

## **PART 1 - GENERAL**

### **1.1 RELATED REQUIREMENTS**

- .1 Section 33 65 76 - Direct Buried Underground Cable Ducts.

### **1.2 REFERENCES**

- .1 CSA International
  - .1 CAN/CSA-Z809-08(R2013), Sustainable Forest Management.
- .2 Forest Stewardship Council (FSC)
  - .1 FSC-STD-01-001-2013, FSC Principle and Criteria for Forest Stewardship.

### **1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for cables and include product characteristics, performance criteria, physical size, finish and limitations.

### **1.4 DELIVERY, STORAGE AND HANDLING**

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labeled with manufacturer's name and address.
- .3 Storage and Handling Requirements:
  - .1 Store materials in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
  - .2 Store and protect cables from nicks, scratches, and blemishes.
  - .3 Replace defective or damaged materials with new.
- .4 Packaging Waste Management: remove for reuse packaging materials as specified in Construction Waste Management Plan Waste Reduction Workplan in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

### **1.5 MEASUREMENT FOR PAYMENT**

- .1 No separate measurement for payment shall be made for items under this section. Include costs incidental in the Lump Sum Amount of work on the Combined Price
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Form.

## **PART 2 - PRODUCTS**

### **2.1 CABLE PROTECTION**

- .1 38 x 140 mm planks pressure treated with copper naphthenate or 5% pentachlorophenol solution, water repellent preservative.

### **2.2 MARKERS**

- .1 Polyethylene warning tape over full length of cable (raceway) route. Tape width of 75 mm with 4 mil tape thickness. Test on tape to read "CAUTION BURIED ELECTRIC LINE BELOW".

## **PART 3 - EXECUTION**

### **3.1 CABLE INSTALLATION IN DUCTS**

- .1 Install cables as indicated in ducts.
- .2 Do not pull spliced cables inside ducts.
- .3 Install multiple cables in duct simultaneously.
- .4 Use CSA approved lubricants of type compatible with cable jacket to reduce pulling tension.
- .5 To facilitate matching of colour coded multi-conductor control cables reel off in same direction during installation.
- .6 Before pulling cable into ducts and until cables are properly terminated, seal ends of cables with moisture seal tape.
- .7 After installation of cables, seal duct ends with duct sealing compound.

### **3.2 MARKERS**

- .1 Install warning tape over full length of ductbanks buried halfway between ductbank and grade level.

### **3.3 FIELD QUALITY CONTROL**

- .1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.
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- .2 Perform tests using qualified personnel.
  - .1 Include necessary instruments and equipment.
- .3 Check phase rotation and identify each phase conductor of each feeder.
- .4 Check each feeder for continuity, short circuits and grounds.
  - .1 Ensure resistance to ground of circuits is not less than 50 megohms.
- .5 Remove and replace entire length of cable if cable fails to meet any of test criteria.

### **3.4 PROTECTION**

- .1 Repair damage to adjacent materials caused by cables installation.