

1. **General Information**

1.1 **Section Contents**

- .1 Junction and joint boxes for cables, materials and related materials, and their installation.

1.2 **Related sections**

- .1 Section [01 33 00 -Documents/samples to be submitted].
- .2 Section [01 74 19 - Management and disposal of construction/demolition waste].

1.3 **References**

- .1 Canadian Standards Association (CSA)/CSA International
 - .1 CSA C22.2 number 40, Cutout, Junction and Pull Boxes

1.4 **Data sheets**

- .1 Submit the data sheets required in accordance with the section [01 33 00 - Documents and samples to be submitted].

1.5 **Waste management and disposal**

- .1 Sort and recycle the waste in accordance with section [01 74 19 - Management and disposal of construction/demolition waste].
- .2 Remove all packaging materials from the site and send to the appropriate recycling facilities.
- .3 Place all [paper] [plastic] [polystyrene] [corrugated cardboard] packaging materials [in appropriate on-site containers] for recycling in accordance with the Waste Management Plan.
- .4 Send all unused metal elements and wiring to a metal recycling facility approved by the ministerial representative.
- .5 Fold metal strapping, flatten and place in designated areas for recycling.

2. **Products**

2.1 **Junction boxes**

- .1 6 mm thick cast iron junction boxes, coated with a chromate primer and gray enamel paint, to provide mechanical protection and sealing of cable splices from [3] [5]] [7.5] kV buried directly in the ground. The junction boxes consist of the

following:

- .1 Two shells opening in the axis of the cable, with ground contact surfaces, attached with bolts [silicon bronze] [galvanized steel]; upper shell equipped with large openings with sealed plugs for receiving a flexible insulating bitumen based compound; lower shell equipped with screws for the connection of [lead-lined] [armed] cables; inlets, at the end, sealed by:
 - .1 Anhydrous wrapped cables with clamps ensuring a tight fit at each end of the junction of the [2] [3] [4] conductors;
 - .2 Cable inlet fittings suitable for [lead] [neoprene] [steel tape armour] [articulated armour] cable sheaths for junctions for the [2] [3] [4] conductors.
- .2 Watertight junction boxes for the mechanical protection and waterproofing of underwater cable splices. The junction boxes consist of the following:
 - .1 Boxes with two cast iron shells, with cones and half-armour clamps, made of cast iron, coated with a chromate primer and gray enamel paint, to be filled with a flexible insulating bitumen based compound; 4 bronze rods securely fastened to the box and clamping halves, to protect the cable splices from [3] [5] [7.5] kV against longitudinal deformation.
- 2.2 Galvanized steel tube equipped with openings with sealed plugs for receiving a flexible insulating bitumen based compound; threaded ends on the right and on the left respectively, provided with molded steel caps with armour clamps to protect the conductors and the splice against tensile stresses.
- 2.3 Distribution boxes - Installation below ground level
 - .1 Octagonal under air cast iron boxes with ground joints fitted and sealed; coated with a chromate primer and gray enamel paint; the boxes are equipped with contacts mounted on porcelain insulators, to receive lugs welded to the conductors; can receive [2] [3] 3-pole conductors, 5 kV, up to 500 MCM, without display; for direct burial.
 - .2 Rectangular welded steel boxes, with a sheet steel cover fitted with a seal and fastened with silicon bronze screws; copper bus bars mounted on insulators; Inlets with [sliding sleeve] [stuffing box]; lugs for cable conductors that can be unplugged when turned off; can receive [2] [3] [4] [5] [6] 3-pole conductors, 5 kV, of not more than 500 MCM; for installation in [access shaft] [gallery].
 - .3 Rectangular welded steel boxes, coated with a chromate primer and gray enamel paint; with sheet steel cover with oil seal; C forged steel flanges and silicon bronze screws; the boxes are partitioned by Bakelite elements; plastic insulated copper bus bars mounted on porcelain insulators; disconnecting bars with

switched off by means of an insulating pole; can receive three-pole conductors, [5] [7.5] kV, [250] [500] A; number of conductors and sets of disconnecting bars as indicated; for installation in [access shaft] [gallery].

2.4 Distribution boxes - Distribution networks

- .1 Rectangular, welded, 6 mm thick steel boxes, coated with a chromate primer and gray enamel paint, with removable front plate, filled with flexible insulating bitumen based compound, designed to cross one main cable and [two] [three] branch cables of [100] [250] A, 5 kV; pluggable couplings without power, under piping and sleeves in interlocking [standard] [deep for submerged installations]; designed for surface wall mounting, in [access shaft] [gallery].

2.5 Distribution box - Supply network

- .1 Octagonal cast iron boxes, coated with a chromate primer and gray enamel paint, with ground seals and gaskets; contacts on porcelain insulators, for lugs welded to conductors; filled with a flexible insulating bitumen based compound; can receive 3-pole cables, 15 kV, up to 250 MCM; Inlets with [sliding sleeve] [stuffing box].
- .2 Rectangular [oil-bath] [in air], welded, steel, steel-lined, oil-tight box, attached with silicon bronze screws; the boxes are shot-blasted, coated with a chromate primer and gray enamel paint; end boxes filled with flexible bituminous insulation; cable head seal using cap nuts and outlets with [sliding sleeve] [stuffing box]; disconnecting bars switched off by means of insulating pole; [250] [500] A, [7500] [15,000] V; can receive [3] [4] conductors; for installation in [access shaft] [gallery].

3. Execution

3.1 Installation

- .1 Install the junction boxes at the cable connection points on the bottom of the trench. Tighten the collars on the armour and fill with insulating compound.
- .2 Install the underwater cable junction boxes at the cable connection points, tighten the clamps and fill with insulating compound before lowering the cable to the bottom [of the river] [of the lake] [of the sea].
- .3 To install the distribution boxes on the bottom of the trench, in accordance [with the CSA C22.2 number 40. Connect the cables to the terminals of the box. Secure the lid tightly and make sure there are no air leaks before filling the trench.
- .4 Install the steel junction boxes below ground level on the [access shaft] [gallery] wall. Connect the cables to the terminals of the box, install the isolating links, secure the cover and [ensure there is no air leakage] [fill with insulating

compound].

- .5 Install the steel distribution boxes for distribution networks on the wall [access shaft] [gallery]. Splice the main cable into the box and connect the bypass line. Securely fasten the lid and fill with insulating compound.
- .6 Install the power supply boxes as follows:
 - .1 Fasten the cast iron boxes at the bottom of the trench; connect the cable heads to the contacts of the boxes; attach the lid and fill with compound before filling the trench.
 - .2 Fasten the steel boxes to the [access shaft] [gallery] wall; connect the cables to the terminals of the boxes; install the disconnectors; securely fasten the lid and [fill with oil] [ensure there are no air leaks].

END OF SECTION