10.0 CADD STANDARDS

10.1 General

This section provides guidance for creating detailed engineering CADD products for facilities and civil works projects. Technical specifications, procedural guidance, and quality control criteria are outlined for CADD services performed in a consistent manner for the New Orleans District in support of hurricane and flood protection, hydrologic studies, construction, and mapping projects.

10.2 Applicability

This section applies to all in-house and A-E contract services having responsibility for the planning, engineering and design, operation, maintenance, construction, and related real estate and regulatory functions of civil works, and environmental restoration projects. It is intended for use by other USACE FOAs and Architect-Engineer (A-E) contractors supporting MVN, PRO, HPO, and TFH. It is also applicable to CAD products created or procured by local interest groups under various cooperative or cost-sharing agreements.

10.3 CADD Standards

CADD drawings shall be prepared in accordance with the Architectural/Engineering/Construction (A/E/C) Computer-Aided Design and Drafting (CADD) Standard. CADD drawings shall also adhere to the requirements of the MVD CAD Supplement. MVN CAD Standards may also apply. Where standards are in disagreement, MVN standards shall supersede MVD and the A/E/C standards. Further, MVD standards shall supersede the A/E/C standards.

The contractor may also use cell libraries, seed files, border sheets and line style libraries provided by the Government in addition to those required by the Standard.

Standards and files are available at http://www.mvd.usace.army.mil/cad/.

The Contractor shall submit a written request for approval of any deviations from the Government's established CADD standard. No deviations from the government's established CADD standard will be permitted unless prior written approval of such deviation has been received from the Government.

10.4 Files Names and Drawing Numbers

Files names and drawing numbers for plans and specifications shall be obtained from Denis J. Beer, P.E. at Denis.J.Beer@usace.army.mil.

10.5 Platforms

All CADD data shall be supplied in Bentley Systems, three-dimensional, MicroStation V8 native electronic digital format (i.e., .dgn, .cel), with a Windows XP operating system target platform. The contractor shall ensure that all digital files and data (e.g., model files, reference files, cell libraries) are compatible with the Government's target CADD system (i.e., basic and advanced CADD software, platform, database software), and adhere to the standards and requirements specified herein. The term "compatible" means that data can be accessed directly by the target CADD system without translation, preprocessing, or postprocessing of the electronic digital data files. It is the responsibility of the contractor to ensure this level of compatibility.

If required, the contractor shall also produce drawings and models that are compatible with InRoads, version 8.05 software. As an option, the Contractor may provide InRoads-compatible ASCII random point and break line files for generation of the DTMs, provided that these files produce DTMs that match the topographic/planimetric survey sheets furnished in MicroStation format. DTMs or point files shall be submitted with the drawings on CD-ROM.

Unless noted otherwise, all elements are to be drawn at elevation 0.0 with the active z-depth set to elevation 0.0. Any digital terrain model contours or related 3D interim design elements may keep their proper elevations. All plan view area linework and aerial digital photography shall maintain horizontal control as provided by the government and shall not be moved out of their proper State Plane NAD83 datum position. Each plate shall be in its own individual CADD file and each CADD file shall contain all elements (i.e. there shall not be multiple reference files for a single plate).

Any supplied scanned electronic digital files of georeferenced data shall be delivered in georeferenced TIFF format in the North American Datum 1983 (NAD83), State Plane Coordinate System, and appropriate Zone corresponding to the data location. All other scanned electronic digital files shall be delivered in the native MicroStation digital format which is fully compatible with Bentley System's Descartes 2004 Edition software.

Any nongraphical databases delivered with prepared drawings shall be in Oracle or Microsoft Access compatible format. The database version delivered shall be compatible with the Government's target CADD system. All linkages of nongraphical data with graphic elements, relationships between database tables, and report formats shall be maintained. All database tables shall conform to the structure and field-naming guidance provided by the Government.

10.6 Deliverables

A copy of all CADD data and files developed under this contract shall be delivered to the Government on electronic digital media as an attachment with each submittal as required in the Schedule of Work. The electronic digital media shall be developed and submitted in the Government's target CADD system.

The external label for each electronic digital media shall contain, as a minimum, the following information:

(1) The Contract Number (and Delivery Order Number if applicable) and date.

(2) The format and version of operating system software.

(3) The sequence number of the digital media.

Before a CADD file is placed on the delivery electronic digital media, the following procedures shall be performed:

(1) Remove all extraneous graphics outside the border area.

(2) Remove any unused references from files.

(3) Make sure all reference files are attached without device or directory specifications.

(4) Include all files, both graphic and nongraphic, required for the project (i.e., color tables, pen tables, font libraries, cell libraries, user command files, plot files). All files not provided as Government furnished materials must be provided to the Government as a part of the electronic digital deliverables.

(5) Make sure that all support files such as those listed above are in the same directory and that references to those files do not include device or directory specifications.

(6) Include any standard sheets (i.e., abbreviation sheets, standard symbol sheets) necessary for a complete project.

(7) Document any fonts, tables, etc., developed by the A-E or not provided among the Government furnished materials. The contractor shall obtain Government approval before using anything other than the Government's standard fonts, linetypes, tables, or cells.

(8) Provide in a Microsoft Word file a list of drawing file names.

10.7 Drawing Development Documentation

Complete documentation concerning the development of each finished drawing shall be included in the drawing outside of the border. This documentation shall include the following:

(1) How the data were input (e.g., keyed in, downloaded from a survey total station instrument (include name and model)).

(2) Brief drawing development history (e.g., date started, modification date(s) with brief description of item(s) modified, author's name).

(3) The names of the reference files, cells, symbols, details, tables, and schedule files required for the finished drawing.

(4) Level assignments and lock settings.

(5) Text fonts, line styles used, and pen settings.

10.8 Ownership

The Government, for itself and such others as it deems appropriate, will have unlimited rights under this contract to all information and materials developed under this contract and furnished to the Government and documentation thereof, reports, and listings, and all other items pertaining to the work and services pursuant to this agreement including any copyright. Unlimited rights under this contract are rights to use, duplicate, or disclose text, data, drawings, and information, in whole or in part in any manner and for any purpose whatsoever without compensation to or approval from the Contractor. The Government will at all reasonable times have the right to inspect the work and will have access to and the right to make copies of the above-mentioned items. All text, electronic digital files, data, and other products generated under this contract shall become the property of the Government. By reference, the following DFAR clauses are included in this contract as a part of the requirements herein:

a. DFAR 252.227-7013, "Rights in Technical Data - Noncommercial Items."

b. DFAR 252.227-7017, "Identification and Assertion of Use, Release, or Disclosure Restrictions."

c. DFAR 252.227-7020, "Rights in Special Works."

d. DFAR 252.227-7028, "Technical Data or Computer Software Previously Delivered to the Government."

e. DFAR 252.227-7037, "Validation of Restrictive Markings on Technical Data."

f. DFAR 252.227-7025, "Limitations on the Use or Disclosure of Government-Furnished Information Marked with Restrictive Legends."

g. DFAR 252.227-7014, "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."

Copyright: Any software and computer data/information developed as a component of this contract shall have the following statement attached to documentation:

"This computer program is a work effort for the United States Government and is not protected by copyright (17 U.S. Code 105). Any person who fraudulently places a copyright notice on, or does any other act contrary to the provisions of 17 U.S. Code 506(c) shall be subject to the penalties provided therein. This notice shall not be altered or removed from this software or digital media, and is to be on all reproductions."