Chapter 1

Production of Plans

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Chapter 1

Production of Plans

1.1   General

This volume shall be used in conjunction with **Volume 1** of the **Plans Preparation Manual (PPM).** Close attention must be paid to the harmonizing of design criteria and processes outlined in **Volume 1** with the related areas of plans preparation and presentation required in this volume.

The contract plans set and the specifications are the key documents for project construction. Hence, it is imperative that the contract plans and specifications set forth the work to be done in a clear and concise manner.

The Engineer of Record (EOR) must provide quality control of plans, CADD files and deliverables as outlined in the Department's **CADD Manual, Topic No. 625-050-001** (or latest version) and this volume. These resources, in conjunction with district and project scope requirements, shall form the basis for contract plans format and assembly.

Plan sheets content and appearance will follow the requirements of this volume. Refer to the FDOT **CADD Production Criteria Handbook** for such features as line weight, style, color, and level.

Many of the chapters in this volume contain "Generic" exhibits to provide examples of the sheets covered in those chapters. These exhibits are examples which were developed using FDOT criteria/standards in force at the time of their creation; however they are not to be used as a source for criteria unless specified elsewhere in the **PPM**. See **Volume 1** for criteria.

1.2 Legibility Guidelines

Normally, all letters and figures should be readable from either the bottom or right edge of the sheet. The guide for reading is as follows:

1.   Horizontal Line: Read left to right

2.   Vertical Line: Read bottom to top

3.   Diagonals: Read left to right

Abbreviations may be used where they save time and space. Abbreviations must be clear and easily understood. A list of standard abbreviations is given in the ***Design Standards, Index No. 001***.

Standard symbols for Roadway Design are shown in the ***Design Standards, Index No. 002***, the Symbol Cell Library, and other CADD sources.

1.3   Displaying Information and Data

The following rules apply for displaying information and data in the plans:

1.   Dimensioning Requirements:

   a.   Typical Section Elements, including lane widths and shoulder widths - in feet, generally as a whole number.

   b.   Horizontal control points on plans, including survey centerline, baseline, intersections and alignment - in feet to 2 decimal places.

   c.   Vertical alignment control points, (PVC, PVI, PVT) and profile grade elevations - in feet to 2 decimal places.

   d.   Profile Grade - in percent to 3 decimal places.

   e.   Proposed flow lines - in feet to 2 decimal places.

   f.   Manhole tops and grate elevations - in feet to 2 decimal places.

   g.   Ditch elevations - in feet to 1 decimal place (to nearest 0.05 when controlled by percent of grade).

   h.   Box or Three-sided Culvert Spans and Heights - (Show feet as a whole number using the span by height format: e.g., 10 x 6 means the span is 10 feet and the height is 6 feet): In feet as a whole number for new construction; in feet to 2 decimal places for extensions of existing box culverts.

2.   Display alignment bearings, degree of curve and delta angles for curve data in degrees, minutes and seconds, rounded to the nearest second.

3.   Express slope ratios in vertical to horizontal (V:H) format. For example, show roadside slopes as 1:6, 1:4, etc.

1.3.1   Converting from Metric to English

1.   When converting metric values related to surveys, right of way and other geometric alignment use the U.S. Survey Foot taken to a minimum of 8 decimal places:

$$1 \text{ foot } = \frac{12 \text{ inches/foot}}{39.37 \text{ inches/meter}} = 0.304\ 800\ 61 \text{ meters}$$

For other direct mathematical conversions use the SI definition:

1 foot = 0.3048 meters

2.   Display direct mathematical (soft) converted values to 2 decimal places.

3.   On resurfacing projects where the original construction was done in metric, hard convert typical section dimensions (lane widths, shoulder widths, etc.) where existing conditions permit.
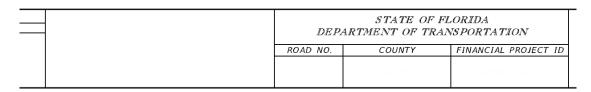
Use direct mathematical (soft) conversion for existing pavement widths in curbed sections, existing right of way widths, and existing median widths.

Further information that may be useful in the converting Metric to English may be found in *Appendix A* of this volume.

1.4   Base Sheet Format

All plan sheet formats are contained in the FDOT Engineering/CADD Systems Software. Sheet borders include a place for the Financial Project ID as shown below:

Figure 1.1   Project Information Block

The blank space immediately left of the box for Financial Project ID information is provided for the Engineer of Record information as required in *Section 19.2, Volume 1*.

Contract plans shall be printed to scale to size B (11" X 17"). These prints are to be generated from CADD design files in accordance with the *CADD Manual, Section 3.9.3*. Sheets that feature grids (cross sections, plan-profile, etc.) can be printed with minor grid lines turned off or on. If the minor grids are printed, they are to be half-toned. The FDOT Engineering/CADD System Software provides plot example configuration files for this task.

Photography (aerial or other) may be permitted for use as a visual aid in the plans when approved by the District Design Engineer.

1.5   Plan Notes

Plan notes are intended to be used to clarify design detail, construction practices or method for payment. In general, plan notes should be kept to a minimum. Only those notes that are job specific should be used. Plan notes should only be used to detail uniqueness and not to broaden or curtail requirements in the specifications. Notes that restate the standard specifications or standard indexes shall not be used. This will help to place proper emphasis on those notes that are job specific and avoid discrepancy of documents.