

## SURVEYED AS-BUILT REQUIREMENTS

### Section 1. PURPOSE

In order to maintain proper records of the infrastructure owned by the Bedford Regional Water Authority (“Authority”), as-built drawings/record drawings are required at the completion of each water and/or sewer project.

### Section 2. GENERAL

Drawings should reflect all changes in the field as noted by the Authority Field Representative and the Utility Contractor. The symbology used should reflect the same used in the Design Plan legend. In addition, facilities are to be surveyed to provide accurate location on the drawings, with notations by the Contractor and/or Inspector present to assist in locating the facilities in the field. Water lines and force main lines should be marked by utility locating equipment and surveyed so that the accurate location is shown on the as-builts.

### Section 3. POLICY

- A. All drawings submitted to the Authority must be signed by a Professional Engineer and dated. Each of the following formats must be submitted:
  1. Copy of original design plans with Contractor Mark-ups shown.
  2. Copy of as-builts with Licensed Engineer or Surveyor stamp and signatures .
  3. Adobe PDF.
  4. Native digital CAD files with any associated plotting and pen setting files.
    - a. Digital as-built files must be prepared in USGS NAD83 Virginia South State Plane Coordinates.
  5. Ascii/text survey file.
    - a. To include coordinates for points X, Y and Z with definitions of each point.
  6. Water or sewer modeling files or .shp files when available.
  7. GIS .shp or .lyr files when available.
- B. Drawings must include a statement on each plan sheet stating that lines and appurtenance locations have been determined through field survey and Contractor markups.
- C. Waterline: The following items must be clearly shown on the surveyed as-built record drawings:
  1. Surveyed:
    - a. Waterline (based on locator marks).
    - b. Edge of pavement or curbing, where applicable.
    - c. Valves.
    - d. Fire Hydrants.
    - e. Blowoffs.
    - f. Air Releases.
    - g. Meter Settings (identified as single or double).
    - h. Trace Wire Boxes
    - i. Omni Markers

### SURVEYED AS-BUILT REQUIREMENTS

2. From Contractor/Inspector Mark-ups:
  - a. Profile changes.
  - b. Horizontal and vertical bends.
  - c. Service line locations (if not able to survey).
  - d. Casing lengths and size.
  - e. Type of pipe.
  - f. Restraint type.
  
- D. Gravity Sewer Line: The following items must be clearly shown on the surveyed as-built record drawings (vertical measurements may be based upon the Authority's information of the existing infrastructure):
  1. Surveyed:
    - a. Manholes:
      - i. Ground elevation.
      - ii. Rim elevation.
      - iii. Invert in and out elevations.
      - iv. Cleanouts.
      - v. Trace Wire Boxes
      - vi. Omni Markers
  2. From Contractor/Inspector Mark-ups:
    - a. Profile changes.
    - b. Connections lines to cleanouts.
    - c. Casing lengths and size.
    - d. Type of pipe.
  
- E. Force Main Sewer Line: The following items must be clearly shown on the surveyed as-built record drawings:
  1. Surveyed:
    - a. Force main (based on locator marks).
    - b. Edge of pavement or curbing, where applicable.
    - c. Air release/flushing valves.
    - d. Low pressure system lateral valves.
    - e. Flushing stations.
    - f. Sewer pump stations (where installed).
    - g. Gate/Plug Valves
    - h. Trace Wire Boxes
    - i. Omni Markers
  2. From Contractor/Inspector Mark-ups:
    - a. Profile changes.
    - b. Horizontal and vertical bends.
    - c. Service line locations (if not surveyed).
    - d. Casing lengths and size.
    - e. Type of pipe.

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### Section 4. REVISIONS

- A. This policy was approved and adopted by the Authority's Executive Director on April 23, 2013, effective July 1, 2013.
- B. This policy was modified as follows:
  - 1. Approved October 4, 2022; effective October 4, 2022:
    - a. Section 2: Replaced 'Inspector' with 'Field Representative'.
    - b. Section 3.A: Information needed for digital files was clarified.
    - c. Section 3: Trace Wire Boxes and Omni Markers were added to a list of items that must be clearly shown on the surveyed as-built record drawings for water, gravity sewer, and force main sewer lines.
    - d. Section 3.E.1: Gate/Plug Valves were added to the items required on the surveyed as-built record drawings for force main sewer lines.