

**SCOPE OF INSTRUMENTATION AND CONTROL WORK**

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**1. GENERAL**

- .1 Supply and install all material, equipment, wiring and labour necessary for the installation of the systems detailed on the Drawings in accordance with the Specifications and the latest edition of the Canadian Electrical Code.

**2. WORK INCLUDED**

**2.1 Related Work**

- .1 Supply and installation of instrumentation and control equipment required to operate the WTP including the plant control system PLC equipment and all Vendor Packages as indicated on the P&IDs.

**2.2 General Requirements**

- .1 Shop Drawings
- .2 Record Drawings
- .3 O&M Data

**2.3 Specific Requirements Included Within but not Limited to the Scope of Work**

- .1 Supply, Install, test, and verify the performance of all instrumentation, components, materials and ancillary equipment covered under Division 17 of this Contract. A brief description of Work required under this Division is listed here:
  - .1 Supply, Install, test, and verify the performance of two (2) flange mounted pressure transducers on Surge Tower No.1, to measure the water level in the Tower.
  - .2 Supply, Install, test, and verify the performance of two (2) high high level float switches, one (1) in each surge tower. The Work involved in the provision of the float switch on Surge Tower No. 2 shall include the wiring in the existing main control panel to connect the signal to the PLC.
  - .3 Supply, install, test, and verify the performance of one (1) valve vault flood level conductivity switch in valve chamber DRV-305.
  - .4 Supply, Install, test and verify the performance of cabling, wiring and any wiring accessories required to one (1) electrical valve actuator on existing valve FV-YO11A in valve chamber DRV-305.
  - .5 Supply, install, and test all the cabling between the instrumentation and actuators and local junction boxes or main control panels and indicated on the Drawings.

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- .6 Supply and install all local junction boxes and any other wiring accessories required to complete the Work as described in these specifications and the drawings.
- .2 All WTP control system PLC programming and WTP monitoring system HMI software development shall be performed by others.
- .3 Coordinate with the individual Manufacturers of equipment supplied under other contracts but installed under this Contract to install, test and verify performance of the systems shown on the P&IDs.
- .4 Supply and install network cabling termination cabinets complete with fibre patch panels, Cat 5E patch panels, Ethernet switches, patch cables.
- .5 Supply and install Modbus Plus cabling to Chemical Feed Building from DBPS control room.
- .6 Supply and install fibre optic cable from DBPS to Chemical Feed Building.

**2.4 Additional Requirements**

- .1 Provide all necessary testing, detailed wiring continuity checks, installation integrity checks, equipment functional operation checks, and written system verification reports to provide a complete system.
- .2 Provide Performance Verification and start-up of all systems included in the Scope of Work.

**2.5 Materials**

- .1 Cables and bus support systems which are intended to enclose or support all forms of electrical conductors used for any purpose covered by this scope. This includes cable trays, raceways and all forms of rigid, flexible, metallic and non-metallic conduit, and including conduit for communication systems.
- .2 Control panels associated with any electrical equipment covered under this Section of Work.
- .3 Circuit breakers of all types and for all applications associated with electrical equipment, which receives its power supply from the main, auxiliary or emergency (including UPS) system.
- .4 Grounding systems, as required by the Canadian Electrical Code, or as otherwise specified.

**END OF SECTION**