



**City Utilities
Design Standards
Manual**

Exhibit CADD3 -1 (1 of 5)
Minimum Electronic CADD Deliverables

Created: February 2014 Revised: September 25, 2015

To be submitted to City Utilities Engineering by: (Click to Select Date)

- All electronic files on Recordable Compact Discs (CD-R), DVD, FTP or as directed. Upload to the City's FTP site (<ftp://acfw-ftp1>) is preferred. The necessary credentials for FTP access are provided by CUE/City personnel.
- Two (2) sets of 24" x 36" (Full scale) hard-copy (printed) plans of the drawing(s).
- Two (2) sets of 12" x 18" (Half scale) hard-copy (printed) plans of the drawing(s).
- One (1) set of 24" x 36" (Full scale) drawings/plans in Autodesk dwf format.
- One (1) set of 24" x 36" (Full scale) drawings/plans in Adobe Acrobat Portable Document File (PDF) format.
- Drawing(s) in Autodesk Drawing (*.dwg) format created in Model Space at Full (1:1) scale.
- Final, existing ground/conditions 3D surface of surveyed area (ex. Triangulated Irregular Network (TIN)).
- Plan and Profile Sheets along the supplied survey or alignment route(s) at 1" = __ft. scale (Full scale). Survey or alignment routes shall be defined on the attached map. (Survey limits highlighted, outlined and/or labeled.)
- Cross Section Sheets along the supplied survey or alignment route(s) at 1" = __ft. scale (Full scale). Survey or alignment routes shall be defined on the attached map. (Survey limits highlighted, outlined and/or labeled.)
- A dated [LandXML](#) (.xml format) file including all final versions of pertinent data objects (points, surfaces, alignments, profiles, pipe networks, corridors, etc...). A separate xml file for each type of data object or a single xml file containing all data objects may be submitted.
- Additional Requirements:

Click here to enter additional requirements.

CUE recommends the use of all design standards within the City Utilities Design Manual, including CADD Standards, as found at the following website:

<http://www.cityoffortwayne.org/utilities/design-and-construction/design-standards.html>



**City Utilities
Design Standards
Manual**

Exhibit CADD3 -1 (2 of 5)
Minimum Electronic CADD Deliverables

Created: February 2014 Revised: September 25, 2015

The following are excerpts and references to or from the CADD Standards. Shall any discrepancy occur, the requirements listed in the CADD Standards shall prevail.

City Utilities Engineering has several files which aid in the setup of CAD drawings/projects. A list and explanation of these files is included in CADD Standards, Chapter 2, *CADD2.03 Resources Available from CUE*. Please contact the CADD Technician Working Leader listed below to request the latest versions. For example, a drawing (.dwt) template is used and recommended which may contain some of the required title blocks, drawing settings, layouts, layers, styles, etc...

Drawing settings shall be set to 1" = 20' scale. All CAD drawings shall be submitted in the current CUE-used Autodesk Drawing (*.dwg) format. Drawings shall be created at full (1:1 in model space) scale. Distance units shall be set to decimal feet and angle type to decimal degrees. Insertion scale units shall be set to feet.

All submitted files and plans shall conform to General Requirements, Chapter 6 *Surveying* of the City Utilities Design Manual. Refer to the City's project contact person and Surveying Scope Checklist for Design Surveys, if provided.

If using Autodesk Civil 3D, the drawings and data objects shall be submitted within the native Civil 3D (DWG) drawing format. Civil 3D data shortcuts shall be submitted within the "_Shortcuts" folder of the project folder structure.

If using Autodesk software, a Sheet Set (DST) file shall be submitted. CADD drawing files shall include all project data and final versions of pertinent objects such as, but not limited to, points, linework, survey databases, data shortcuts, surfaces, 3D faces, alignments, profiles, utilities, benchmarks, images, and sheet layouts required to rebuild and modify the project.

Drawing files shall be submitted as full files, uncompressed, unzipped, and free of any errors. They shall be purged of all unused items (e.g. blocks, layers, line types, nested items, etc.). Include descriptions for all layers within dwg layers or Provide documentation in text (.txt), Microsoft Excel (.xls) or Microsoft Word (.doc) format which includes a list of all layers and layer descriptions. An electronic version of a legend shall be included within the drawings submittal which shows and explains all symbols, patterns, blocks, line types, and other pertinent information.

Support files necessary for initializing, editing, and plotting drawing files shall be submitted for review. The support files shall be a standard component of Autodesk AutoCAD, Microsoft Windows, or an integral and standard component within the drawing file. Support files shall not require additional licensed software to be used. Support files include, but are not limited to, linetypes, hatch patterns, blocks, font styles, plot styles format (*.ctb), layer filters, display configurations, and object styles.



**City Utilities
Design Standards
Manual**

Exhibit CADD3 -1 (3 of 5)
Minimum Electronic CADD Deliverables

Created: February 2014 Revised: September 25, 2015

All externally referenced files necessary for the project shall be included. Otherwise, they shall be detached. A report explaining the externally referenced files and their association to other files/drawings shall be submitted. All referenced files shall use relative paths.

Drawings shall be submitted in State Plane coordinates with a minimum of two points of geodetic control for spatial reference, unless otherwise authorized by CUE. All controls and control witnesses used shall be referenced and shown in the CADD drawings.

The North American Datum of 1983 (NAD83) Indiana State Plane, East Zone, US (Survey) Foot (IN83-EF) grid coordinate system shall be used for horizontal control.

The North American Vertical Datum of 1988 (NAVD88) shall be used for vertical control. Any items or features which are spatially-referenced or referenced on other coordinate systems shall be translated to this same (NAD83/IN83-EF) grid coordinate system.

Drawings and/or plot files shall be set up so that when the drawings are plotted, existing surveyed items are plotted with lighter and/or thinner lines and proposed items are plotted with darker/bolder and thicker lines. This will ensure that there is a definite distinction between existing and proposed items. The preferred plot style convention is color dependent (.ctb).

All project files shall be placed and submitted within the CUE CADD Project Folder structure in their native format. A CUE CADD Project Folder structure template will be provided by CUE CADD Technicians upon request.

The root folder of the CUE CADD Project Folder structure shall be named in the following format:

City of Fort Wayne Work Order Number – City of Fort Wayne Project Name

For example, “**83131 – Dwight Ave Drainage Improvements**”

The Source and External Reference/Model Files (DWG) shall be named per Chapter CADD4.04, Item 3A:

*For example, “**83131C – 3DPN01.dwg**”* (For a pipe network model file, where 3D = Isometric View, PN01= Pipe Networks Drawing 01)

*For example, “**83131C – GPAL01.dwg**”* (For an alignment model file, where GP = General Plan, AL = Alignment Drawing 01)

*For example, “**83131C – XPBS01.dwg**”* (For a baseplan model file, where XP = Existing Plan, BS = Base Drawing 01)

The Sheet files (DWG) shall be named per chapter CADD4.04, Item 3B:

*For example, **83131C–107–03.dwg*** (For the third (plan) sheet of the Civil subset).



**City Utilities
Design Standards
Manual**

Exhibit CADD3 -1 (4 of 5)
Minimum Electronic CADD Deliverables

Created: February 2014 Revised: September 25, 2015

The Published plot files (PDF and DWF) shall be named in the following format:

*For example, **83131 – 107-03.pdf*** (For an Adobe Acrobat design file for the third (plan) sheet of the Civil subset).

*For example, **83131C – Dwight Ave Storm Drainage Improvements (30%).pdf*** (For an Adobe Acrobat design file including the complete drawing set at the 30% phase).

*For example, **83131C – Dwight Ave Storm Drainage Improvements (60%).dwt*** (For an Autodesk Design Review design file including the complete drawing set at the 60% phase).

The work order number and official project name will be furnished by the City of Fort Wayne/City Utilities Engineering project contact person.

All submitted plan and plan and profile sheets shall use the standard CUE title block(s). Refer to CADD Standards Chapter CADD 4 *Drawing Organization* for requirements for the following items:

1. File Organization
2. Sheet Order
3. Sheet Assembly
4. Sheet File Identification
5. File Naming
6. Drawing Sheet Organization
7. Schedules

Electronic plot files (PDF and DWF) shall follow the same file naming convention of Sheet Files as mentioned in CADD Standards, Chapter CADD 4, Section 4.04, Sub-section 3, File Naming.

Refer to CADD Standards Chapter 5, *Drafting Conventions* for requirements for the following items:

1. Drawing File Scale
2. Presentation Graphics
3. Text
4. Dimensions
5. Labels and Leaders
6. Precision
7. Notations
8. Sheet Requirements
9. Sheet Types
10. Civil Plans – Plan View Criteria/Requirements
11. Civil Plans – Profile View Criteria/Requirements
12. Miscellaneous – Civil Plans Criteria/Requirements
13. Electrical Plans Criteria/Requirements



**City Utilities
Design
Standards
Manual**

Exhibit CADD3 -1 (5 of 5)
Minimum Electronic CADD Deliverables

Created: February 201

Revised: September 25, 2015

City Utilities Engineering (CUE) compiled a list of common layer names and assignments within model and sheet files to follow for the creation of drawings. The CUE standard layer lists are provided in Exhibit CADD6-1 which will be supplied upon request. Refer to CADD Standards Chapter 6 *Layers* for requirements.

CUE has created and maintains a library of CADD resource files including commonly used symbols that are used for defining various features often found in a set of drawings. AutoCAD dwg format files and a list of many of the required symbols may be obtained upon request. Refer to CADD Standards Chapter 7 *Symbols* for requirements.

All submitted files and plans shall use Standard CUE Drawings and Details. The Standard Drawings and Details are available in the following location in Adobe Acrobat Portable Document File (PDF) and Autodesk review design file (DWF) format.

<http://www.cityoffortwayne.org/utilities/design-and-construction/standard-details.html> Refer to Exhibit CADD8-1 or the Table of Contents on the website for a list of Standard Drawings and Standard Details available. The appropriate Standards Drawings and Details are to be used as part of the Project Documents related to the CUE project. Refer to CADD Standards Chapter 8, *Standard Drawings and Details* for requirements.

For questions, comments, requests for deviations from CADD Standards requirements and to coordinate submittals please contact:

CADD Technician Working Leader
City of Fort Wayne, Indiana
Phone: 260-427-5066