



## **Part 1      General**

### **1.1      DESCRIPTION OF WORK**

- .1      The work described hereunder shall consist of the excavation of trenches and trenchless method; the supply and installation of pipe and/or encasement pipe; the supply and placement of bedding and backfill materials; the disposal of all surplus and unsuitable material and the restoration of the site; all as related to the construction of sewer and water pipelines or watermains through highway, railways, roadway, driveway and utilities crossings. The work shall also include shoring and other protective works necessary for and incidental to the safe and proper execution of the work and the necessary drainage and dewatering of all excavations. All railway crossing work must comply with corresponding rail company policies and standards.
- .2      “Trenchless method” shall mean auguring, horizontal directional drilling, pipe jacking, pipe ramming or coring beneath the ground surface. A Hammering Permit is required and shall be in place prior to ground breaking.

### **1.2      STANDARDS**

- .1      Manitoba Transportation and Infrastructure  
215 Garry Street  
Winnipeg MB R3C 3Z1  
Work Zone Traffic Control Manual
  - .2      Transport Canada  
330 Sparks Street  
Ottawa ON K1A 0N5  
Standard TC E-10, June 21, 2000
  - .3      CSA International  
178 Rexdale Boulevard  
Etobicoke ON M9W 1R3
  - .4      Canada Energy Regulation  
517 10 Avenue SW #210  
Calgary AB T2R 0A8  
Regulation Part 1-S0R/88-528
- The Standards referred to shall be the most recent edition.

### **1.3      REFERENCED STANDARD DETAILS**

- .1      SD-30 PR & PTH Crossings

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## **1.4 JOB CONDITIONS**

- .1 The Contractor shall comply with all the requirements and regulations of the latest edition of the Manitoba Infrastructure and Transportation Work Zone Traffic Control Manual.
- .2 The Contractor shall be responsible for obtaining and paying for all permits, licences, or any other approvals required to undertake crossings as described in this Specification. The Contractor shall comply with all Federal, Provincial, Municipal, Railway and utility regulations as they apply to the work and under this Specification. The Contractor shall request a listing of approvals required and contacts from the Engineer and ensure that a minimum of 72 hours notice is provided to the approval authority prior to commencing construction within or across the right-of-way under their jurisdiction. The Contractor shall make arrangements for site supervision and inspection with the approval authority as required.
- .3 The Contractor shall take note of Clause 1.5.4, Section 02 21 80, Pipe Excavation, Bedding and Backfill. The Contractor shall use hand tools or Hydrovac-Daylighting to expose existing buried works. Compacted select granular backfill shall be used within three meters of any existing utility works and shall be considered incidental to the works of the Contract.
- .4 The Contract may require the Contractor to work near existing structures; therefore it shall be the Contractors responsibility to contact local authorities and homeowners where required to establish locations of existing underground works (septic fields, waterlines, sewer lines, underground utilities, etc.) within the construction areas. The Contractor shall take all precautions necessary to avoid damage to existing works. The Contractor shall coordinate connections to existing pipelines with the Engineer and local authorities a minimum of 48 hours prior to commencing construction.
- .5 It is the Contractor's responsibility to notify utility companies to arrange for the location and marking of buried infrastructure in advance of construction operations.

## **Part 2 PRODUCTS**

### **2.1 APPROVED PRODUCTS**

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

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## **2.2 BEDDING AND BACKFILL**

- .1 Bedding and backfill material shall conform to the requirements of Clause 2.1 and 2.4 of Section 02 21 80, Pipe Excavation, Bedding and Backfill.

## **2.3 PIPE**

- .1 Pipe and related products (gaskets, lubricants and other such materials as are required to join the pipe) shall conform to the relevant specifications set forth in Part 2 of whichever of the following Sections is applicable:
  - .1 Section 02 70 30 – Sewers
  - .2 Section 02 70 60 – Pressure Pipelines
  - .3 Section 02 70 20 – Water Service Connections

## **2.4 ENCASEMENT PIPE**

- .1 Encasement Pipe required for Highway, Provincial Road, Service Road and Railway Crossings, shall be supplied as detailed on Plans or SD-30 in Standard Construction Drawing Appendix (for Highway and Provincial Roads).

## **Part 3 EXECUTION**

### **3.1 EXCAVATION BEDDING, AND BACKFILL**

- .1 The requirements of Part 3, Section 02 21 80, Pipe Excavation, Bedding and Backfill shall apply to this Section.

### **3.2 ALIGNMENT AND GRADE**

- .1 The pipeline shall be laid to the grade and alignment shown on the plans or as staked on the ground by the Engineer.

### **3.3 CONSTRUCTION OF PIPELINE**

- .1 Except as provided in Clause 1.2 of this Section, the installation of the pipe and encasement pipe shall conform to the relevant clauses set forth in Part 3 of the following applicable Sections;
  - .1 Section 02 70 30 – Sewers
  - .2 Section 02 70 60 – Pressure Pipelines
  - .3 Section 02 70 20 – Water Service Connections

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### 3.4 HIGHWAY AND PROVINCIAL ROAD CROSSINGS

- .1 Highway and PR Crossings – Shall be carried out in accordance with SD-03 of the Standard Construction Drawing Appendix and in accordance with the crossing agreement prepared by Manitoba Transportation and Infrastructure and as follows:
  - .1 Complete application for “Utility Installations within Highway Right of Way” required to obtain an agreement. Application must include a key plan showing location of proposed utility installation, plans showing legal land description and highway numbers, proposed construction methods, depth of bury and alignment of utility, location of pertinent structures such as valves, a profile showing right of way width, encasement pipe and depth of installation and applicable fee.
  - .2 Provide 3 days (72 hours) written notice to the local district office of Manitoba Transportation and Infrastructure (copy to Engineer) prior to commencing construction requesting approval for the proposed crossing date and for a site meeting 1 day before crossing date.
  - .3 Arrange for the safe movement of highway vehicle and pedestrian traffic during construction in accordance with the latest edition of the Manitoba Infrastructure & Transportation Work Zone Traffic Control Manual.
  - .4 Provide a minimum of 3 metres clearance from the existing road shoulder to the nearest excavation. Encasement pipe shall be used for all crossings as detailed on SD-30 of the Standard Construction Drawing Appendix.
  - .5 All highway and PR crossings shall be installed by tunnelling in accordance with Clause 3.9 of Section 02 21 80, Pipe Excavation, Bedding and Backfill. If tunnelling cannot be undertaken due to site conditions, the following shall apply;
    - .1 Obtain Manitoba Transportation and Infrastructure approval to open cut the roadway crossing.
    - .2 Complete all open cut crossing works in conformance with Manitoba Transportation and Infrastructure requirements.
  - .6 Restore all surface areas within the Manitoba Transportation and Infrastructure right-of-way to the condition that existed prior to construction and be responsible to correct trench settlement and related works in accordance with contract warranty conditions.

### 3.5 RAILWAY CROSSINGS

- .1 Permit applications for utilities crossing under Railways must meet the requirements of the Rail Company and ensure adequate subsurface information including geotechnical investigation and groundwater information is provided. A

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settlement monitoring program indicating layout and types of settlement monitors to be installed, frequency of measurements, alarm thresholds, reporting protocol and immediate actions to take shall be created if required.

- .2 Railway crossings shall be carried out in accordance with the required railway crossing drawing showing project location, plan view and profile along rail alignment, Transport Canada Standard TC E-10 and the latest edition of the applicable CSA Standard.
- .3 The Contractor shall be responsible for all costs associated with the work including flagmen, site inspection by the railway authority and total site restoration to the satisfaction of the railway authority. All railway crossings complete with steel encasement pipe shall be installed by tunnelling in accordance with Clause 3.9 of Section 02 21 80, Pipe Excavation, Bedding and Backfill.

### **3.6 RURAL MUNICIPALITY ROAD CROSSINGS**

- .1 Municipal Road Crossings shall be done by means of tunnelling in accordance with MWSB Specifications Section 02 70 70 except that the encasement pipe will not be required.
- .2 The Contractor may be permitted to open cut the crossings provided prior written approval is obtained from the Engineer or local authority. The Contractor shall be responsible for total site restoration to the satisfaction of the Engineer or local authority.
- .3 The Contractor shall utilize compacted select granular backfill for open cut municipal roadway crossings in accordance Clause 3.8.3 of Section 02 21 80. Open cut installations under paved roads shall be installed in accordance with Clause 1.6 of Section 02 21 80. The Contractor shall be responsible for the total restoration to original or better condition of all affected surface areas within the municipal road right-of-way including the replacement of gravel.

### **3.7 DRIVEWAY AND APPROACH CROSSINGS**

- .1 The Contractor shall use trenchless methods to cross private driveways, gravel roads, graveled approaches and approaches along PTHs and PRs unless prior written approval given by Engineer.
- .2 Open cut driveways and approaches approved by the Engineer shall be done in accordance with Clause 3.8.2 of Section 02 21 80; Pipe Excavation, Bedding and Backfill. Contractor shall be responsible for the total restoration to original or better condition.
- .3 The non-graveled approaches may be open-cut, but the Contractor shall be responsible for the total restoration to original or better condition.
- .4 Where required, existing culverts shall be removed in accordance with Section 02 70 50; Removing Existing Culverts and if deemed to be in salvageable condition,

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the culvert shall be reinstalled in accordance with Section 02 43 60; Placing Pipe Culverts and Pipe Arches.

- .5 If it is determined that an existing culvert is non-salvageable, the Owner will supply a replacement culvert which shall be installed by the Contractor in accordance with Section 02 43 60. Open cut installations under paved driveways and approaches shall be installed in accordance with Clause 1.6 of Section 02 21 80.

### **3.8 TELEPHONE, COMMUNICATION AND FIBRE OPTIC CROSSINGS**

- .1 Buried Telephone, Communications and Fibre Optic Crossing – Shall be undertaken in accordance with this Section and the requirements of the utility company.
- .2 The Contractor shall be responsible for repairing any damages resulting from his work to the satisfaction of the utility company and the Engineer.
- .3 The Contractor shall take note of MWSB Specifications Section 02 21 80, Clause 1.6.4 Pipe Excavation, Bedding and Backfill. The Contractor shall use hand tools to expose existing buried works. Compacted select granular backfill shall be used within three meters of any existing utility works.

### **3.9 BURIED HYDRO CROSSINGS**

- .1 Buried Hydro Crossings – Shall be undertaken in accordance with this Section and as required by the local Hydro Authority.
- .2 The Contractor shall be responsible for repairing any damages resulting from his work to the satisfaction of the utility company and the Engineer.
- .3 The Contractor shall take note of MWSB Specifications Section 02 21 80, Clause 1.6.4 Pipe Excavation, Bedding and Backfill. The Contractor shall use hand tools to expose existing buried works. Compacted select granular backfill shall be used within three meters of any existing utility works.

### **3.10 GAS AND OIL PIPELINE CROSSINGS**

- .1 Buried Natural Gas or Petroleum Pipeline Crossings – Shall be undertaken in accordance with this Section, The National Energy Board Pipeline Crossing Regulations, Part 1 – SOR/88-528 and as required by the Pipeline Authority.
- .2 The Contractor shall be responsible for repairing any damages resulting from his work to the satisfaction of the utility company and the Engineer.  
  
The Contractor shall take note of MWSB Specifications Section 02 21 80, Clause 1.6.4 Pipe Excavation, Bedding and Backfill. The Contractor shall use hand tools to expose existing buried works. Compacted select granular backfill shall be used within three meters of any existing utility works.

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