400 FACILITY IDENTIFICATION

401 SCOPE: This section sets forth the requirements for the installation of electromagnetic pipe detection systems in order to detect underground utilities through non-invasive methods.

The requirements set forth in this section apply to all new utility installations in the right-of-way. This section applies to the repair of existing utilities only if the existing facility has an electromagnetic pipe detection system. The repair of a utility that utilizes an electromagnetic detection device shall also include the restoration of the detection device to its original condition.

402 ELECTROMAGNETIC PIPE DETECTION (EPD) SYSTEM: EPD requires a transmitter to directly induce a signal across the utility. The signal is then detected with a receiver. The transmission of the signal requires a conductive element and ,therefore, the utility must be metallic or the utility must be accompanied by a tracer wire.

.01 Direct Signal Method: The direct signal method shall be utilized to transmit the signal from the transmitter to the utility. The direct signal method requires direct connection from the transmitter to the utility or the tracer wire. Access points shall be installed along the utility route for direct connection. The current shall be directly applied and the signal shall be detected and followed with a receiver.

.02 Tracer Wire: Tracer wire shall be installed to enable the detection of plastic pipes, fiber optics, and non-conducting utilities. The tracer wire shall be designed specifically for the purpose of detecting buried utilities. Tracer wire shall 12 AWG (min.) copper wire coated with a 30-mil (min.) polyethylene jacket designed specifically for buried use.

403 INSTALLATION: All new non-metallic utilities shall be installed with tracer wire. Metallic pipes do not require a tracer wire. Metallic pipe systems require access points along the route for direct connection. The tracer wire shall be installed continuously along the new utility route with access points at 300 feet maximum. The tracer wire shall be brought to the ground surface at the access points. Access points may include valve boxes, handholes, manholes, vaults, or other covered access devices. Access point covers shall be clearly marked with the type of facility. Splices in the tracer wire shall be connected by means of a split bolt or compression type connector to ensure continuity. Wire nuts shall not be used. A waterproof or corrosion-proof connector for direct bury applications shall be used. After installation, the tracer wire shall be tested to verify continuity of the tracer wire system and a report indicating continuity shall be submitted to the City of Shawnee as part of the as-built construction records.

.01 Direct Buried Facilities: A tracer wire shall be installed in the trench with all direct buried utilities. The tracer wire shall be placed adjacent to or above, but shall not touch the pipe. The tracer wire shall not be wrapped around the facility. The maximum distance from the utility pipe to the tracer wire shall be 6 inches. Non-metallic spacers shall be installed to keep the tracer wire a set distance from the utility.

.02 Trenchless Facilities: A tracer wire shall be provided with all non-metallic pipe installed by trenchless methods. The tracer wire shall be pre-installed in conduits and innerduct or it shall be blown in after conduit or innerduct installation. In the case where conduit or innerduct is not used, the tracer wire shall be installed at the same time as the pipe as an integral part of the pipe installation.

404 REPAIRS: The effectiveness of the detection system is dependent on an uninterrupted and continuous tracer wire. All tracer wire cuts shall be repaired as they occur, enabling continued integrity and functioning of the tracer wire system.

End of Section