TOTAL PRESSURE CELLS

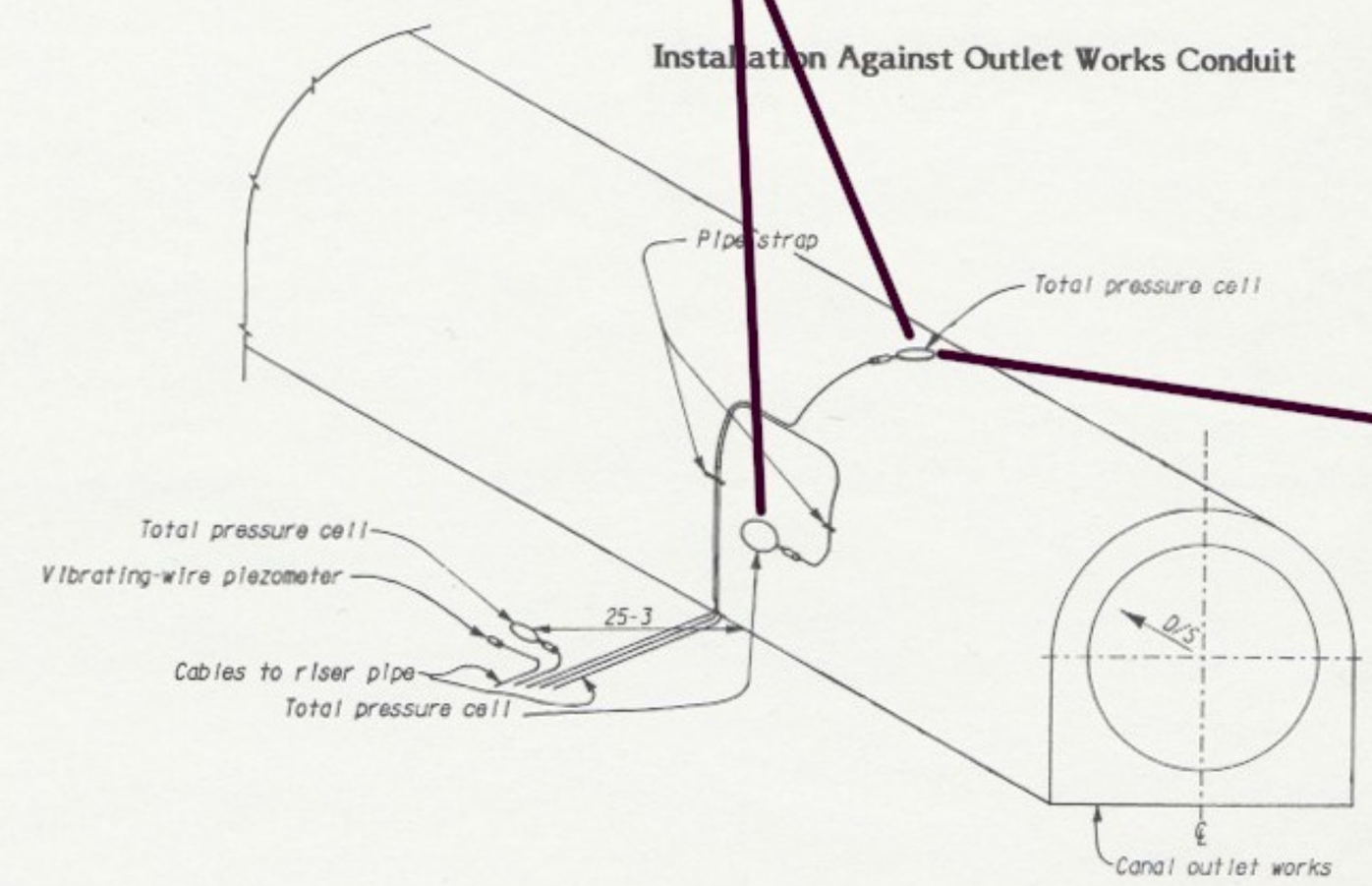
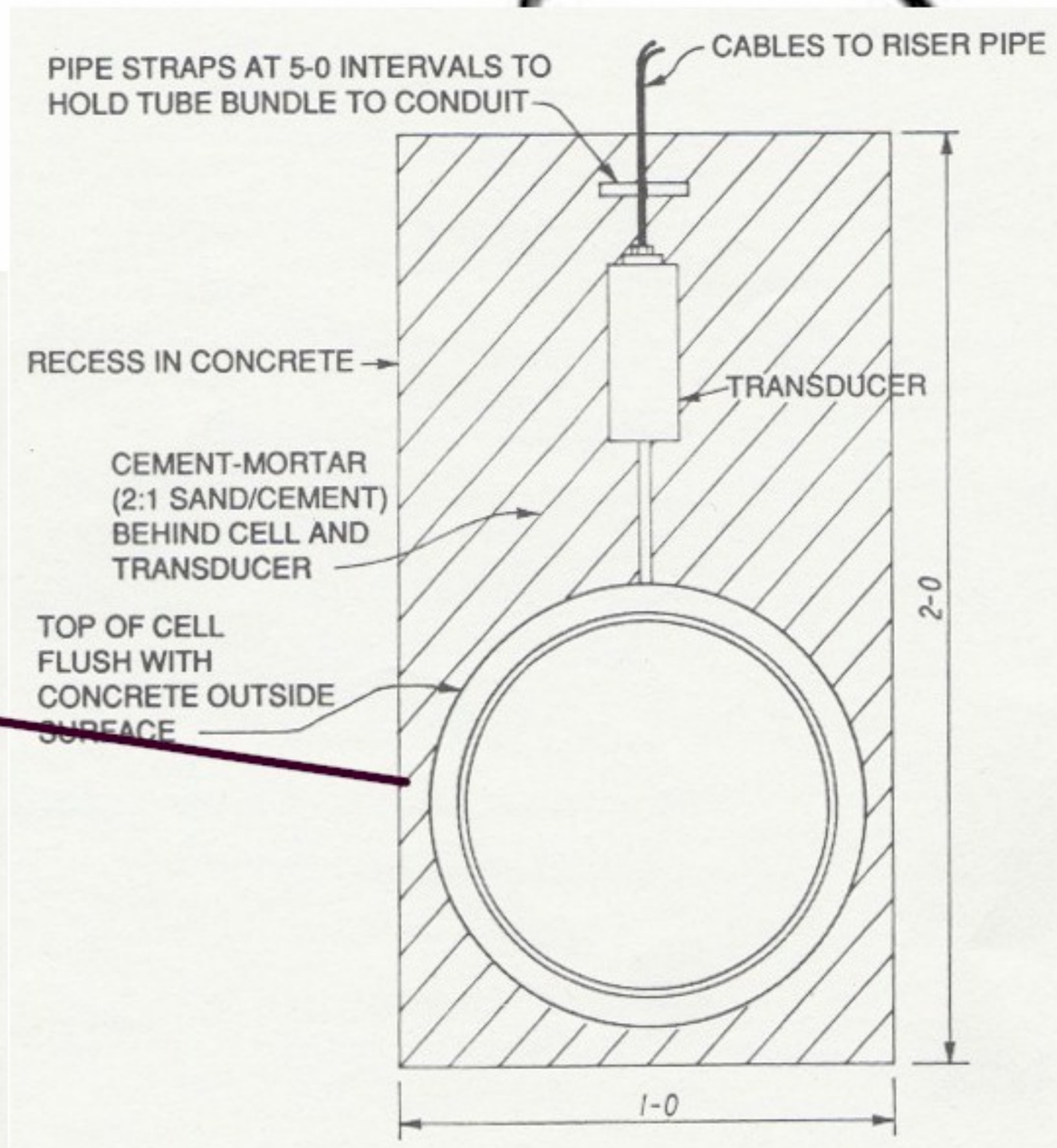
DESCRIPTION

Total pressure cells are used to measure the contact pressure where a concrete surface or foundation surface meets embankment or backfill materials. There are two main applications for this instrument:

- Between a structure and its foundation
- Between a concrete structure (such as a conduit or concrete slab) and earthfill materials.

For example, total pressure cells might be placed at selected locations along a conduit, against a concrete slab abutting a cut or natural slope, or between the concrete and embankment sections of a composite dam. They are usually installed in conjunction with piezometers. Some specifications call for these instruments to be installed within embankments.

A total pressure cell consists of the following elements:

- Two 9-inch diameter plates welded together, with the small volume between them filled with liquid
- Pressure transducer
- Electrical cable
- Readout devices
- Splice kits

Pressure exerted on the plates is translated into measurable movement within the transducer. The signal is carried by the electrical cable to the readout devices. Figure IV-6 illustrates a total pressure cell, and Figure IV-7 shows how pressure cells are installed against a conduit.