DESCRIPTION

This work shall consist of filling and sealing open joints and voids surrounding concrete culvert pipes by installing removable formwork and injection of cement-based grout mix.

Work shall be performed at locations shown on the plans or as directed by the Engineer.

MATERIALS

Cement-Based Grout Material for Shear Keys. This material shall conform to the Standard Specification Subsection 701-06. The material shall be on the current Department Approved Products List.


CONSTRUCTION DETAILS

Equipment. All necessary equipment shall be in good working order, located at the work site and approved by the Engineer before any work begins.

The equipment, either mechanically or electrically powered, must be capable of generating injection pressures of up to 1300 kPa. The equipment must also be capable of providing a relatively continuous and uninterrupted pressure head to continually force grout into the joints and surrounding voids. The equipment must have accurate pressure gauges that can be easily viewed enabling the operator to fully control the flow of grout.

Surface Preparation. Remove all existing mortar, debris, or contaminants in or adjacent to the culvert pipe joints using hand tools or other methods as approved by the Engineer. The joints shall be cleaned of debris to the depth of the concrete pipe walls. Surfaces of the existing joints shall be oil-free high pressure air blasted prior to placement of formwork. The joints shall be free of standing water.

Formwork. Forms shall be installed straddling the joints and extending a minimum of 150 mm onto adjacent pipe sections. The form shall seal against the pipe sections and be capable of withstanding grout pressures without significant leakage.

Injection ports shall be attached to the form at the locations as shown in the contract plans or as directed by the Engineer. The finished grout surface shall not protrude more than 25 mm from the existing pipe surface.
Form design shall be submitted to the Engineer for approval a minimum of five days prior to the begin of work under this item.

**Injection Grouting.** The feed line shall be securely attached to the bottom most injection port when beginning the injection grouting procedure. Initiate the grout flow until grout flows from the adjacent port; whereupon temporarily stop the injection, remove the feed line, and seal the port. Attach the feed line to the adjacent port repeating the procedure and alternating sides of the pipe until the last port is sealed with sufficient pressure to completely fill voids within 300 mm of the outer pipe surface.

**METHOD OF MEASUREMENT**

The work will be measured as the number of joints formed, sealed and repaired as required.

**BASIS OF PAYMENT**

The price bid for each joint properly formed, sealed and repaired, shall include the cost of all labor, materials and equipment necessary to complete the work.