Part 1 General

1.1 DESCRIPTION OF WORK

.1 The work described herein shall consist of the construction of a water intake including:

The supply and installation of pipe and appurtenances such as tees, elbows, reducers, caps, gate valves, and concrete ballast weights, intake structure, thrust blocks and incidental materials required to join the pipe and appurtenances; and the connection of the intake line to the wetwell or pipeline.

1.2 STANDARDS

.1 AWWA – American Water Works Association
6666 West Quincy Avenue
Denver Colorado, 80235 U.S.A

.2 CSA International
178 Rexdale Boulevard
Etobicoke, ON M9W 1R3

.3 Pipeline Associated Watercourse Crossings Fish Habitat Impact Assessment Tool
5th Edition, May 2018

.4 Department of Fisheries and Oceans
Interim Operational Position Statement Pipeline Crossings in the Prairies Area

.5 Transport Canada
Navigation Protection Program
Canadian Navigable Waters Act
June 21, 2019

The Standards referred to shall be the most recent edition.

1.3 JOB CONDITIONS

.1 GUIDELINES AND REGULATIONS – All work adjacent to or crossing waterways including creeks and ditches draining into waterways is regulated by the Federal Department of Fisheries and Oceans (DFO) and Provincial Regulator.

.1 Obtain approvals prior to commencement of any excavation works and complete works in accordance with DFO and Provincial Guidelines and Regulations.

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.2 SEDIMENT CONTROL PLAN – Where required a sediment and erosion control plan shall be submitted as follows:

.1 Do not complete any work that may impact water bodies or other areas under the jurisdiction of DFO and the Province until approval has been obtained from DFO and the Province.

.2 Prepare an Erosion and Sediment Control Plan and schedule for construction for review by the Engineer.

.3 Submit an Erosion and Sediment Control Plan that has been reviewed by the Engineer to DFO for approval.

.4 Prior to commencement of the works, submit applications and receive approval from the Department of Fisheries and Oceans and the Province for the proposed construction schedule, construction method, and the Erosion and Sediment Control Plan.

.5 Construction activities within the water body will not be allowed during fish spawning periods as per DFO timing windows or as otherwise stipulated.

.6 Schedule for work adjacent to or crossing waterways to be detailed and include the duration start date, and resources for the works.

.3 CROSSINGS AND DIVERSIONS – The Contractor shall be responsible for all the necessary temporary crossings, cofferdams, channels, diversions and all dewatering operations which might be required to complete the work under the Contract. All such works shall be considered as incidental to construction of water intakes. The Contractor shall save harmless the Owner from any and all claims which may arise due to the flooding of adjacent lands as a result of the construction and operation of these temporary works.

.4 EXISTING WORKS – The Contractor shall be responsible for and shall take all necessary precautions to preserve and protect all public utilities and existing drains, culverts, tile drains, sewers and other surface drains or parts thereof which may be affected by his operations and which, in the opinion of the Engineer shall continue to be operational during construction. The Contractor shall immediately repair at his own expense any and all damage to such facilities resulting from his operations.

1.4 STORAGE AND HANDLING

.1 Pipe and other appurtenances associated with the construction of the water intake shall be stored and handled in accordance with the recommendations of the respective manufacturers and to the satisfaction of the Engineer.

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1.5 INSPECTION

.1 Inspection of the work described in this Section shall be under the direction of the Engineer.

Part 2 PRODUCTS

2.1 APPROVED PRODCUTS

.1 Products shall be supplied in accordance with the Listing Of Approved Products in the attached Appendix or as shown on the Plans or specified in Section 01 00 10, Special Provisions.

2.2 PIPE AND APPURTENANCES

.1 Unless otherwise specified on the Plans or in Section 01 00 10, Special Provisions, intake pipe shall be HDPE PE4710 resin and be DR17. Pipe and appurtenances including all related joining materials shall conform to the relevant specifications set out in part 2 of Section 02 70 60 Pressure Pipelines.

2.3 BALLAST WEIGHTS

.1 Unless otherwise specified on the Plans or in Section 01 00 10 Special Provisions, ballast weights shall conform to Clause 2.4 of Section 02 70 80, Watercourse Crossings.

2.4 INTAKE STRUCTURE

.1 The intake structure shall consist of a copper plated stainless steel intake screen with a flanged connection to a class 125 cast iron base elbow with mild steel base plate and angle reinforcement both and detailed on the plans and Section 01 00 10, Special Provisions.

2.5 SILT FENCING

.1 Unless otherwise specified on the Plans or in Section 01 00 10, Special Provisions or approved sediment control plan silt fencing shall conform to Clause 2.2 of Section 02 20 10, Construction of Waterways.

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Part 3 EXECUTION

3.1 GRADE AND ALIGNMENT

.1 The water intake line shall be laid to the grade and alignment shown on the plans or as set out in the field by the Engineer.

3.2 EXCAVATION BEDDING AND BACKFILL

.1 The installation of the on-shore portion of the pipeline shall be undertaken in accordance with Section 02 21 80, Pipe Excavation Bedding and Backfill of these Specifications.

3.3 INSTALLATION OF PIPE AND APPURTENANCES

.1 Unless otherwise specified on the plans or in Section 01 00 10 Special Provisions, the joining and installation of pipe and appurtenances shall be undertaken in accordance with Part 3 of Section 02 70 60, Pressure Pipelines of these Specifications.

3.4 SUB-MERGING WATER INTAKE

.1 The entire off-shore portion of the intake line shall be joined by thermal butt fusion (or electrofusion as specified) on shore or in the case of winter operations, on the ice prior to installation. Ballast weights complete with neoprene gaskets shall be securely bolted to the pipe as shown on the Plans.

.2 Trenches shall be excavated above the river shoreline as required by the approval authorities and as shown on the sediment control Plan. Unless there is adequate ice cover on the body of water, the intake structure shall be supported on a raft. The intake line shall be floated on the water and the intake structure placed into position. (If there is adequate ice cover on the body of water, the intake line shall be laid on the ice parallel to the proposed location of the intake line and intake structure and the ice shall be cut and removed over the proposed intake alignment.

.3 Prior to submerging the intake line, the pipe shall be securely bolted to both the flanged intake structure and wetwell or pipeline connection. The Engineer shall inspect the connections and the ballast weights. Submerging operations shall not commence until the Engineer gives approval. The intake line and structure shall be submerged at a controlled rate by pumping water into the intake line through the wetwell or pipeline connection. Measures shall be taken to ensure that the intake structure is installed in an upright position.

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3.5 SILT FENCING

.1 Unless otherwise specified on the Plans, in Section 01 00 10, Special Provisions or by the Sediment Control Plan and Approval Guidelines silt fence shall be installed in accordance with Clause 3.8 of Section 02 20 10, Construction of Waterways.

3.6 RIVER AND CHANNEL PRESERVATION

.1 River and Channel Preservation shall be carried out as set out in Section 02 20 10, Construction of Waterways and in accordance to the Sediment Control Plan and Approval Guidelines. No construction shall be undertaken until all approvals have been received and all required mitigation measures have been undertaken.

3.7 SITE RESTORATION

.1 The construction site shall be restored to its original condition to the satisfaction of the Engineer and the appropriate authority having jurisdiction and control over the water body.

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