

**Digital Submission Standards Policy**  
Geographic Information Services  
Forsyth County, GA

# Table of Contents

Table of Contents .....	2
1 Legislative Entitlement and Digital Maps .....	3
<b>1.1 INTRODUCTION .....</b>	<b>3</b>
<b>1.2 PURPOSE .....</b>	<b>3</b>
2 Submission Requirements.....	4
<b>2.1 FORMAT REQUIREMENTS.....</b>	<b>4</b>
<b>2.2 SUBMISSION REQUIREMENT.....</b>	<b>4</b>
<b>2.3 DATALAYER REQUIREMENTS .....</b>	<b>5</b>
<b>2.4 DIGITAL FILE SUBMISSION PROCEDURE .....</b>	<b>6</b>
<b>2.5 FILE NAMING CONVENTION .....</b>	<b>6</b>
<b>2.6 MEDIA REQUIREMENTS.....</b>	<b>6</b>
<b>2.7 DATA INTEGRITY REQUIREMENTS .....</b>	<b>7</b>
<b>2.8 VERTICAL AND HORIZONTAL CONTROL .....</b>	<b>7</b>
<b>2.9 REVIEW OF DIGITAL DATA .....</b>	<b>7</b>
<b>Appendix A Graphic File (.dxf) Layout Specifications .....</b>	<b>9</b>
<b>Appendix B Digital Submission Figures .....</b>	<b>12</b>
<b>Appendix C Required Tables .....</b>	<b>14</b>
<b>Appendix D Metadata File.....</b>	<b>15</b>

# **1 Legislative Entitlement and Digital Maps**

## **1.1 INTRODUCTION**

Forsyth County requires CAD drawings for final plats and as-built to be submitted in a specific digital format as well as a metadata file describing the CAD drawings. (This includes revisions of approved plans.) In addition Forsyth County GIS requires tabular information describing Stormwater and Sewer features specified in this document. These should accompany a .PDF of the project. These requirements are in addition to the existing hardcopy submission requirements.

The intent of this document is to standardize layer names by transferring the layers from the original CAD drawing to the template layers provided by Forsyth County GIS. This method allows CAD users to maintain their own templates while conforming to Forsyth County GIS naming standards using the template. This naming standard does not apply to sketch plats, and rezone maps at this time. To assist with quality assurance some fundamentals of structure are required such as layer designation and digitizing methodology specified in this document.

The reason for this policy is to allow Forsyth County's geographic information system (GIS) to be as current and accurate as possible. This accuracy is needed for the Forsyth County emergency services, and day to day workflows utilized by all departments within the Forsyth County Government. Providing the required CAD information in a digital template will allow faster and more accurate updates to all outlined GIS layers in this document. A disclaimer of liability will be placed on all digital files and file copies.

**The recorded hardcopy will continue to be the official document.**

## **1.2 PURPOSE**

The purpose of this document is to outline the minimum content and format required of final plats, as-built submitted in digital format, before being considered "officially filed." The listed requirements within this document are an overview of the required information in **(Appendix A)**. Forsyth County GIS Department also requests copies of the original sketch plats, and rezone maps in digital format when available.

## 2 Submission Requirements

### 2.1 FORMAT REQUIREMENTS

The digital format required for final plats, as-builts, and revisions of each is one of the following: dxf, .dwg file format.

### 2.2 SUBMISSION REQUIREMENTS

**2.2.1** A complete original digital CAD drawing of the submitted paper document for final plats as well as as-builts in .PDF format. A .PDF version of the paper plat/as-built will be required in order to pass submission.

**2.2.1.1** File name for the .PDF should correspond exactly to the subdivision or project name and should be consistent from one version to the next. The file name should contain the drawing revision date (in YYYYMMDD format) as part of the name. There should be no spaces in the name, only underscores. An example file name for the April 8, 2017 submission for the phase 3D of the Fieldstone Enclave is: "170408\_Fieldstone\_Enclave\_3D".

**2.2.2** Digital CAD drawing of the submitted paper document for final plats (FP) and as-builts (AS). The completed CAD file must be in model space, not in paper space. The submission will contain the required layers for Forsyth County as listed in **Appendix A**. Note: the Forsyth County digital data submission Template does not necessarily duplicate the look or all the information in the paper document submission.

**2.2.2.1** If the submission is revised after approval and contains any change to the geometry of the layer(s), then the new digital submission should be resubmitted with all revised information. This includes attribute information such as a lot number changing or a pipe diameter changing.

**2.2.2.2** All drawing elements will be submitted referencing Georgia West State Plane Coordinates, and utilize the North American Datum of 1983 (NAD83) for horizontal control and be measured in US Survey Feet. Vertical control will reference the North American Vertical Datum of 1988 (NAVD88).

**2.2.3** All digital data will require an accompanying text (metadata) file. This file will be in ACSII (.txt extension) or .DOCX format with the name METADATA.TXT or METADATA.DOCX. This document provides the county with information critical to review your project. The top portion is information about the overall project and contact information. Note, if the submission is a revision a detailed description of all items revised should be included on the appropriate line. The bottom portion of the metadata

lists all layers that Forsyth County requires. Not all projects will contain every layer listed. Submitter should indicate which layers are being submitted. This can be done with a simple “X” or “Yes” next to the layer name. Refer to **Appendix D** to see the complete contents of the metadata file. Template versions of these documents are available on the GIS Departmental web page.

**2.2.4** Tables for Sewer and Stormwater information will be submitted in spreadsheet (.xlsx) or text (.CSV) format (spreadsheet is preferred). It will include all information indicated in **Appendix C**. Numbers will not include commas. Example: One thousand should be 1000, not 1,000. **Name of Spreadsheets MUST BE:** SewerLine.xlsx, and StormLine.xlsx; or SewerLine.csv, and StormLine.csv. Template versions of these documents are available on the GIS Departmental web page.

**2.2.5** For Final Plats, Forsyth County requires survey monument locations to be visible and referenced on CAD drawings. Forsyth County GIS assigned monument identifier numbers will be referenced on CAD drawings. All monuments on submitted plans should be included in the **Ground Control Point** layer (HORIZONTAL\_AND\_VERTICAL\_CONTROL\_POINT) as detailed in **Appendix A**. (For more information on Survey Monument Requirements please see the Forsyth County GIS “Survey Monumentation Standards Policy” located on our web page.)

**2.2.6** For Final Plats, Forsyth County requires survey monument documentation. A blank form and an Example Form are available on the GIS Departmental web page. (StationLocationSketchandVisibilityDiagram.pdf). This form must be completed and submitted with the digital data submission.

## **2.3 DATALAYER REQUIREMENTS**

**Appendix A** outlines what will be considered valid layer names and data objects for final plats and as-builts. A template will be provided upon request or can be downloaded on the GIS Departmental web page.

**2.3.1** The following feature types are acceptable: Lines, Polylines, Text, Insert/Blocks. The Leaders as feature types must not be used. Where there is a need for Leaders they shall be drawn using *Line* features and must be put on a text layer. For example, the leader for the diameter of a water pipe should be on the WATER\_LINE\_TEXT layer, not the WATER\_LINE layer.

**2.3.2** All layers must be named exactly as specified in **Appendix A** and should include **only** features appropriate to that layer.

**2.3.3** All layers must be created according to the geometry type and CAD feature type as specified in **Appendix A**. The Geometric Feature type defines how the data will be represented in the “real world” model (e.g. parcels look like polygons, fire hydrants look like points). The CAD feature type defines how the data will be represented digitally

(e.g. a PROPERTY\_LINE is a line/polyline and a FIRE\_HYDRANT is a BLOCKINSERT).

## **2.4 DIGITAL FILE SUBMISSION PROCEDURE**

**2.4.1** The digital file for plan amendments, final plats and as-builts should be submitted to the GIS department. Digital Data may also be emailed before or on the day of paper submission.

Forsyth County GIS Department  
110 E Main Street, Suite 130  
Cumming, GA, 30040

Ph: 770-781-2108  
Fax: 678-513-5890

Email: [gissupport@forsythco.com](mailto:gissupport@forsythco.com)

**Questions about Digital Data Submission Standards should be referred to same contact information.**

## **2.5 FILE NAMING CONVENTION**

File names for the CAD file and .PDF file should correspond exactly to the subdivision or project name and should be consistent from one version to the next. The file name should contain the drawing revision date (in YYMMDD format) as part of the name. There should be no spaces in the name, only underscores. An example file name for the April 8, 2017 submission for the phase 3D of the Fieldstone Enclave is: "170408\_Fieldstone\_Enclave\_3D".

## **2.6 MEDIA REQUIREMENTS**

**2.6.1** Preferred method of data submission is through email if the file size is under 10 mbps. If file is over 10 mbps, standard transfer media to be accepted will be DVD or CD-ROM. The submitted media will be labeled with the title of the project, type of drawing, project contact information, and a submittal date.

**NOTE:** No additional information will exist in the submission or on the media aside from data being specifically transmitted to Geographic Information Services. Submitted Media will not be returned.

## 2.7 DATA INTEGRITY REQUIREMENTS

2.7.1 All line features should be digitized as continuous solid lines with the following exceptions:

- Water lines should be split and snapped at all system valves, control valves, and fittings.
- Sanitary sewer lines are straight two point lines that are split and snapped at Manholes. **Appendix B Figure 3**
- Stormwater pipes are straight two point lines that are split and snapped at catch basins, junction boxes/manholes, and headwalls.
- Road lines should be split and snapped at all intersections. They should not be split anywhere except intersections.

2.7.2 All point features (e.g. manholes) will be inserted as blocks. The pick point will be the center of the block and should be snapped to the associated line features.

2.7.3 Line/Polyline features that are modeling polygons (e.g. parcel boundaries) will be snapped closed at nodes or endpoints **Appendix B Figures 1 & 2**. Lines/Polylines may need to be duplicated on more than one layer.

2.7.4 Lot numbers (LOTNUMBER\_TEXT) and proposed address numbers (ADDRESS\_TEXT) text will be labeled inside of associated parcel. These text layers will include numbers only. No special character should be used (e.g. "#").

2.7.5 When displaying coordinates, the whole number for the coordinate will be shown (i.e. no constants will be applied).

2.7.6 When drawing point features such as Water Meters or Valves, Block Insert Geometry will be derived from either points or polygon center point of block. Do not have both or the feature (e.g. water meter) will be duplicated.

2.7.7 If you are submitting a project in phases, data between phases should match. For example, road centerlines, parcel boundaries, waterlines, etc, should match/connect.

## 2.8 VERTICAL AND HORIZONTAL CONTROL

2.8.1 All features in an as-built should be surveyed after construction. Refer to surveyed column in **Appendix A** that details features which should be surveyed.

## 2.9 REVIEW OF DIGITAL DATA

2.9.1 All digital data will be reviewed for the following criteria:

1. Correct and complete layering.
2. No duplicate linear or point elements.
3. Closure of the geometry of all logical areas.
4. Verification that digital and hardcopy maps are consistent.
5. Correct geographical position (i.e. correct coordinate values for final submissions).
6. Accompanying documentation. Have all required accompanying documents, e.g. sewer and storm water tables, metadata file, .PDF of paper plan, survey monumetation, etc. been included.

**2.9.2** The submitting party will be responsible for correcting any errors and delivering the new correct digital file prior to final plat approval.

## Appendix A. Graphic File (.dxf) Layout Specifications

Layer Number	Layer Name	Geometry Type	Feature Type	Layer Description	Surveyed
<b>TAX</b>					
1	STRUCTURE	Polygon	Line/Polyline	Building/structure outline or footprint for commercial structures	Yes
2	STRUCTURE_TXT		Text	Building/Suite #'s for condos, apartments and commercial structures	No
3	STRUCTURE_CONDO	Polygon	Line/Polyline	Building/structure outline or footprint for Condos/Apartments	Yes
4	PROPERTY_LINE	Polygon	Line/Polyline	Parcels/ROW/common areas, including (street islands/community entrances, amenities, open spaces)	Yes
5	LOT_AREA		Text	Lot Area in US acres	Yes
6	LOTNUMBER_TEXT		Text	Lot Numbers	No
<b>GIS</b>					
7	HORIZONTAL_AND_VERTICAL_CONTROL_POINT	Point	Block Insert	Ground Control Points (existing, surveyed, or GPS)	Yes
8	HORIZONTAL_AND_VERTICAL_CONTROL_POINT_TEXT		Text	Text describing Ground Control Points	No
<b>Planning</b>					
9	UTILITY_EASEMENT	Line	Line/Polyline	Easement (Utilities, transportation, storm drainage/detention, etc.)	Yes
10	UTILITY_EASEMENT_TEXT		Text	Type of easement (utility, transportation, storm, etc.)	No
11	ADDRESS_TEXT		Text	Address number	No
12	PROJECT_BOUNDARY	Polygon	Line/Polyline	Boundary for phase/pod/unit of the project	No

13	SUBDIVISION_BOUNDARY	Polygon	Line/Polyline	Boundary for Subdivision	Yes
<b>Engineering</b>					
14	ROAD_CENTERLINE	Line	Line/Polyline	Street/road centerlines (paved and unpaved)	Yes
15	ROAD_TEXT		Text	Street/road name	No
16	STORM_LINE	Line	Line	Storm water pipe, ditch, etc.	Yes
17	STORM_CULVERT	Line	Line	Storm culvert	Yes
18	STORM_CATCHBASIN	Point	Block Insert	Storm drain structure (catch basin, drop inlet, pedestal inlet, weir inlet, yard inlet, junction box, etc.)	Yes
19	STORM_OCS	Point	Block Insert	Weir wall, Weir box, Stand Pipe	Yes
20	STORM_HEADWALL	Point	Block Insert	Stormwater Headwall	Yes
21	STORM_TEXT		Text	ASSET ID (Unique ID) text for STORM_CATCHBASIN, STORM_OCS, STORM_HEADWALL, and STORM_LINE	No
22	STORM_POND	Polygon	Line/Polyline	Stormwater Detention/Retention Pond	Yes
23	SEWER_FORCE_MAIN	Line	Line	Sanitary sewer pipe – Force Main	Yes
24	SEWER_LINE	Line	Line	Sanitary sewer pipe – Gravity Main	Yes
25	SEWER_LATERAL_LINE	Line	Line	Sanitary sewer Lateral line	Yes
26	SEWER_CLEANOUT	Point	Block Insert	Sanitary sewer cleanout	Yes
27	SEWER_GREASE_TRAP	Point	Block Insert	Grease Traps	Yes
28	SEWER_MANHOLE	Point	Block Insert	Sanitary sewer manholes	Yes
29	SEWER_VALVE	Point	Block Insert	Sewer system and control valves	Yes

30	SEWER_PUMP_STATION	Point	Block Insert	Sewer system pump stations	Yes
31	SEWER_TEXT		Text	ASSET ID (Unique ID) text for sanitary sewer gravity mains, manholes and other sewer features	No
32	ROAD_SIGN	Point	Block Insert	Traffic Signs	No
33	ROAD_SIGN_TEXT		Text	Text Describing Traffic Signs	No
34	WATER_LINE	Line	Line/Polyline	Water lines	No
35	WATER_SERVICE	Line	Line/Polyline	Water service lines	No
36	WATER_VALVE	Point	Block Insert	Water system valves– includes gate, butterfly, and ball. Water control valves – altitude, air gap, air release, double check, pressure reducing RPZ, single check, blow-off, inflow	Yes
37	WATER_FITTING	Point	Block Insert	Water Fittings – bend, cap, coupling, cross, expansion joint, reducer, tap, tee, wye, deadman, tapping plug	No
38	WATER_METER	Point	Block Insert	Water Meter	Yes
39	WATER_TEXT		Text	Text describing water system features	No
40	FIRE_HYDRANT	Point	Block Insert	Fire hydrant	Yes

**Appendix B. Digital Submission Figures**

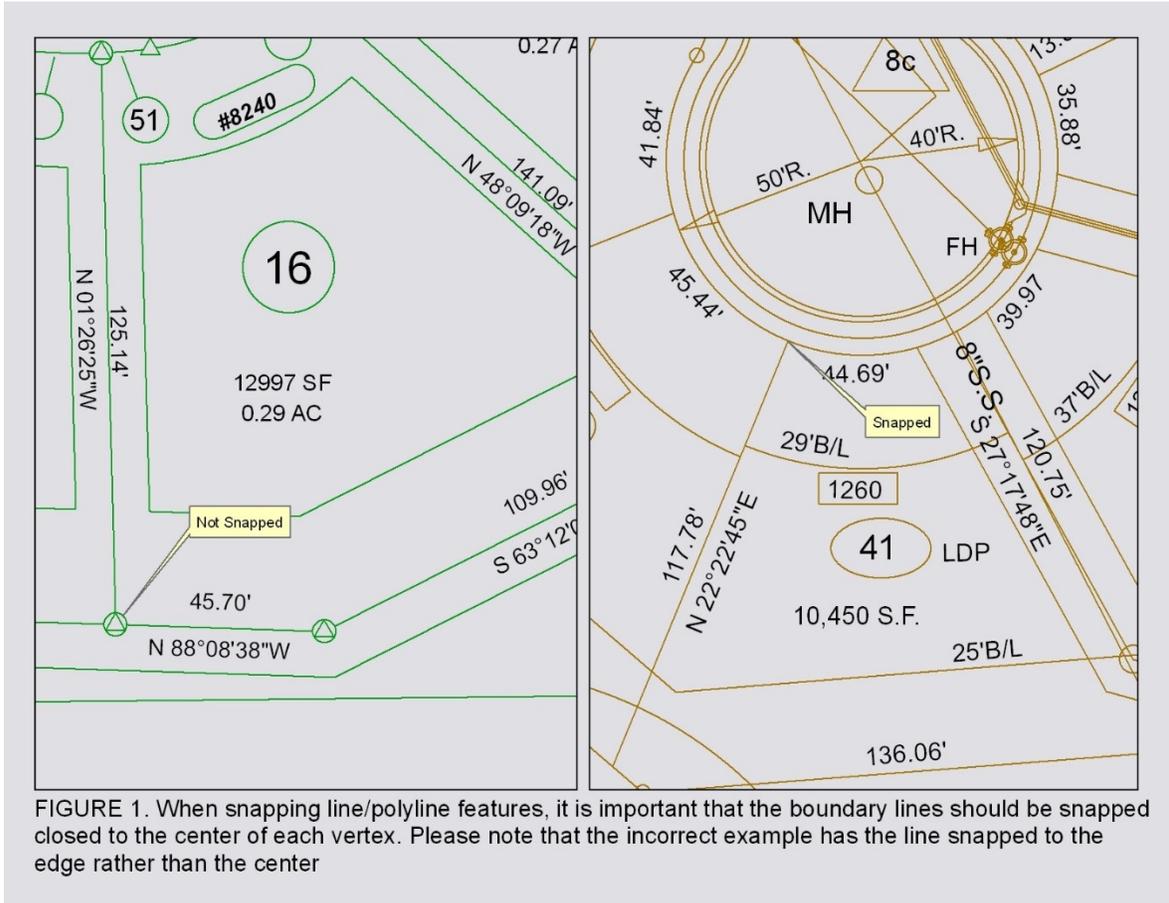


FIGURE 1. When snapping line/polyline features, it is important that the boundary lines should be snapped closed to the center of each vertex. Please note that the incorrect example has the line snapped to the edge rather than the center

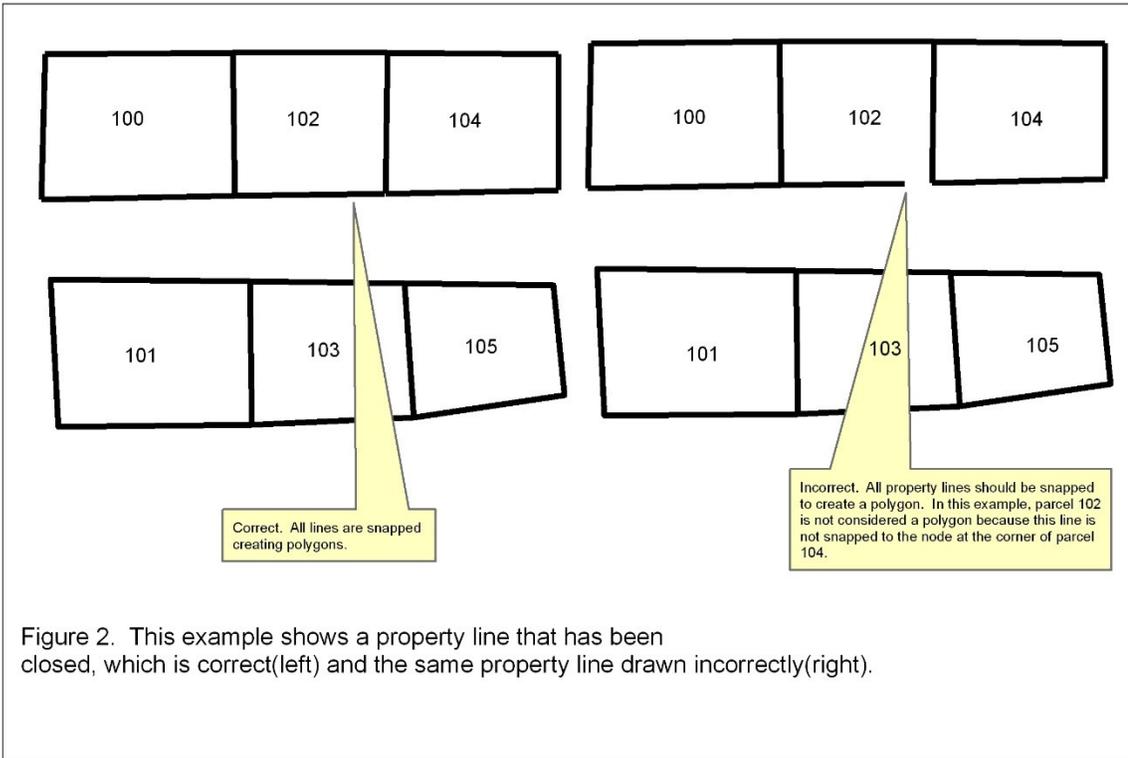


Figure 2. This example shows a property line that has been closed, which is correct(left) and the same property line drawn incorrectly(right).

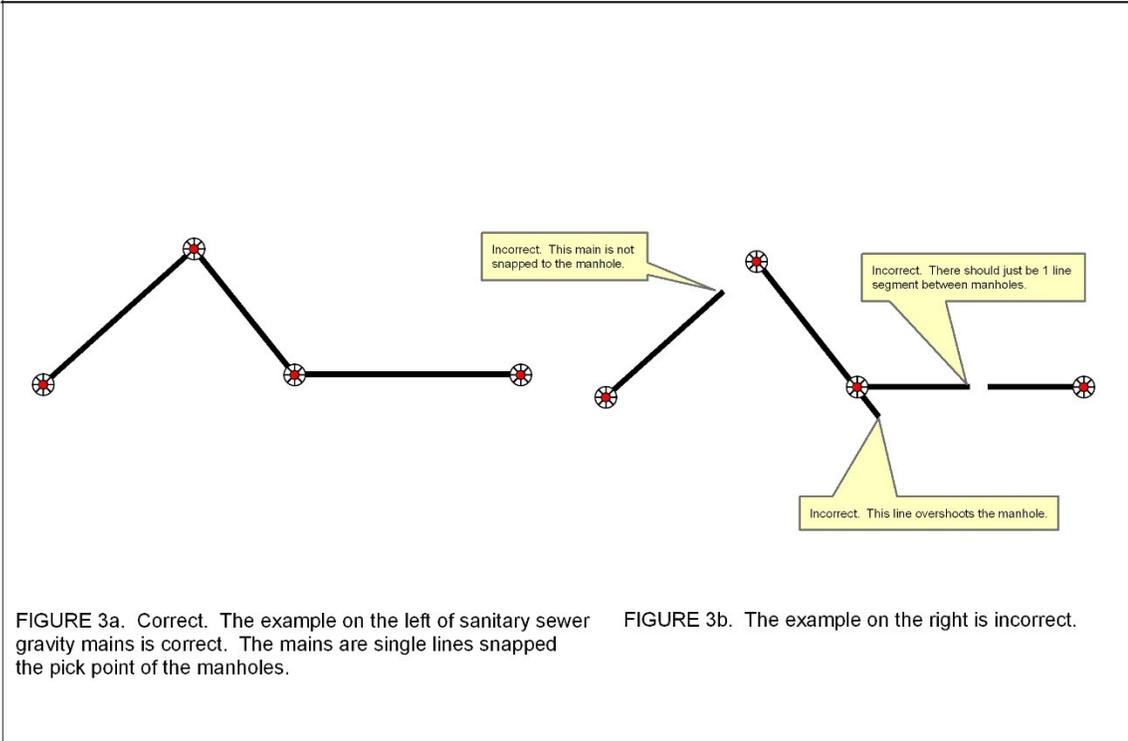


FIGURE 3a. Correct. The example on the left of sanitary sewer gravity mains is correct. The mains are single lines snapped the pick point of the manholes. FIGURE 3b. The example on the right is incorrect.

## Appendix C. Required Tables

*Example Table: Sewer Line*

<i>Pipe ID</i>	<i>Upstr ID</i>	<i>Upstr Rim Elev</i>	<i>Upstr Invert</i>	<i>Downstr ID</i>	<i>Downstr Rim Elev</i>	<i>Downstr Invert</i>	<i>Pipe Diameter</i>	<i>Slope %</i>	<i>Pipe Material</i>	<i>Pipe Length</i>
PIPE1	MH1	1020.65	1014	PUMP STATION	1015.35		12	2.64	CONCRETE	212.5
PIPE2	MH2	1027.38	1022	MH1	1020.65	1013.84	12	5.68	PVC	200.2
PIPE3	MH3	1033.84	1028	MH2	1027.38	1022.35	12	3.87	PVC	195.3

*Example Table: Storm Line*

<i>Pipe ID</i>	<i>Upstr ID</i>	<i>Upstr Rim Elev</i>	<i>Upstr 100 yr. Ponding Elevation</i>	<i>Upstr Invert</i>	<i>Downstr ID</i>	<i>Downstr Rim Elev</i>	<i>Downstr Invert</i>	<i>Pipe Diameter</i>	<i>Slope %</i>	<i>Pipe Material</i>	<i>Pipe Length</i>
PIPE1	SWCB2	1020.65	1020.14	1014.65	SWCB1	1015.35	1009.67	12	4.93	CMP	212.5
PIPE2	DI2	1027.38	1026.71	1022.41	CB1	1020.65	1013.84	12	1.57	CMP	200.2
PIPE6	HW2		1030.15	1028.98	HW1		1022.35	24	2.64	ACCMP	75

## Appendix D. Metadata File

METADATA.TXT or METADATA.DOCX

1. Project Name:
2. Project Number (e.g. 1302 FP1200035):
3. If revision - describe which items were revised:
4. File Name:
5. Submittal Date:
6. Parent PIN:
7. Number of Lots:
8. Survey Monument Name/Number:
9. Company name:
10. Contact name:
11. Phone number:
12. Surveyor/CAD document provider information if different than Company name:

\*\*\*\*\*

Note: as not all layers are used in all projects, please mark the layers included in your project and digital submission.

(Required layers should match those in the paper submission.)

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Digital Layers (Appendix A - Digital Data Submissions Document)

1. STRUCTURE
2. STRUCTURE\_TXT
3. STRUCTURE\_CONDO
4. PROPERTY\_LINE
5. LOT\_AREA
6. LOTNUMBER\_TEXT
7. HORIZONTAL\_AND\_VERTICAL\_CONTROL\_POINT
8. HORIZONTAL\_AND\_VERTICAL\_CONTROL\_POINT\_TEXT
9. UTILITY\_EASEMENT
10. UTILITY\_EASEMENT\_TEXT
11. ADDRESS\_TEXT
12. PROJECT\_BOUNDARY
13. SUBDIVISION\_BOUNDARY
14. ROAD\_CENTERLINE
15. ROAD\_TEXT
16. STORM\_LINE
17. STORM\_CULVERT
18. STORM\_CATCHBASIN
19. STORM\_OCS
20. STORM\_HEADWALL
21. STORM\_TEXT
22. STORM\_POND
23. SEWER\_FORCE\_MAIN
24. SEWER\_LINE
25. SEWER\_LATERAL\_LINE
26. SEWER\_CLEANOUT
27. SEWER\_GREASE\_TRAP

28. SEWER\_MANHOLE
29. SEWER\_VALVE
30. SEWER\_PUMP\_STATION
31. SEWER\_TEXT
32. ROAD\_SIGN
33. ROAD\_SIGN\_TEXT
34. WATER\_LINE
35. WATER\_SERVICE
36. WATER\_VALVE
37. WATER\_FITTING
38. WATER\_METER
39. WATER\_TEXT
40. FIRE\_HYDRANT

Important Note about 5. LOT\_AREA: values must be given in US acres