

## Section 5.0 Digital Document Submittal Requirements

### **Digital Document Submittal:**

All digital document files shall be submitted on any acceptable media to MPW, such as CD, DVD, USB Flash Drive, or on MPW Sharepoint site, if approved for connection. Any physical media submitted, such as a CD, will not be returned. Do not submit by E-mail.

### **5.1 Documents for MPW Review**

**5.1.1 Construction Documents** (Civil or Site Plans, Letters of Intent, Calculations, Cost Estimates, Plumbing Plans, Letters, or other documentation):

1. Submit one .PDF file for each document.

### **5.2 Documents for Project Closeout**

**5.2.1 For Closeout Review:**

1. Submit one .PDF file of As-Built drawing for water and wastewater.
2. Submit one .PDF file of any plats (Preliminary Subdivision Plat, Easement Plat) as applicable.

**5.2.2 For Final Submittal.** Once final As-Builts have been approved by MPW, submit:

**5.2.2.1 For As-Built Drawings:**

1. One digital .PDF file (not scanned) of As-Built Drawings.
2. One .PDF file of As-Built drawings signed by surveyor and engineer of. File can either be scanned or digital file with electronic signatures.
3. One AutoCAD .DWG file oriented in State Plane Coordinates.

**5.2.2.2 For Plats (as applicable to project):**

4. One digital .PDF file (not scanned).
5. One AutoCAD .DWG oriented in State Plane Coordinates.

### **5.3 File Requirements:**

**5.3.1 Adobe .PDF Requirements:**

1. File must be created digitally from software of origin, such as AutoCAD or Microsoft Word.
2. Clearly indicate the type of drawing being submitted, such as Construction Drawing, As-Built Drawing or Plat.
3. File must be multi-page document, not multiple single-page files.
4. Document must be print ready, to scale, to Arch D size (36" x 24"), with all drawing information within proper borders.
5. Ensure that all drawings are in a ready to read orientation. Generally, 36 x 24 sheets will be in landscape orientation.

### 5.3.2 AutoCAD .DWG Requirements:

1. In drawing Model space, all drawing features shall be drawn to full scale (1:1) in real world coordinates, with true north orientation. Features shall be spatially referenced to the MPW's GIS projected coordinate system: North American Datum 1983 (NAD83), South Carolina State Plane, FIPS 3900; Units: International Feet.
2. Provide Paper space layouts for Water, Sewer and Pump Station drawings as applicable to the project. A separate drawing page is required for each. The layouts shall be set up for monochrome plotting to scale to Arch D size paper (36" x 24") in landscape orientation. Suitable borders, title block, sheet numbers, revision block, scale bar, north arrow, legend, vicinity map and all other pertinent information should be included.
3. All accompanying files shall be submitted including all DWG, XML, SHX, TIFF, BITMAP, JPEG, CTB (Plot Style Table), all External Reference Files, Font Files, Texture Files, Files from Data Links, Photometric Web Files and any other files which are included in the CAD Drawing. Use AutoCAD "etransmit" or other method to ensure all files are provided.
4. AutoCAD Layers: All water and wastewater features shall be grouped together into layers. Layer names shall be intuitive and descriptive of the objects on that layer. Separate layers will be required for
  - o Water mains
  - o Water Valves
  - o Fire Hydrants
  - o Water Services
  - o Water Meters
  - o Water Fittings
  - o Gravity Wastewater Lines
  - o Wastewater Manholes
  - o Wastewater Force Mains
  - o Lift Stations
  - o Wastewater Valves
  - o Wastewater Services
  - o Wastewater Fittings
  - o Private Water Lines
  - o Private Wastewater Lines
5. Show size and type of material of all lines and mains near the features on the drawing.
6. Show Wastewater Manhole elevations, station numbers, and ID # near each manhole feature.
7. Clearly show and indicate what features are newly installed or existing.
8. Data or Notes to be shown on Drawings:
  - o Project Name
  - o Drawing Date
  - o Name and Address of:
    - Owner or Developer
    - Utility Contractor
    - Surveyor
  - o MPW Project Number in Title Block.
  - o DHEC Permit Number(s).
  - o Horizontal and Vertical Datum used in the survey.
  - o Date of Completion of Water and Wastewater construction.
  - o Coordinate Table of water and wastewater features
    - Include Northing, Easting, Station Number and Description
  - o Summary Table of Water and Wastewater Features installed for project.
    - Include Quantities, Sizes and Materials.
  - o Manhole and Gravity Line Table
    - Include Rim and Invert Elevations (accurate to within +/- one hundredth of a foot), and Slope of Lines.

9. Show station numbers at all valves, manholes, fire hydrants, blowoffs, water services, wastewater services, air release valves, bends, tees, reducers and all other fittings.
10. Show private services, including sizes and materials, all the way to the building connection.
11. All CAD lines shall be snapped to end features. Lines shall be continuous starting at one feature and ending at another feature. Water and force main lines will start and stop at fittings but be continuous through pipe deflections, lateral and service connections. Gravity lines will start and stop at manholes but be continuous through laterals.
12. Show all corresponding Street Addresses, Unit Numbers, Tax Map Numbers, Block Designations and Lot Numbers for each parcel shown on the drawings, including Wastewater Pump Stations.
13. Each non-line feature shall be represented by an AutoCAD block whose insertion point is located at the center point of the structure's As-Built location.
14. All polygons must close without overlaps. All lines must be snapped at their endpoints and free of gaps or dangles. Annotation text that breaks the continuity of lines should be shifted out of the way of the line.
15. Show all street centerlines with street names, rights-of way lines with width indicated, property lines, building footprints, curbing, edge of pavement, drainage structures, easements, and other pertinent site features.
16. Show all MPW easements, property being deeded to MPW and access roads to wells and pump stations.
17. Water lines and force mains located within public rights-of-way shall be referenced to the center of roadway or back of curb. Elevation must be provided at any change in slope and/or 500-foot minimum thereafter. These measurements shall be accurate to within +/- one foot and provided every 50-linear feet on straight sections and 25-linear feet on curves and sufficiently dimensioned to provide location of such mains. The surveyor shall verify their drawings by utilizing the tracing wire and As-Built drawings.
18. All roads shall have the center line shown with station numbers beginning at 0+00 at the phase or project boundaries.
19. For Wastewater Pump Stations Only: On a separate drawing sheet, provide:
  - Detailed plan view of the pump station site including the locations and layout of all mechanical, electrical, and instrumentation equipment; piping and conduits; structures; and other facilities.
  - Profile view of the wet well and above ground piping showing pumps, piping, instrumentation, alarms and all other equipment, including pipe materials, sizes and wet well coatings. Show the elevations of wet well top, wet well bottom, influent pipe(s), pumps off, lead pump on, lag pump on, and high water alarm.
  - Completed pump station data sheet.

<b>PUMP STATION DATA:</b>	
1.	ADDRESS _____
2.	POWER COMPANY SERVED BY _____
3.	POWER COMPANY METER NO. _____
4.	POWER COMPANY POLE/PAD NO. _____
5.	DESIGN CAPACITY _____ GPM
6.	WET WELL VOLUME _____ GALLONS _____ FT. DIA.
7.	CONTROL ELEVATIONS:
	a. TOP EL. _____
	b. INFLUENT EL. _____
	c. BOTTOM EL. _____
	d. PUMP OFF _____
	e. LEAD PUMP ON _____
	f. LAG PUMP ON _____
	g. HIGH WATER ALARM _____
8.	STATIC HEAD _____ FT.
9.	PUMP MODEL _____
10.	PUMP SERIAL NOS. _____
11.	PUMP DESIGN POINT _____ GPM @ _____ TDH
12.	PUMP H.P. _____ PHASE _____
13.	PUMP IMP. NO/DIA. _____
14.	PUMP VOLTS _____ AMPS _____
15.	PUMP SHUT-OFF HEAD _____ FT.
16.	PUMP SPEED _____ RPM

20. The following statement shall appear on all As-Builts and shall be signed by electronically or on scanned paper copy by the engineer and show his registration number:

*"It is my opinion that the water and/or wastewater utilities serving this project were constructed substantially in accordance with the plans and specifications approved by the Commissioners of Public Works of the Town of Mount Pleasant, South Carolina. It is further my opinion that the contractor used acceptable construction practices. Any deviations between the system As-Builts and the plans and specifications will not impact the operability, capacity, or capability of the system."*

Engineer's Name and Registration Number.

21. The following statement shall appear on all As-Builts and shall be signed by electronically or on scanned paper copy by the surveyor and show his registration number:

*"The dimensions shown on the As-Built Drawings were obtained using good surveying procedures. The horizontal dimensions shown are within the  $\pm$  one foot tolerance. Vertical dimensions on gravity wastewater pipe are accurate to within  $\pm$  one hundredth of a foot."*

Surveyor's Name and Registration Number.

Easement Plats (AutoCAD):

1. In drawing Model space, all drawing features shall be drawn to full scale (1:1) in real world coordinates, with true north orientation. Features shall be spatially referenced to the MPW's GIS projected coordinate system: North American Datum 1983 (NAD83), South Carolina State Plane, FIPS 3900; Units: International Feet.
2. Provide Paper space layout for the easement plat drawings. The layout shall be set up for monochrome plotting to scale to Arch D size paper (36" x 24"), in landscape orientation, or other size as approved by MPW. Suitable borders, title block, revision block, scale bar, north arrow, legend and all other pertinent information should be included.
3. All polygons must close without overlaps. All lines must be snapped at their endpoints and free of gaps or dangles. Annotation text that breaks the continuity of lines should be shifted out of the way of the line.
4. All CAD lines shall be snapped to end features. Lines shall be continuous starting at one feature and ending at another feature.
5. Easements to be dedicated to MPW must be exclusive per MPW's standard Grant of Perpetual Easement document. Water and/or wastewater easements must be clearly identified as an MPW easement, and must state width and type of easement (i.e.: 7.5' MPW Water Easement). The plat shall be titled MPW Water or Wastewater Easement Plat (whichever is applicable). Platting information required for easements or real property to be dedicated to MPW shall be as follows:
  - a. All platting information shall conform to the Town Subdivision Regulations or Charleston County requirements, whichever is applicable;
  - b. Names and widths of all streets within or on the perimeter of the subdivision, with accurate dimensions in feet (hundredths) and showing angles to streets, alleys, and lot lines;
  - c. Distance and bearing of all easement lines.

d. Provide the following signature block on the easement plat:

APPROVED PLAT
_____
MPW Engineer
Date: _____
Commissioners of Public Works of the Town of Mount Pleasant, South Carolina.
APPROVAL ONLY FOR WATER AND WASTEWATER UTILITIES EASEMENT ACQUISITIONS

<End Section>