

## Technical Specification 010

### AS-BUILT (RECORD) DRAWINGS

#### 1.0 General

- a) It is the intent of this specification to provide information to the Engineer and utility contractor concerning requirements for acceptable record drawings for all projects with infrastructure permitted in the County's name.
- b) This includes developer installed infrastructure that will be legally dedicated to the County for ownership, operation, and maintenance.
- c) Record drawings are an important component of a project and are a requirement of the Substantial Completion process, the Final Acceptance (Deed of Dedication) process, County Capital Improvement Program (CIP) projects, and are used to update the County GIS mapping so an up-to-date and accurate water and sewer system map is maintained per regulatory requirements and is available for use by County staff.

#### 2.0 Record Drawings

- a) The utility contractor is responsible for employing an Engineer and / or Land Surveyor licensed in the State of North Carolina to provide accurate record drawings to the County upon completion of construction. The record drawings must be sealed, signed, and dated by the Engineer or Land Surveyor.
- b) The record drawings shall be provided to the County as: One set of paper drawings and a CD or USB drive containing both AutoCAD (Version 2007 or later) and Adobe-PDF format files. The PDF files must be of **each individual plan sheet of the record drawings**.
- c) Record drawings shall conform to the as-built checklist and will accurately identify the location of all properties, rights-of-way, and easements utilized for the installation of all installed facilities. Record drawings will utilize offsets and benchmarks as necessary to correctly and accurately identify the location of all facilities within the properties, rights-of-way, or easements, and will also indicate any and all encroachments which exist. All aboveground structures such as manholes, fire hydrants, valve boxes, meter boxes, electrical services, pump stations, air release valves, etc., will also be clearly identified.
- d) Horizontal control shall be per the State Plane Coordinate System (NAD 83).
- e) Vertical control shall be per NAVD 88.

**AS-BUILT (RECORD) DRAWING CHECK LIST**

Plan sheet size: 24" x 36" (Arch D) with Engineer's seal and / or Surveyor's seal as applicable

Each sheet of the record drawings, including the cover sheet, shall have the NCDEQ PWSS water permit number and / or the NCDEQ DWQ sewer permit number for the project on the sheet

Drawings shall be prepared at a scale of 1" = 50' (horizontal) and 1" = 5' (vertical)

Indexed cover sheet with : Location of plan-profile sheets by sheet number, name of project and/or subdivision, owner's name, address, phone number, engineer's name, address, phone number, surveyor's name, address, phone number, date, north arrow, scale, site map of project site shown as an inset (minimum size 3" x 3")

Total linear feet of mains shown on cover sheet as:

Water Mains \_\_\_\_\_ Force mains \_\_\_\_\_ Gravity sewer mains \_\_\_\_\_

Gravity sewer: Shown in both plan and profile view with all manhole inverts accurately field located and labeled in profile view and a manhole name and/or number assigned to each manhole.

Manhole rim and invert elevations shall be accurately located and shown

If applicable clearly indicate and label all five (5) foot diameter manholes

All mains and manholes shall have stationing numbers for ease of reference

Plans shall show individual services for gravity sewer cleanouts, water meter boxes, and low pressure sewer services and shall be accurately located and shown on the plans as follows:

- Gravity sewer cleanout – open circle
- Water meter service – open box
- Low pressure sewer – open oval

Clearly indicate all gravity sewer service laterals and indicate their size (4 inch or 6 inch)

Gravity sewer cleanouts shall be located by measuring from the nearest downstream manhole along the sewer main upstream to a point which lies on a line that is perpendicular to the sewer main and connects said point and the cleanout – for example, 150 / 15R (150' from downstream manhole and 15' over to the right side of main)

Water taps and meters larger than the standard (1) inch lateral with (3/4) inch meter shall be clearly identified with the size of the service lateral and water meter

Drawings shall indicate water and sewer phases and their relationship to other subdivision phases (if applicable)

Use complete and accurate material descriptions, for example, pipe material (PVC, DIP, HDPE, Fusible PVC, etc.), pipe diameter, DR # of pipe, pressure class of any DIP, length, slope (for gravity sewer), AWWA and / or NSF

Show station or distance to beginning and end of all changes in pipe material and pipe deflections

Show all existing and required vertical and horizontal separations between sewer mains and water mains and also between water mains / sewer mains and stormwater pipes

Show existing grade elevations and proposed finish grade elevations

Show all water supply wells within a one-hundred (100) foot radius of any gravity sewer main or pressure force main

If any vented manholes were used [eg, rims less than (2) feet above 100 year flood elevation] then show the vented manhole and vent and also indicate a watertight ring and cover

Show location of air release valves, gate valves, plug valves, butterfly valves, fire hydrants, etc., along all water mains and sewer force mains

Show lot numbers, lot lines, easement lines, right-of-way lines, and street names

For horizontal directional drills and jack-and-bores the drilling logs are to be incorporated with the record drawings