

The following standard specification is intended to be edited according to the specifics of the project. Brackets [] and areas shaded in gray [e.g. format] indicate requirements that are optional depending upon the type of system being provided or per instructions associated with the [] and project requirements. Consult with University's Representative and campus stakeholders.

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SECTION 33 05 26 UTILITY LINE SIGNS, MARKERS, AND FLAGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Utility line signs, markers, and flags for underground utilities.

1.2 RELATED SECTIONS

- A. Section 01 33 23 Shop Drawings, Product Data and Samples
- B. Section 01 43 00 Quality Assurance

1.3 REFERENCES

- A. American Society of Mechanical Engineers (ASME) A13.1 - Scheme for the Identification of Piping Systems

1.4 SUBMITTALS

1. See Section 01 33 23 Shop Drawings, Product Data and Samples for submittal procedures.
2. Product Data: Provide data acknowledging that products meet requirements of standards referenced.
3. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.

PART 2 - PRODUCTS

2.1 PLASTIC LINE MARKER

- A. Detectable warning tape shall be provided for all underground utilities. Underground-type conductive line markers shall conform to ASME A13.1 and be permanent, brightly colored, continuous-printed plastic tape, intended for direct burial service; not less than 6 inches wide by 4 mils thick. Provide color coding appropriate with utility with "CAUTION _____ (insert applicable utility) LINE BURIED BELOW" in large black letters. Plastic line markers and tracer tape shall be Presco, Emed Co. Inc., or equal

2.2 TRACER WIRE

- A. All underground chilled water, domestic water, utility water, non-metallic gas, pressurized sanitary sewer, and storm drain piping shall be accompanied by a tracer wire. Tracer wire shall be solid core #10 copper wire with a thermoplastic insulation recommended for direct burial.
- B. Wire Connectors: Wire connections shall be made with 3M DBR-6, a properly sized split bolt connector or equal. The connection shall be watertight and provide electrical continuity. 3M Scotchkote Electrical Coating, or equal.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Utility piping markers and tracers shall be installed in accordance with the manufacturer's instructions. Have on hand all installation manuals, brochures, and procedures for the equipment and materials concerned.

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- B. Plastic coding tape shall be installed directly over the pipe, 18 to 24 inches above the top of the pipe.
- C. Tracer wire shall be fastened to the top of the pipe so as not to be displaced or broken during backfilling, such as by affixing the wire to the pipe with duct tape at approximately 10-foot intervals.
- D. Both ends of tracer wire shall be accessible at all utility valve boxes and locator boxes and shall be terminated on the top of the valve or locator box as detailed.
- E. For directional drilling, auguring or boring installations, a minimum of two #10 tracer wires shall be installed with the pipe and connected to the tracer wire at both ends to ensure at least one wire is useable.
- F. When connecting tracer wire with 3M DBR-6 Direct Bury Splice Kit, install per manufactures instructions. When connecting tracer wire with a split bolt connector, wrap the connection with vinyl electrical tape then apply 3M Scotchkote Electrical Coating evenly over splice, extending a short distance onto the cable insulation. Repeat application to provide two layers of tape and coating.

3.2 TESTING

- A. Perform field inspection and testing in accordance with Section 01 43 00 Quality Assurance.
- B. Contractor shall perform continuity testing on all trace wire in the presence of the University's Representative.

3.3 REPAIR/RESTORATION

- A. If the trace wire is found to be not continuous after testing, Contractor shall repair or replace the failed segment of the wire.

END OF SECTION 33 05 26