



# Fulton County As-Built CAD Standards

## Effective Date: JANUARY 01, 2010

### Version 0.2

Revised: 20Feb2009



As of 01 JANUARY 2010, all water and wastewater as-built plans submitted to the Fulton County Department of Public Works must be provided in electronic computer aided design (CAD) format. The following standards must be followed for all plans. Construction will not be approved until these standards are met.

Template (or seed) drawing file available at

<http://www.fultoncountyga.gov/fcwr-developer-information>

under Developer Information on the left side-bar.

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#### 1) General Requirements

- a) All as-built drawings must be georeferenced to the US State Plane coordinate system, NAD 83, GA West Zone, US Survey Feet. All drawings must contain two reference pins (i.e. property corners), which are labeled and tied to the Fulton County (FULCO) GPS monument network (please identify referenced GPS monuments with the monument number and coordinates). Reference pins must be able to be field verified using GPS and must be easily accessible (i.e., must not be in a creek). The survey method (GPS or conventional) used to place the reference pins should be identified in the HORIZONTAL\_AND\_VERTICAL\_TEXT layer. Information on the FULCO GPS survey monuments can be found using the FULCO Monument Locator map application web site at: <http://wms.co.fulton.ga.us/ms/gps/> or may be obtained in person at the Fulton County Government Center, Department of Public Works.
- b) All features depicted in the as-built drawings must be surveyed *after* construction. FULCO will spot check all coordinates to ensure accuracy. Table 1 specifies the features that must be surveyed. Water system features must be surveyed at a horizontal accuracy of  $\leq 0.3$  ft and vertical accuracy of  $\leq 0.5$  ft. Sewer system features

must be surveyed at a horizontal accuracy of  $\leq 0.5$  ft and a vertical accuracy of  $\leq 0.1$  ft.

- c) The following feature geometry types must be shot directly using the survey instrument and tied to the FULCO GPS monument network:
  - 1) All point features (hydrants, valves, sewer manholes, etc.),
  - 2) All line features at all endpoints, bends, and turns (pipes, etc.),
  - 3) All polygon features at all corners and bends (project boundaries, lots, right-of-ways, etc.)
- d) 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.
- e) A template (or seed) drawing file, file containing the required FULCO blocks and AutoCAD tool pilot will be provided through the Department of Public Works website <http://www.fultoncountyga.gov/fcwr-developer-information>
- f) The project boundary must be labeled on the PROJECT\_BOUNDARY\_TEXT layer, and the label must be within the extent of the project boundary.

## 2) Layers:

- a) Layer names for required layers must appear exactly as in Table 1.
- b) All required layers listed in FULCO CAD layers must contain only the features that are described for that layer. For example, the BOUNDARY\_LINE layer must only contain the boundary line and not such features as north arrows or parcels.
- c) All required layers must be present in the drawing except for features that do not pertain to a particular project. For example, some commercial projects or apartment complexes may not contain sewer taps as part of the construction and should not be included in the drawing.
- d) All layers must be clearly differentiated from each other.
  - 1) Two layers having the names "WATER\_LINE" and "WATER\_LINES" should not exist in the same drawing.
  - 2) SEWER\_LINE\_TEXT and SEWER\_TEXT should not exist in the same drawing.

- e) All text must appear on separate layers from the layers they annotate. For example, text describing a sewer line must be on the SEWERLINE\_TEXT layer, not the SEWER\_LINE layer.

### 3) Drawing

- a) All layers must conform to the proper geometry type (insert/block, line, polygon, text) as indicated in Table 1 below.

Table 1: Layer Names and Geometry Types			
Layer Name	Type	Layer Contents	Surveyed
ADDRESS_TEXT	Text	Street postal address number	No
BLOCK_LETTER_TEXT	Text	Indicates the block letter of a subdivision	No
CITY_BOUNDARY	Line	City boundary line	No
CITY_BOUNDARY_TEXT	Text	City names associated with the CITY_BOUNDARY	No
COUNTY_BOUNDARY	Line	County boundary lines	No
COUNTY_BOUNDARY_TEXT	Text	County Names for the COUNTY_BOUNDARY layer	No
CONTOUR	Line	Topological delineation information	
CONTOUR_TEXT	Text	Description info for contour layer	
CORNER_POINTS	Point	Establishing Reference points	
FIRE_HYDRANT	Insert	Fire Hydrants	Yes
FIRE_HYDRANT_TEXT	Text	Text Associated with FIRE_HYDRANT layer	No
FLOODPLAIN_100YR	Line	Existing floodplain delineation	
FLOODPLAIN_100YR_FUTURE	Line	Proposed floodplain delineation	
FLOODPLAIN_100YR_FUTURE_TEXT	Text	Text for proposed floodplain delineation	
FLOODPLAIN_100YR_TEXT	Text	Text for existing floodplain delineation	
FLOW_ARROW	Insert	Sewer line flow arrows	No
GABION_WALL	block	Any retaining type wall construction	
GREASE_TRAPS	block	Grease traps	
HORIZONTAL_AND_VERTICAL_CONTROL_POINT	Point	Survey control points (rebar or monuments) with x,y,z	Yes
HORIZONTAL_AND_VERTICAL_TEXT	Text	Corresponding text (coordinate values, monument number, survey method etc.).	No
LAND_LOT_LINE	Line	Layer Contents	
LAND_LOT_LINE_TEXT	Text	Land lot numbers and other text.	No
LOT_NUMBER_TEXT	Text	Individual lot numbers	No
PROJECT_BOUNDARY	Poly	The boundary line of the subdivision or property.	Yes
PROJECT_BOUNDARY_TEXT	Text	Project (Development) Name	No

PROPERTY_ID_TEXT	Text	Property Information	
PROPERTY_LINE	Poly	Property Lines (parcel lines)	Yes
PUMP_STATION	Point	Represents the centermost point of a pump station	Yes
PUMP_STATION_TEXT	Text	Text associated with PUMP_STATION	No
RAILROAD_LINE	Line	Railroad Lines	Yes
RAILROAD_TEXT	Text	Text Associated with RAILROAD	No
ROAD_EDGE_OF_PAVEMENT	Poly	Street Edge of Pavement (not back of curb); this layer should not include parking lots or curbing	Yes
ROAD_TEXT	Text	Road Names	No
ROAD_RIGHT-OF-WAY	Poly	Road Right-of-Way	Yes
ROAD_RIGHT-OF-WAY_TEXT	Text	Text relating to the road right of way layer	No
SEWER_END-OF-LINE	Insert	End of sewer line.	Yes
SEWER_END-OF-LINE_TEXT	Text	Text associated with SEWER_END-OF-LINE	No
SEWER_EXISTING	Line	Sewer lines present before the subdivision/project	Yes
SEWER_EXISTING_TEXT	Text	Text associated with the SEWER_EXISTING layer	No
SEWER_MANHOLE_EXISTING	Block	Existing Sewer Manholes	Yes
SEWER_MANHOLE_EXISTING_TEXT	Text	Text for the SEWER_MANHOLE EXISTING layer	No
SEWER_FORCE_MAIN	Line	Sewer force mains	Yes
SEWER_FORCE_MAIN_TEXT	Text	Text associated with SEWER_FORCE_MAIN	No
SEWER_LINE	Line	Sewer lines built as part of the subdivision/project.	Yes
SEWER_LINE_TEXT	Text	Text associated with the SEWER_LINE layer.	No
SEWER_MANHOLE	Block	Sewer Manholes	Yes
SEWER_MANHOLE_TEXT	Text	Text associated with the SEWER_MANHOLE layer	No
SEWER_SEPTIC_TANK	Line	Septic tank	
SEWER_TAP	Line	Sewer taps	Yes
SEWER_TAP_TEXT	Text	Distance between taps in feet	Yes
SEWER_TUNNEL	Line	Subsurface Sewer tunnel construction	
STORM_BMP	Poly	Engineered structures designed to improve management of Stormwater system (see section e-I)	
STORM_BMP_TEXT	Text	Label showing the BMP_ID ( see section e-II)	No
STORM_BMP_EXISTING	Poly	Engineered structures designed to improve management of Stormwater system (see section e-I)	No
STORM_BMP_EXISTING_TEXT	Text	Text associated with the STORM_BMP_EXISTING	No
STORM_CULVERT	Poly	A polygon representing the extent of pipe culvert or box culvert structure (see section e-III)	Yes
STORM_CULVERT_TEXT	Text	Label for the features ID (see section e-III)	No
STORM_CULVERT_EXISTING	Poly	A polygon representing the extent of a culvert structure (see section e-III), prior to construction	Yes
STORM_CULVERT_EXISTING_TEXT	Text	Label for the features (see section e-III)	No

STORM_CULVERT_CHART	n/a	Describes the required parameters (e-III)	n/a
STORM_DROPINLET	Block	Stormwater drop inlet. (see section e-IV)	Yes
STORM_DROPINLET_TEXT	Text	Text describing layer (i.e. Invert Elevation)	No
STORM_DROPINLET_EXISTING	Block	Stormwater drop inlet (see section e-IV) that existed prior to construction	Yes
STORM_DROPINLET_EXISTING_TEXT	Text	Text describing layer	No
STORM_FLUME	Line	The centerline drawn in flow direction (see section V)	Yes
STORM_FLUME_TEXT	Text	Text for: material (lining), slope (see section e-VI)	No
STORM_FLUME_EXISTING	Line	The centerline that existed prior to construction Must be drawn in flow direction (see section V).	Yes
STORM_FLUME_EXISTING_TEXT	Text	Text associated with layer (see section e-VI)	No
STORM_HEADWALL	Block	Proposed new placement point of construction	
STORM_HEADWALL_TEXT	Text	Text associated with new headwall	
STORM_HEADWALL_EXISTING	Block	Headwall which existed prior to construction	
STORM_HEADWALL_EXISTING_TEXT	Text	Text associated which existed prior to construction	
STORM_JUNCTION_BOX	Insert	Block in the location of a Stormwater Junction Box	Yes
STORM_JUNCTION_BOX_TEXT	Text	Text for layer that must at least show: Rim Elevation, Invert Elevation, and Junction Box material.	No
STORM_JUNCTION_BOX_EXISTING	Insert	Pre-existing block for the Storm Junction Box	Yes
STORM_JUNCTION_BOX_EXISTING_TEXT	Text	Text for layer that must at least show: Rim Elevation, material, Invert Elevation, and Junction Box	No
STORM_LINE	Line	Pipe (i.e. Pipe line or driveway pipe) (see section e-VII)	Yes
STORM_LINE_TEXT	Text	Text for layer (i.e. slope, diameter, material)	No
STORM_LINE_EXISTING	Line	Pre-existing stormwater line (pipe line or driveway pipe) drawn in the direction of flow (see section e-VII)	Yes
STORM_LINE_EXISTING_TEXT	Text	Text associated with layer (i.e. slope, diameter, material)	No
STORM_OPEN_CHANNEL	Line	Centerline drawn in the direction of flow (see section e-V)	Yes
STORM_OPEN_CHANNEL_TEXT	Text	Text layer: material (lining), slope (see section e-VI)	No
STORM_OPEN_CHANNEL_EXISTING	Line	Centerline of structure. Must be drawn in the direction of flow (see section e-V)	Yes
STORM_OPEN_CHANNEL_EXISTING_TEXT	Text	Text associated with layer (see section e-VI)	No
STORM_LINE_END	Insert	The structure at the Line End or a node representing the bare end of pipe (see section e-VIII)	Yes
STORM_LINE_END_TEXT	Text	Text layer (i.e. slope, diameter, material)	No
STORM_LINE_END_EXISTING	Insert	The structure at the Line End or a node representing the bare end of pipe (see section e-VIII)	Yes
STORM_LINE_END_EXISTING_TEXT	Text	Text associated with layer	No
STRUCTURE	Line	Above ground construction (Buildings, apartments, etc.)	
STRUCTURE_TEXT	Text	Name, or other information associated with the structure	

TANK_PROPOSED	Line	Any proposed tank construction	
TRASH_RACKS	Block	Trash Racks	
UTILITY_EASEMENT	Poly	Utility line easements	Yes
UTILITY_EASEMENT_TEXT	Text	Text Associated with Utility Easements	No
WATER_CAP	Insert	Cap at the end of water line.	Yes
WATER_CAP_TEXT	Text	Text associated with WATER_CAP_TEXT	No
WATER_EXISTING	Line	Water lines before the subdivision/project was built	Yes
WATER_EXISTING_TEXT	Text	Text associated with WATER_EXISTING	No
WATER_LINE	Line	Water lines built as part of the subdivision/project.	Yes
WATER_LINE_TEXT	Text	Text associated with WATER_LINE	No
WATER_METER	Insert	Customer water meters	Yes
WATER_METER_TEXT	Text	Text associated with WATER_METER	No
WATER_REDUCER	Insert	Water line reducer	Yes
WATER_REDUCER_TEXT	Text	Text associated with WATER_REDUCER	No
WATER_SERVICE	Line	Water service lines	Yes
WATER_SERVICE_TEXT	Text	Text associated with WATER_SERVICE	No
WATER_STORAGE_SYSTEM	Block	Water Storage System construction	
WATER_STORAGE_SYSTEM_TEXT	Text	Text for Water Storage System construction	
WATER_VALVE_EXISTING	Insert	Existing water valves	Yes
WATER_VALVE_EXISTING_TEXT	Text	Text associated with WATER_VALVE_EXISTING	No
WATER_VALVE	Insert	Water valves	Yes
WATER_VALVE_TEXT	Text	Text associated with WATER_VALVE	No
WATER_VAULT	Insert	Large meter or fire connection vault	Yes
WATER_VAULT_TEXT	Text	Text associated with WATER_VAULT	No
WETLAND	Line	Wetland area	
WETLAND_TEXT	Text	Text associated with the Wetland	

- b) All Polygon type features must be completely closed. Lines may need to be duplicated on more than one layer.
- 1) Subdivision/project parcels must to be closed figures on their layer (not closed with the subdivision/project boundary).
  - 2) Road edge-of-pavement and road right-of-way must be drawn as closed polygons.
  - 3) Where a polygon feature extends beyond the edge of the plan, the property boundary (repeated on the polygon feature's layer) will be used to close the polygon.

- 4) All edges on polygon features must be snapped together at the vertices. Gaps in polygon boundaries will not be accepted.

### **c) Sewer Features**

- 1) Sewer Lines and Sewer Taps need to be digitized with proper directionality: lines must be drawn from the uphill node to the downhill node or flipped after the lines have been digitized.
- 2) All tangents between sewer manholes need to be drawn with a single line. Lines must not continue for more than one tangent.
- 3) All tangents must be snapped at endpoints intersecting at the exact center of the manhole. No gaps should exist between tangents.
- 4) Manholes need to be symbolized consistently with an insert centered and snapped on the tangent endpoints.
- 5) Sewer tap locations must be snapped to the sewer tangent and accurately placed. Placement shall be based on the televising reports. FULCO will verify tap placement against the televising report. The as-built engineer is responsible for obtaining the televising report.

### **d) Water Features**

- 1) Water lines must be digitized with all straight-line pipes consisting of only two end points. Straight-line pipes will begin and end at the following features (nodes): hydrants, valves, meters, pumps, tees, crosses, and valves. Polylines should be used wherever a water line contains elbows or bends (i.e., when the line does make a straight run from node to node).
- 2) Curves may be digitized with enough vertices to capture the curve geometry, but they must be single, continuous lines. Curves or arcs may also be used to designate curved pipe.
- 3) Hydrants must be shown in their true, surveyed location, and must be connected to the water main via a valved fire hydrant line.
- 4) All water lines must be continuous, with pipe endpoints snapped to each other at endpoints (nodes).
- 5) End-of-line caps must be drawn to differentiate end-of-lines from lines that extend beyond the extent of the drawing. Caps should be drawn for lines that are to be permanently capped when the project is complete, not for lines that are temporarily capped pending inspection.

### e) Stormwater Features

- 1) The entire BMP must be represented on the Storm\_BMP layer using a polygon. The following are the examples of BMPs: Enhanced Swale, Stormwater Pond, Stormwater Wetland, Sand Filter, Bioretention Cell, Infiltration Trench, Filter Strip, Gravity Oil-Grit Separator, Proprietary Structural Control, Underground Detention, Porous Concrete, Modular Porous Paver System. Please consult with the FULCO water resources engineer for a list of currently accepted BMPs.
- 2) A BMP\_ID is going to be assigned to each STORM\_BMP feature by the FULCO engineer during the plan review process. The contractor must clearly mark every BMP feature with the assigned BMP\_ID in the STORM\_BMP\_TEXT layer of the asbuilt.
- 3) In the STORM\_CULVERT and STORM\_CULVERT\_EXISTING layers, the structures must be drawn as polygons to show their length, width, location, and orientation. All the corners of the culvert extents must be surveyed. All culverts must be labeled in the corresponding STORM\_CULVERT\_TEXT or STORM\_CULVERT\_EXISTING\_TEXT layer with the number matching the culvert chart shown on the asbuilt. The storm culvert chart shall be put in the STORM\_CULVERT\_CHART layer. For Culvert Chart contents see the Stormwater Development Guidelines.
- 4) In the STORM\_DROPINLET and STORM\_DROPINLET\_EXISTING layers, the structures shall be drawn with different inserts (blocks) according to the type of the Drop Inlet: Single Wing Catch Basin, Double Wing Catch Basin, Square Catch Basin, Rectangular Catch Basin, Grate Cover Inlet, Catch Basin with Grate, Curb Inlet, Circular Weir Inlet, Rectangular Weir Inlet. The contractor must only use the blocks provided by FULCO for these features.
- 5) In the STORM\_OPEN\_CHANNEL, STORM\_OPEN\_CHANNEL-EXISTING, STORM\_FLUME and STORM\_FLUME\_EXISTING layers, the feature shall be represented by a line reflecting the centerline of the structure and must be drawn in the direction of flow. The lines shall be broken at any point where the slope percent changes. All endpoints (including the points of slope changes) shall be surveyed.
- 6) STORM\_OPEN\_CHANNEL\_TEXT, STORM\_OPEN\_CHANNEL\_EXISTING\_TEXT, STORM\_FLUME\_TEXT and STORM\_FLUME\_EXISTING TEXT layers shall contain a label indicating the percent slope and a type of material (lining) of the corresponding open channel or flume.

- 7) In the STORM\_LINE or STORM\_LINE\_EXISTING layers, the features must be drawn in the direction of flow. This feature must be digitized with all straight-line pipes consisting of only two end points. Straight-line pipes will begin and/or end at the following features: STORM\_LINE\_END, STORM\_JUNCTION\_BOX, STORM\_DROP\_INLET.
  
- 8) In the STORM\_LINE\_END and STORM\_LINE\_END\_EXISTING layers, the structures must be drawn with different inserts (blocks) according to the type: Straight Headwall, U-type Headwall, Tapered Headwall, L-Type Headwall, Flared-End Section, Straight Wingwall, Angled Wingwall, Bare End and BMP Outlet. STORM\_LINE\_END and STORM\_LINE\_END\_EXISTING features must be snapped to the ends of the STORM\_LINE or STORM\_LINE\_EXISTING or the centers of STORM\_CULVERT or STORM\_CULVERT\_EXISTING openings. The contractor must only use the blocks provided by FULCO for these features (see section 4) Symbolization)

#### 4) Table Specifications

a) A table with the following attribute data for each **sewer line**

- 1) Unique identifier matching the identifier in the as-built drawing
- 2) Unique identifier matching upstream manhole identifier in the as-built drawing
- 3) Upstream Measure Down - Distance from the upstream manhole lid top to invert of pipe as measured in feet
- 4) Upstream Invert – Elevation (z) of the invert of the upstream end of the pipe
- 5) Unique identifier matching downstream manhole identifier in the as-built drawing
- 6) Downstream Measure Down - Distance from downstream manhole lid top to invert of pipe as measured in feet
- 7) Downstream Invert – Elevation (z) of the invert of the downstream end of the pipe
- 8) Pipe diameter measured in inches
- 9) Pipe Material (CI, DI, PVC, VC, RCP, UNK, IRON, TRAN, PE, TR)
- 10) Pipe Length measured in feet

*Example Table: Sewer Line*

Pipe ID	Upstr MH ID	Upstr Measure Down	Upstr Invert	Downstr MH ID	Downstr Measure Down	Downstr Invert	Pipe Diameter	Pipe Material	Pipe Length
Pipe#1	SSMH#1	6.1	908.78	Pump Station	10.2	905.06	8	PVC	291
Pipe#2	SSMH#2	7.1	908.33	SSMH#1	6.05	908.83	8	PVC	238
Pipe#3	SSMH#3	8	908.76	SSMH#2	7.1	908.03	8	PVC	64

b) A table with the following attribute data for each **water line**

- 1) Unique identifier matching the identifier in the as-built drawing
- 2) Pipe diameter measured in inches
- 3) Pipe Material (CI, PVC, DI, GV, PB, CO, UNK, TRAN,CP, SC.)
- 4) Pipe Length measured in feet
- 5) End1 ID (Valve, Meter, Reducer, etc.)
- 6) End2 ID (Valve, Meter, Reducer, etc.)

*Example Table: Water Line*

Pipe ID	Pipe Diameter	Pipe Material	Pipe Length	End1 ID	End2 ID
WL #1	8	PVC	291	WV #2	FH #23
WL #2	8	PVC	238	WM #43	WV #2
WL #3	8	PVC	64	WV #2	WV #54

c) A table with the following attribute data for each **storm line**

- 1) Unique identifier matching the identifier in the as-built drawing
- 2) Unique identifier matching upstream structure identifier in the as-built drawing
- 3) Upstream Measure Down - Distance from the upstream structure elevation to invert of pipe measured in feet
- 4) Upstream Invert – Elevation (z) of the invert of the upstream end of the pipe
- 5) Unique identifier matching downstream structure identifier in the as-built drawing
- 6) Downstream Measure Down - Distance from downstream structure elevation to invert of pipe measured in feet
- 7) Downstream Invert – Elevation (z) of the invert of the downstream end of the pipe
- 8) Pipe Shape (Box, Elliptical, Circular, etc.)
- 9) Pipe height measured in inches
- 10) Pipe width measured in inches
- 11) Pipe Material (BCCMP, RCP, HDPE, CMP.)
- 12) Pipe Length measured in feet

*Example Table: Storm Line*

Pipe ID	Upstr-ID	Upstr Measure Down	Upstr Invert	Downstr-ID	Downstr Measure Down	Downstr Invert	Pipe Shape	Pipe Height	Pipe Width	Pipe Material	Pipe Length
Pipe #1	DI #1	6.1	908.78	JB #3	10.2	905.08	Circular	24	24	BCCMP	291
Pipe #2	CB #2	7.1	908.33	FES #1	6.05	908.83	Ellipse	36	24	BCCMP	238
Pipe #3	HW #1	0	908.78	HW #2	0	908.33	Box	60	84	RCP	64

## 5) Symbolization

- a) Symbols must be standardized according to examples provided in the FULCO template file. The following “point” features must be symbolized using standard FULCO CAD symbols and drawn as inserts:

- 1) Vault
- 2) Valve
- 3) Hydrant
- 4) Manhole
- 5) Meter
- 6) End of Line/Cap
- 7) Reducer
- 8) Junction Box
- 9) Grease Traps
- 10) Trash Racks
- 11) Water Cap

b) All blocks used in the STORM layers must be drawn as inserts. The blocks must be standard and symbolized using only FULCO CAD blocks provided on the FULCO CAD Digital Data Submission Standards template available through the Department of Public Works website <http://www.fultoncountyga.gov/fcwr-developer-information>

- 1) Single Wing Catch Basin
- 2) Double Wing Catch Basin
- 3) Square Catch Basin
- 4) Rectangular Catch Basin
- 5) Grate Cover Inlet
- 6) Catch Basin with Grate
- 7) Curb Inlet
- 8) Circular Weir Inlet
- 9) Rectangular Weir Inlet
- 10) Straight Headwall
- 11) U-type Headwall
- 12) Tapered Headwall
- 13) L-type Headwall
- 14) Flared-End Section
- 15) Straight Wingwall
- 16) Angled Wingwall
- 17) Bare End

- 18) BMP Outlet
- 19) Junction Box
- 20) Rectangular Weir Inlet

## 6) Annotations

- a) Any non-standard water and sewer lines must be annotated as such. Line diameter, material, ownership, etc. that does not conform to standard practice should be noted in the corresponding annotation layer. For example, standard subdivision sewer lines are 8" in diameter. Any other diameter must be annotated on the SEWER\_LINE\_TEXT layer.
- b) All addresses and lot numbers must be number data type (that is no text or symbols: #, -, ft, \_, ", ', etc.). If the lot does not have a number, this layer should be blank.
- c) All required text must be single line text. Project (Development) name shall be on one line.
- d) All annotation for polyline (polygon) features must be bounded by the polyline it annotates. For example, the project name must be within the project boundary, and not extend beyond it.

## 7) File naming and revisions

- a) File names 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 blank spaces in the name, only underscores. An example file name for the May 12, 2008 revision for the third phase of the Peaceful Valley subdivision is: "Peaceful\_Valley\_3\_080512". If a development name changes from that of indicated in the originally approved plans, the original name shall also be provided with the submittal of the as-built.
- b) File revision dates should only be updated by the contractor/developer and not by FULCO or Fulton County.

## 8) Deliverable Format

- a) All files will be delivered on single disk media in AutoCAD (release 14 or higher), DXF or DWG format (for projects created in Microstation). CDs, 3½" floppies, and Zip disks are all acceptable media. Files should not be spanned over more than one disk.

- b) All deliverables will be labeled with the file name, company name, contact name, and phone number. A transmission letter restating this information along with a statement requesting as-built review will also accompany the disk.