crystalline silica is present in concrete.
- .11 **Vinyl Chloride Monomer.**—Not identified.
- .12 **Polychlorinated biphenyls (PCBs).**—Not identified.
- .13 **Halocarbons.**—Not identified.

Part 3 Execution

3.1 RECOMMENDATIONS

- .1 **Silica**
 - .1 Silica dust can be generated through such processes as drilling, grinding, or crushing, of silica-containing material.
 - .2 Consult and follow the document published by the Occupational Health and Safety Branch of the Ontario Ministry of Labour entitled *Guideline: Silica on Construction Projects*. Follow the recommended work procedures when performing work involving the disturbance of silica-containing materials.

.2 Lead

- .1 Paint is not to be disturbed during the work of this contract.
 - .2 Any worker or contractor who performs work that would disturb paint should be informed of the presence of lead in the paint.
 - .3 Follow precautions outlined under “Designated Substances” of O. Reg. 490/09 as amended of the Occupational Health and Safety Act. Take all precautions necessary to ensure workers are not exposed to airborne lead dust levels in excess of what is stipulated in that Regulation.
 - .4 Take precautionary measures including use of personal protective equipment when handling the materials confirmed to contain lead.
 - .5 Consult and follow the Ministry of Labour’s “*Lead on Construction Projects Guidelines*”.
- .3 **Fecal Matter (animal).**—Potentially present at dam sites, as these are outdoor locations, and rodent droppings have been noted in electrical buildings adjacent to dams. Droppings can be a source of microbes that cause lung diseases such as histoplasmosis or cryptococcosis. Recommend removing feces prior to undertaking work, if any are present in place of work. Provide appropriate personal protective equipment such as HEPA filtered respirators and disposable coveralls for the fecal matter removal process.

3.2 CONTRACTOR’S DUTIES

- .1 The Contractor must review the designated substance report and take the necessary precautions to protect the health and safety of the workers and the environment.
- .2 As per Section 30(4) of the Ontario Occupational Health and Safety Act, the Departmental Representative shall ensure that Contractor and Sub-Contractor (if any) have received a copy of the Designated Substance Report (DSR) prior to entering a binding contract for the supply of work on this project.
- .3 As per Section 27(2) (a, b, and c) of the *Ontario Occupational Health and Safety Act*, whilst onsite, the Contractor's site supervisor shall exercise every reasonable precaution for protection of workers.
- .4 If you have any questions about the designated substance report, please contact the Departmental Representative.

END OF SECTION

Part 1 General

1.1 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 Review submittals before 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 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .5 Verify field measurements and affected adjacent Work are co-ordinated.
- .6 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .7 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative's review.
- .8 Keep one reviewed copy of each submission on site.

1.2 SHOP DRAWINGS AND PRODUCT DATA

- .1 "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 When indicated in other Sections of this specification, submit shop drawings stamped and signed by professional engineer registered or licensed in Province of Ontario, Canada.
- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.
- .4 Allow 10 days for Departmental Representative's review of each submission.
- .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative before proceeding with Work.
- .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
- .7 Submissions must include:
 - .1 Date and revision dates

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- .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 Capacities
 - .4 Performance characteristics
 - .5 Standards
 - .6 Operating weight
 - .7 Wiring diagrams
 - .8 Single line and schematic diagrams
 - .9 Relationship to adjacent work
- .8 After Departmental Representative's review, distribute copies.
- .9 Submit electronic copies of all submittals and hardcopies as Departmental Representative may reasonably request.
- .10 Submit 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 accord with specified requirements.
 - .2 Testing must have been within three (3) years of date of contract award for project.
- .11 Submit 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.
- .12 Submit copies of manufacturer's instructions for requirements requested in specification Sections and as requested by Departmental Representative.
 - .1 This includes pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .13 Submit copies of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.

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- .1 Submit documentation of testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .14 Submit copies of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .15 Delete information not applicable to project.
- .16 Supplement standard information to provide details applicable to project.
- .17 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.
- .18 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.

1.3 CERTIFICATES AND TRANSCRIPTS

- .1 Immediately after award of Contract, submit Workers' Compensation Board status.
- .2 Submit transcription of insurance immediately after award of Contract.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CSA International

- .1 CAN/CSA Z462-08 *Workplace Electrical Safety Standard*
- .2 CAN/CSA-Z460-05 (R2010) *Control of Hazardous Energy*

.2 Province of Ontario

- .1 *Occupational Health and Safety Act* R.S.O. 1990, c. O.1
 - .1 O. Reg. 213/91 *Regulations for Construction Projects*, as amended.
 - .2 O. Reg. 490/09 *Designated Substances*, as amended.
 - .3 R.R.O. 1990, Reg. 860 *Workplace Hazardous Materials Information System (WHMIS)*
- .2 *Workplace Safety and Insurance Act*, 1997, S.O. 1997, c. 16, Sched. A
 - .1 R.R.O. 1990, Reg. 1101 *First Aid Requirements*

1.2 SUBMITTALS

- .1 **Site-Specific Health and Safety Plan.**—Submit within seven (7) days after date of Notice to Proceed and before starting Work. Site Specific 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.
 - .3 Measures and controls to be implemented to address identified safety hazards and risks.
 - .4 Contractor's and Sub-contractors' Safety Communications Plan.
 - .5 Contingency and Emergency Response Plan, addressing standard operating procedures specific to the project site to be implemented during emergency situations.
- .2 Submit copies of Contractor's authorized representative's work site health and safety inspection reports.
- .3 Submit copies of reports or directions issued by Federal or Provincial health and safety inspectors.
- .4 Submit copies of incident and accident reports.
- .5 Submit WHMIS MSDS - Material Safety Data Sheets.
- .6 Submit Workplace Safety and Insurance Board (WSIB) Experience Rating Report.
- .7 Departmental Representative will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within ten (10) days after receipt of plan. Revise plan as appropriate and resubmit plan to Departmental Representative within five (5) days after receipt of comments from Departmental Representative.
- .8 Departmental Representative's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

1.3 FILING OF NOTICE

- .1 File Notice of Project with Provincial authorities before starting Work.

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- .2 Assume role “Constructor” as described in Ontario Occupational Health and Safety Act and Regulations for Construction Projects. Contractor shall provide a written acknowledgement of this responsibility with 3 weeks of contract award.

1.4 HAZARD ASSESSMENT

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

1.5 REGULATORY REQUIREMENTS

- .1 Comply with the Acts and regulations of the Province of Ontario.
- .2 Comply with specified standards and regulations to ensure safe operations at site.

1.6 WHMIS REQUIREMENTS

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage, and disposal of hazardous materials; and regarding labelling and provision of Material Safety Data Sheets (MSDS).

1.7 PROJECT CONDITIONS

- .1 Be advised that work at site is currently known to involve contact with:
 - .1 Work over water
 - .2 Tripping hazards on dam deck
 - .3 Dust, mould, plants, dead leaves, other vegetation
 - .4 Old paints known to contain lead
 - .5 Oils, greases, and lubricants
 - .6 Electrical hazards
 - .7 Falling hazards
 - .8 Hazards from wildlife

1.8 GENERAL REQUIREMENTS

- .1 Develop written Site-Specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.
- .2 Departmental Representative may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.
- .3 Periodically review and modify as required each component of Site Specific Health and Safety Plan when a new hazard is identified during completion of work and when an error or omission is identified in any part of Site Specific Health and Safety Plan.

1.9 RESPONSIBILITY

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

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1.10 COMPLIANCE REQUIREMENTS

- .1 Comply with Ontario Occupational Health and Safety Act, R.S.O. 1990, c. 0.1 and Ontario Regulations for Construction Projects, O. Reg. 213/91

1.11 UNFORSEEN HAZARDS

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

1.12 LOCK-OUT & TAG-OUT

- .1 Comply with CAN/CSA Z462-08 *Workplace Electrical Safety Standard*.
- .2 Comply with CAN/CSA Z460-05 (R2010) *Control of Hazardous Energy*.

1.13 INSTRUCTION AND TRAINING

- .1 Instruct and train all workers on hazards associated with work they will perform and how to protect themselves. This must include a review of all safe work practices, reporting and documentation of hazards, reporting accidents and injuries as well as, formal training in areas of high risk (i.e. fall protection, power line hazards, traffic control persons training).
- .2 Ensure site has appropriate number of persons trained in emergency and Standard First Aid according to First Aid Requirements of Ontario Regulation 1101.
- .3 Ensure workers do not participate in or supervise any activity on Site until they have been trained to a level required by job function and responsibility. Training must at minimum thoroughly cover:
 - .1 Federal and Provincial Health and Safety Legislation requirements including roles and responsibilities of workers and person(s) responsible for implementing, monitoring and enforcing health and safety requirements;
 - .2 safety and health hazards associated with working on a contaminated site;
 - .3 recognition of symptoms and signs which might indicate over exposure to hazards;
 - .4 limitations, use, maintenance and decontamination of personal protective equipment (PPE) associated with completing work;
 - .5 limitations, use, maintenance and care of engineering controls and equipment; limitations and use of emergency notifications and response equipment including emergency response protocol; and,
 - .6 work practices and procedures to minimize risk of accident and hazardous occurrence from exposure to a hazard.
- .4 Provide and maintain training of workers, as required, by Federal and Provincial legislation.
- .5 Submit copies of all training certificates before workers enter Site.
- .6 **Visitors.**— Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Ontario, and in consultation with Departmental Representative. Further, ensure authorized visitors do not access Site until they have been:
 - .1 notified of names of persons responsible for implementing, monitoring and enforcing Site Specific Health and Safety Plan;

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- .2 briefed on safety and health hazards present on Site;
- .3 instructed in proper use and limitations of personal protective equipment (PPE);
- .4 briefed on emergency response protocol including notification and evacuation process;
- .5 informed of practices and procedures to minimize risks from hazards and applicable to activities performed by visitors; and,
- .6 accompanied whilst on Site, and provided with appropriate personal protective equipment (PPE).

1.14 POSTING OF DOCUMENTS

- .1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Ontario and in consultation with Departmental Representative. These include but need not necessarily be limited to:
 - .1 Contractor's Safety Policy
 - .2 Constructor's Name
 - .3 Notice of Project
 - .4 Name, trade, and employer of Health and Safety Representative or Joint Health and Safety Committee members (if applicable)
 - .5 Ministry of Labour Orders and reports
 - .6 Occupational Health and safety Act and Regulations for Construction Projects for Province of Ontario
 - .7 Address and phone number of nearest Ministry of Labour office
 - .8 Material Safety Data Sheets
 - .9 Emergency Response Plan
 - .10 Site-Specific Safety Plan
 - .11 Valid certificate of first aider on duty
 - .12 WSIB poster "In case of Injury at Work"
 - .13 Location of toilet and cleanup facilities

1.15 CORRECTION OF NON-COMPLIANCE

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

1.16 EXPLOSIVES

- .1 Do not use explosives.

1.17 POWDER ACTUATED DEVICES

- .1 Do not use powder actuated devices.

1.18 WORK STOPPAGE

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

Part 2 Products

2.1 NOT USED

- .1 Not used.

Part 3 Execution

3.1 NOT USED

- .1 Not used.

END OF SECTION

Part 1 General

1.1 REFERENCES

- .1 Government of Canada
 - .1 *Hazardous Products Act* (R.S.C., 1985, c. H-3)
 - .1 *Hazardous Products Regulations* (SOR/2015-17)
 - .1 *Workplace Hazardous Materials Information System* (WHMIS) 2015.
 - .2 *Fisheries Act*, (R.S., 1985, c. F-14).
 - .3 *Canadian Environmental Protection Act*, 1999 (CEPA 1999).
 - .4 *National Fire Code of Canada*, 2010.
- .2 Province of Ontario
 - .1 *Environmental Protection Act*, R.S.O. 1990, c. E.19
 - .1 O. Reg. 347 *General - Waste Management, as amended*
 - .2 O. Reg. 224/07 *Spill Prevention and Contingency Plans*.
 - .3 R.R.O. 1990, Reg. 360 *Spills*.

1.2 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 humans; or degrade environment aesthetically, culturally and/or historically.
- .2 **Environmental protection.**—Prevention/control of pollution and habitat or environment disruption during construction.
- .3 **Deleterious material.**—Any substance that, if added to a waterbody, could degrade water quality or impact fish, fish habitat and aquatic wildlife. This includes, but is not limited to: Oil, diesel, or gasoline; earth, silt, or mud; paint (chips and liquid); and, solvents.
- .4 **Dripline.**—Location on ground surface directly beneath a theoretical line described by tips of outermost branches of trees.
- .5 **Silt barrier.**—Fence consisting of approved material, supported by steel posts and being a minimum of 1.2m high, without breaks or unsupported sections.

1.3 SUBMITTALS

- .1 **Environmental Protection Plan.**—Before starting work or delivering materials to site, submit Environmental Protection Plan. Plan must discuss known or potential environmental issues to be addressed during construction. Work must not disturb habitat and/or individual of species at risk (SAR) and migratory birds. Address topics at level of detail commensurate with environmental issue and required construction tasks. Include in Environmental Protection Plan:
 - .1 **Part 1 - Environmental Hazard Assessment.**—Examine operations required to complete Work of this contract and identify all types and sources of contaminating or polluting materials that will be present on site during the course of work. Currently known materials include, but may not necessarily be limited to:
 - .1 Solid wastes including used rags, cloths, etc.

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- .2 Movement of trucks and equipment around existing trees
- .3 All other materials and hazards Contractor foresees during Work
- .2 **Part 2 - Environmental Mitigation Measures.**—For each hazard identified, describe measures and controls that will be used to prevent damage to surrounding environment and for ensuring compliance with Federal, Provincial, and Municipal laws and regulations. For example, discuss containment to be used around paint removal activities and methods to be used for collection of this residue. Include name of person(s) responsible for ensuring adherence to Environmental Protection Plan.
- .3 **Part 3 - Environmental Emergency Measures.**—For example, describe procedures, to be used in event of unforeseen spill of fuel. Contact Manufacturers of products you will be using and ascertain hazards involved, precautions required, and measures used in spill cleanup or mitigating action.
- .4 **Part 4 - Waste Disposal.**—Identify methods and locations for hazardous and non-hazardous waste handling and disposal. Provide names and qualifications of persons responsible for manifesting hazardous waste to be removed from site.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 FIRES

- .1 Fires and burning of rubbish on site is not permitted.

3.2 EXPLOSIVES

- .1 Do not use explosives.

3.3 DRAINAGE AND SEDIMENT CONTROL

- .1 To Section 31 23 19 *Dewatering*.

3.4 PLANT AND TREE PROTECTION

- .1 Protect trees and plants on site and adjacent properties. Do not store material or equipment within Dripline of any tree.

3.5 NOISE CONTROL

- .1 Comply with local Noise By-laws.

3.6 POLLUTION CONTROL - GENERAL

- .1 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .2 Prevent extraneous materials from contaminating air and waterways.
- .3 Cover or wet down dry materials and rubbish to prevent blowing dust and debris.

3.7 WORK ADJACENT TO WATERWAYS

- .1 Do not release Deleterious Material into waterway. Do not clean tools or equipment in water body or in any area where waste water can enter watercourse.
- .2 Ensure all equipment and temporary access structures such as scaffolding placed in waterbodies is free of earth material, and excess, loose or leaking fuel, lubricants, coolant and other Deleterious Material.
- .3 Do not mix or store fuels, paints, thinners, or other such products on dam deck.
- .4 Keep waterways free of excavated fill, waste material and debris.

3.8 TURBIDITY LIMITS

- .1 To Section 35 01 51 *Dewatering*.

3.9 DUST PROTECTION AND EROSION CONTROL

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Before starting operations which will create dust, install effective mitigation techniques for dust. Maintain these protective measures at all times, including shut down periods.
- .4 Cover or wet down dry materials and rubbish to prevent blowing dust and debris. Provide dust control for temporary roads.

3.10 OPERATION & MAINTENANCE OF EQUIPMENT

- .1 Provide drip trays to prevent discharge of oil, grease, antifreeze, or any other materials into ground or onto dam deck.
- .2 Leave machinery running only while in actual use. Prevent hydrocarbons from entering watercourse; do not refuel, perform oil changes, or other maintenance on equipment that is parked or placed within 5 metres of water. Remove it to farther away from water before undertaking these operations.
- .3 Position heavy machinery and vehicles so as to minimize exposure of vegetation to direct vehicle emissions.

3.11 SPILLS

- .1 During all operations where there is a risk of spill, such as refuelling operations, work must take place within a secondary containment system capable of preventing release of spills or leaks into environment.
- .2 Be prepared to mitigate, intercept, clean up, and dispose of spills or releases that may occur whether on land or water.
- .3 Follow spill procedures described in reviewed Site-Specific Environmental Protection Plan.
- .4 Be responsible for all costs of cleaning up any spills.
- .5 Spill kit must be on-site at all times.
- .6 **Reporting.**—Promptly report spills and releases potentially causing damage to environment to:
 - .1 Departmental Representative

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- .2 Ministry of the Environment SPILL Coordinator (Telephone No. 1-800-268-6060 website <http://www.ontario.ca/page/report-spill#!/>).
- .3 Authority having jurisdiction or interest in spill or release including conservation authority, water supply authorities, drainage authority, road authority, and fire department.
- .4 Owner of pollutant, if known.
- .5 Person having control over pollutant, if known.
- .7 Further information on dangerous goods emergency clean-up and precautions including a list of companies performing this work can be obtained from Transport Canada's 24-hour number (613) 996-6666 collect.

3.12 SPECIES AT RISK

- .1 Species at risk have been previously identified within work areas. Work is not anticipated to affect species at risk or their habitats. Nevertheless, if a species at risk is encountered, stop work immediately and ensure wildlife is allowed to leave site without being harmed.

3.13 NOTIFICATION OF NON-COMPLIANCE

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and Contractor's Environmental Protection Plan.
- .2 After receipt of such notice, inform Departmental Representative of proposed corrective action. Take action only after receipt of written 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.

3.14 CLEANING

.1 Progress Cleaning

- .1 Clean up work area as work progresses. At the end of each work period and more often if so ordered by Departmental Representative, remove debris from site, neatly stack material for use, and clean up generally. Permit no undue amounts of debris, trash or garbage to accumulate.
- .2 Neither bury nor burn rubbish on site
- .3 Separate and recycle all materials that can be recycled.
- .4 Dispose of waste or volatile materials by taking them to a special designated waste facility licensed to receive it. Do not dump these into waterways, storm or sanitary sewers.
- .5 Ensure all emptied containers are sealed and stored safely for disposal away from children.
- .6 Place hazardous and toxic waste in designated containers.
- .7 Prevent chemicals (e.g. cleaning agents) from entering waterway. Using appropriate safety and environmental precautions, collect liquid or solidify liquid with an inert, non-combustible material and remove for disposal.

.2 Final Cleaning

- .1 Remove all scaffolding, temporary protection and surplus materials, tools, plant, rubbish and debris and dispose of them off Crown property and in compliance with all applicable regulations.
- .2 Remove recycling containers and bins from site and dispose of materials at appropriate facility.
- .3 Final cleaning of areas under contract must be to a condition at least equal to that previously existing.

3.15 WASTE MANAGEMENT

- .1 Store all waste minimum 10 metres from watercourse. Store and handle flammable and combustible wastes in accordance with current National Fire Code of Canada requirements
- .2 Handle wastes in accordance with applicable federal and provincial laws, regulations, codes, and guidelines.
- .3 If Hazardous Waste as defined by the Environmental Quality Act, Regulation Respecting Hazardous Materials is generated or found to be present, manage such material to that regulation.
- .4 All waste subject to Ontario Regulation 347 as amended must be transported with a valid "Certificate of Approval for a Waste Management System" to a site approved by Ontario Ministry of the Environment to accept that waste.

END OF SECTION

Part 1 General

1.1 DEFINITIONS

- .1 **Quality Control.**—The observations and evaluations used to detect deviations from specified performance requirements as well as subsequent actions taken to ensure and rectification of defects.
- .2 **Quality Assurance.**—Observations made to provide confidence that quality control activities are being carried-out as planned.
- .3 **Commissioning.**—Process by Work is verified to meet functionality and specified performance requirements at levels of increasing complexity (first components, then equipment, then sub-system, and then systems), for all expected operating conditions and in all possible operating modes.

1.2 RESPONSIBILITIES

- .1 Contractor is responsible for Quality Control including planning and conducting Commissioning activities.
- .2 Departmental Representative will undertake Quality Assurance activities on a random auditing basis and will witness Commissioning before accepting final installed Work.

1.3 SUBMITTALS

- .1 **Quality Control Plan.**—Submit within 14 days of Award. Quality Control Plan must be divided into the following phases of Work:
 - .1 **Phase 1.—Quality Control during fabrication and installation**
 - .1 List all inspection points identified by performance criteria in technical sections of Specification. Include in Quality Control Plan those tests and trials Contractor believes are required in addition to those given in the Specification to ensure quality of Work. For each, describe how requirements will be met.
 - .2 Discuss what factory acceptance testing will be done for equipment before it is shipped to site and what inspections and tests will be done after delivery.
 - .3 Include in discussion all work to be done by subcontractors.
 - .2 **Phase 2.—Commissioning-in-the-Dry**
 - .1 Describe tests to be done and acceptance criteria that need to be achieved for all components, sub-systems, and systems.
 - .2 Provide blank copies of all checklists and forms to be used during this phase.
 - .3 **Phase 3.—Commissioning-in-the-Wet**
 - .1 Describe tests to be done and acceptance criteria that need to be achieved for all components, sub-systems, and systems.
 - .2 Provide blank copies of all checklists and forms to be used during this phase.
- .2 **Commissioning schedule.**—Provide adequate time for Commissioning activities and provide detailed Commissioning schedule.

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Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 GENERAL

- .1 Provide the necessary staff and resources to implement Quality Control Plan throughout work.

3.2 INDEPENDENT INSPECTION AGENCIES

- .1 Engage independent Inspection and Testing Agencies as required for purpose of implementing Quality Control Plan.
- .2 Employment of independent Inspection and Testing Agencies does not relax responsibility to perform Work in accordance with Contract Documents.

3.3 FIELD QUALITY CONTROL

- .1 Carry out Work using qualified licensed workers or apprentices in accordance with Provincial Act respecting manpower vocational training and qualification.
- .2 Permit employees registered in Provincial apprenticeship program to perform specific tasks only if under direct supervision of qualified licensed workers.
- .3 Determine permitted activities and tasks by apprentices, based on level of training attended and demonstration of ability to perform specific duties.

3.4 ACCESS TO WORK

- .1 Allow access to Work, off site manufacturing, and fabrication plants to all inspection and testing agencies, to Authorities Having Jurisdiction, and to Departmental Representative.
- .2 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.

3.5 CONDUCT OF INSPECTIONS

- .1 Conduct inspections and tests as described in reviewed Quality Control Plan.
- .2 Coordinate activities of all personnel taking part in tests and inspection and ensure that safe conditions prevail throughout.
- .3 Record results of all inspections and tests in writing and submit copies to prove compliance with plan and with specifications. Provide copies to subcontractor of work being inspected or tested
- .4 Prepare mock-ups for Work specifically requested in specifications. Include for Work of Sections required to provide mock-ups.
- .5 Submit mill test certificates as required in specification Sections.

3.6 NON-CONFORMITIES AND REJECTED WORK

- .1 For Quality Assurance purposes, Departmental Representative will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon

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examination, such work is indeed found not in compliance with Contract Documents, then correct such Work and pay cost of examination and correction.

- .2 If components or systems fail acceptance tests during commissioning, then correct all deficiencies, re-verify equipment and systems, and assume all costs for performing corrective work, for making additional tests and inspections, and for re-commissioning.

3.7 COMMISSIONING-IN-THE-DRY

- .1 Before start of Commissioning-in-the-Dry, ensure installation of related components, equipment, sub-systems, and systems is complete; systems have been cleaned thoroughly; and, "As-Built" system schematics are available.
- .2 Obtain and follow manufacturers' installation, start-up, and operations instructions prior to start-up of components, equipment and systems.
 - .1 Failure to follow accepted start-up procedures will result in re-evaluation of equipment by an independent testing agency selected by Departmental Representative.
 - .2 If results reveal that equipment start-up was not in accordance with requirements, and resulted in damage to equipment, implement corrective measures.
 - .3 If evaluation report concludes that major damage has occurred, Departmental Representative shall reject equipment. Remove rejected equipment from site and replace with new. Employ correct start-up procedures for new equipment and systems.
- .3 Operate systems to be operated in various modes to determine if they function correctly and consistently. Systems must interact with each other as intended by Contract Documents and design criteria.
- .4 During these checks, make adjustments to ensure equipment meets requirements.
- .5 Document test results on approved forms.

3.8 COMMISSIONING-IN-THE-WET

- .1 Upon Departmental Representative's acceptance of Commissioning-in-the-Dry, flood the area around the gates and proceed to Commissioning-In-the-Wet. Be prepared to dewater area again if required to do so in order to effect repairs or adjustments.
- .2 Document test results on approved forms.
- .3 Remove stoplogs and all dewatering structures and equipment only when Departmental Representative has authorized this in writing.

3.9 AUTHORITIES HAVING JURISDICTION

- .1 Where specified start-up, testing or commissioning procedures duplicate verification requirements of an Authority Having Jurisdiction, arrange for Authority to witness procedures so as to avoid duplication of tests and to facilitate expedient acceptance.
- .2 Obtain certificates of approval, acceptance and compliance with rules and regulation of authority having jurisdiction and submit copies with Commissioning report.

3.10 COMPLETION OF COMMISSIONING

- .1 Upon completion of Commissioning leave systems in normal operating mode.
- .2 Commissioning will be considered complete when contract Commissioning deliverables have been submitted and accepted by Departmental Representative.

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3.11 TRAINING

.1 To Section 01 79 00 *Training*.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CAN/CSA S269.2 M1987 (R2003) *Access Scaffolding for Construction Purposes*

.2 Province of Ontario

.1 *Occupational Health and Safety Act and Regulations for Construction Projects, R.S.O. 1990 as amended, O. Reg. 213/91 as amended.*

1.2 SUBMITTALS

.1 Shop drawings of scaffolding arrangement.

Part 2 Products

2.1 MATERIALS

.1 Prefabricated portable scaffold components in a good, safe, condition.

Part 3 Execution

3.1 GENERAL

.1 Provide temporary access and protection in order to execute Work expeditiously.

.2 Remove from site all such work after use

3.2 SCAFFOLDING

.1 Provide all scaffolding required for Work.

.2 Make all changes to scaffolding required by Ministry of Labour officials.

.3 Ensure transition area from ladder(s) to scaffolding is clear of obstructions and cross bracing.

.4 Provide secure, rigid, guard rails and barricades on scaffolding to suit standards required by governing authorities.

.5 Make periodic inspections of scaffolding as Work progresses.

.6 Do not load or permit to load any part of Work or any temporary access structure with a weight or force that will endanger Work or labourers.

.7 Do not weld to steel parts of the dam.

.8 Patch holes made by concrete anchors (if any) after scaffolding is removed.

END OF SECTION

Part 1 General

1.1 ADMINISTRATIVE REQUIREMENTS

- .1 Demonstrate operation and maintenance of equipment and systems to Damkeeping personnel two (2) weeks before date of substantial performance.
- .2 Preparation:
 - .1 Verify conditions for demonstration and comply with requirements.
 - .2 Verify designated personnel are present.
 - .3 Ensure equipment has been inspected and put into operation.
- .3 Demonstration and Instructions:
 - .1 Demonstrate start-up, operation, control, adjustment, trouble-shooting, and maintenance of each item of equipment.
 - .2 Instruct personnel in phases of operation and maintenance using operation and maintenance manuals as basis of instruction.
 - .3 Review contents of manual in detail to explain aspects of operation and maintenance.
 - .4 Prepare and insert additional data in operations and maintenance manuals when needed during instructions.

1.2 SUBMITTALS

- .1 Submit schedule of time and date for demonstration two weeks before designated dates and get written confirmation from Departmental Representative that this will be convenient for PWGSC personnel.
- .2 Provide copies of completed operation and maintenance manuals for use in demonstrations and instructions.

Part 2 Products

2.1 NOT USED

- .1 Not Used.

Part 3 Execution

3.1 NOT USED

- .1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 ASTM International

- .1 ASTM A653 / A653M-15 *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*

.2 CSA International

- .1 CSA G40.20/G40.21-04 (R2009) *General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel*

1.2 SUBMITTALS

- .1 Submit Shop Drawings before starting fabrication.

Part 2 Products

2.1 MATERIALS

- .1 Steel sections and plates: to CSA G40.20/G40.21, Grade 300W
.2 Zinc-coated (galvanized) sheet steel, CS Type, to ASTM A653M, coating designation Z275

2.2 GENERAL

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured. Where possible, fit and shop assemble work, ready for installation. Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

2.3 COVER FOR SLACK ROPE MECHANISM (PORTAGE DAM)

- .1 Supply and install slack rope mechanism cover, for each of the three gates to protect against limit switch against oil splashing.

2.4 COVER FOR DRUM HOUSING (PORTAGE DAM)

- .1 Provide new cover for one housing over the left wire rope drum on Gate #3 to replace that which was damaged and is bent and rusty. Use original shopdrawing H23 *Drum Housing* for dimensions, along with field measurements as required, to complete fabrication.
.2 Material.—mild steel to G40.20.
.3 Finish.—One coat of primer followed by as many coats of paint as required to achieve minimum 500µm dry film thickness. Paint system component to be the products of a single manufacturer who certifies them as being both compatible with each other and, when working together, suitable for protecting steel in outdoor exposure in rural atmospheric conditions. Primer and intermediate coat(s) must all be of variously contrasting colours to assist painters during application. Topcoat colour: mid-blue shade reasonably close to existing colour.

Part 3 Execution

3.1 EXAMINATION

- .1 Take all measurements on site as required to design and fabricate components. This is likely most convenient to do when the wire rope is removed from the hoists.

3.2 FABRICATION

- .1 Do not weld or solder galvanized sheet; use crimping, mechanical locking, or other cold-joining methods.

3.3 PROTECTION

- .1 Protect adjacent components from damage during measurement and installation processes.
- .2 Repair damage to adjacent materials caused by installation.

END OF SECTION