

Table of Contents

CHAPTER 9 - RIGHT OF WAY MAPPING STANDARDS	9-1
9.1 GENERAL	9-1
9.2 STANDARD FILE NAMES	9-1
9.3 SEED FILES SETTINGS.....	9-3
9.4 TEXT	9-4
9.4.1 <i>True Type Font</i>	9-4
9.4.2 <i>Text Size</i>	9-5
9.5 MICROSTATION LINE STYLES	9-5
9.6 CELL LIBRARY.....	9-8
9.7 LEVEL AND SYMBOLOGY STANDARDS.....	9-10
9.8 R/W CADD WORKSPACE.....	9-10
9.9 GEOPAK FEATURE PREFERENCES	9-11

THIS PAGE WAS LEFT BLANK INTENTIONALLY.

Chapter 9 - RIGHT OF WAY MAPPING STANDARDS

CADD Production Criteria Handbook

9.1 GENERAL

This chapter will describe the minimum CADD requirements for Right of Way (R/W) Mapping operations.

9.2 STANDARD FILE NAMES

Florida Department of Transportation (FDOT) utilizes standard file naming conventions. Some of the automation implemented in various tools provided by FDOT depends on naming conventions being met. More importantly, the naming convention confers information to the downstream customer of the data.

The standard file names for Right of Way graphics files shall be a maximum of an eight character file name with a .dgn or .dwg extension and should follow the format: **AABBBB##.ext**

Where

AA = Abbreviated Group Description (*shall be two letters*),

BBBB = Sheet Type (*shall be four letters*),

= Sequence Number (*padded two digit integer, i.e. "00", "01", "02" ... "99", used to sequence additional files of the same Description/Discipline*)

Example: **RWDETL01.DGN**:

Where

RW = Right of Way Mapping Group,

DETL = Detail Sheet,

01 = Sequence Number 1,

DGN = extension for MicroStation design file

Note Please see CPCH Chapter 5 for more information for extensions .

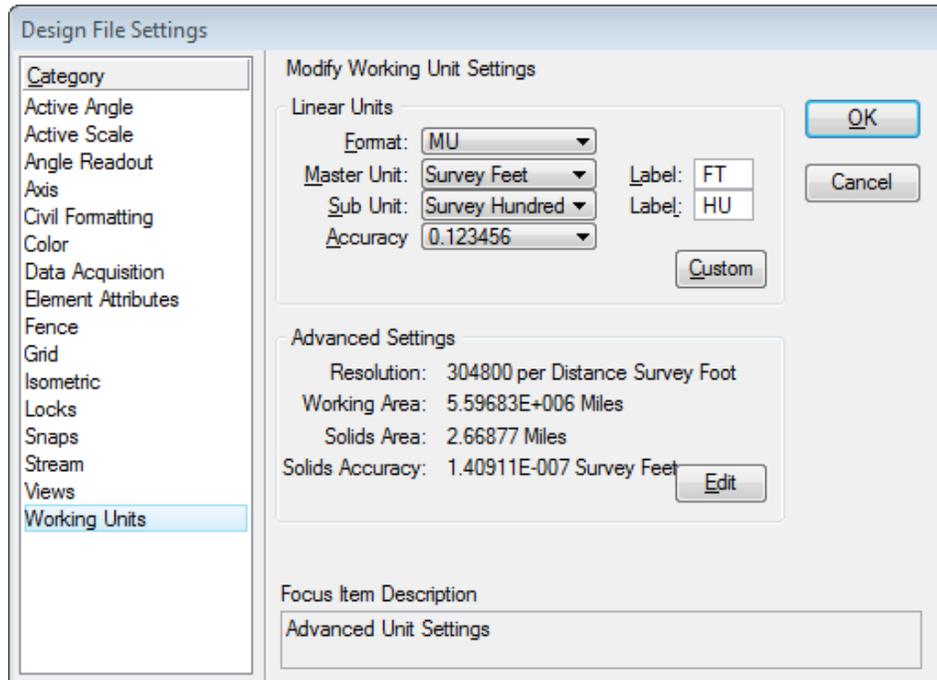
The following table defines the Right of Way Mapping File Name Standards in regards to FDOT Projects with the understanding that each file name will include sequential numbering.

Critical File	File Name	Model	File Description	Rule File	MicroStation Seed File	Civil 3D Template File
	CS%*****	default	Control Survey Master Design File (Enter 7 digit No.)	rweng10	rwseed2d.dgn	rweng10.dwt
X	CSCOVR*	default	Control Survey Cover Sheet	rweng10	rwseed2d.dgn	CSCOVR.dwt
X	CSDETL*	default	Control Survey Detail Sheet	rweng10	rwseed2d.dgn	CSDETL.dwt
X	CSKEYM*	default	Control Survey Key Map Sheet	rweng10	rwseed2d.dgn	CSDETL.dwt
	MM%*****	default	Maintenance Map Master Design File (Enter 7 digit No.)	rweng10	rwseed2d.dgn	rweng10.dwt
X	MMCOVR*	default	Maintenance Map Cover Sheet	rweng10	rwseed2d.dgn	MMCOVR.dwt
X	MMDETL*	default	Maintenance Map Detail Sheet	rweng10	rwseed2d.dgn	MMDETL.dwt
X	MMKEYM*	default	Maintenance Map Key Map Sheet	rweng10	rwseed2d.dgn	MMDETL.dwt
	RW%*****	default	R/W Master Detail Design File (Enter 7 digit No.)	rweng10	rwseed2d.dgn	rweng10.dwt
X	RWCOVR*	default	R/W Cover Sheet	rweng10	rwseed2d.dgn	RWCOVR.dwt
X	RWDETL*	default	R/W Detail Sheet	rweng10	rwseed2d.dgn	RWDETL.dwt
X	RWFACS*	default	R/W Cover Sheet FA Project	rweng10	rwseed2d.dgn	RWCOVR.dwt
X	RWKEYM*	default	R/W Key Map Sheet	rweng10	rwseed2d.dgn	RWDETL.dwt
X	RWPNTAB*	default	R/W Project Network Control Tabulation Sheet	rweng10	rwseed2d.dgn	RWDETL.dwt
X	RWPR*	default	R/W Parcel Sketch Sheet (11"x17" Landscape)	rweng10	rwseed2d.dgn	RWPS.dwt
X	RWPS*	default	R/W Parcel Sketch Sheet (8.5"x11" Portrait)	rweng10	rwseed2d.dgn	RWPS.dwt
X	RWSPS*	default	R/W Specific Purpose Survey Sheet	rweng10	rwseed2d.dgn	RWSPS.dwt
X	RWTAB*	default	R/W Tabulation Sheet	rweng10	rwseed2d.dgn	RWTAB.dwt
	CTLSRD*	default	Survey Project Network Control Sheets	open	rwseed2d.dgn	RWDETL.dwt
	SIGNRW*	default	Digital Signatures (Multi)	rweng10	rwseed2d.dgn	digitalsignature.dwt
	TOPORW*	default	ROW Mapping file containing existing Topography for mapping purposes only	toporw	rwseed2d.dgn	TOPORW.DWT

9.3 SEED FILES SETTINGS

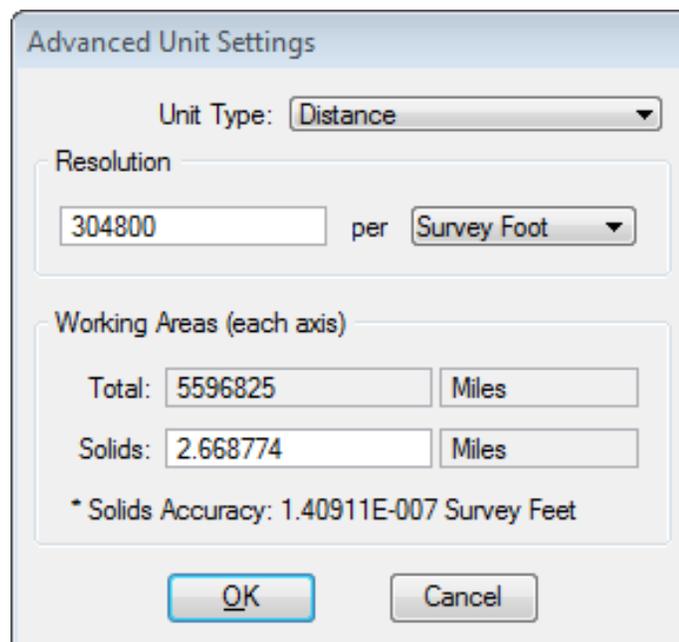
- English Seed File Settings

English Working Units for MicroStation are set to “US Survey Foot” standard (1 Survey Foot = 1200 / 3937meters = 0.3048006096012192). The seed file for Right of Way Mapping is “RWSEED2D.DGN”. The design file global origin shall be center of the design plane 0, 0.



- Advanced Working Unit Settings

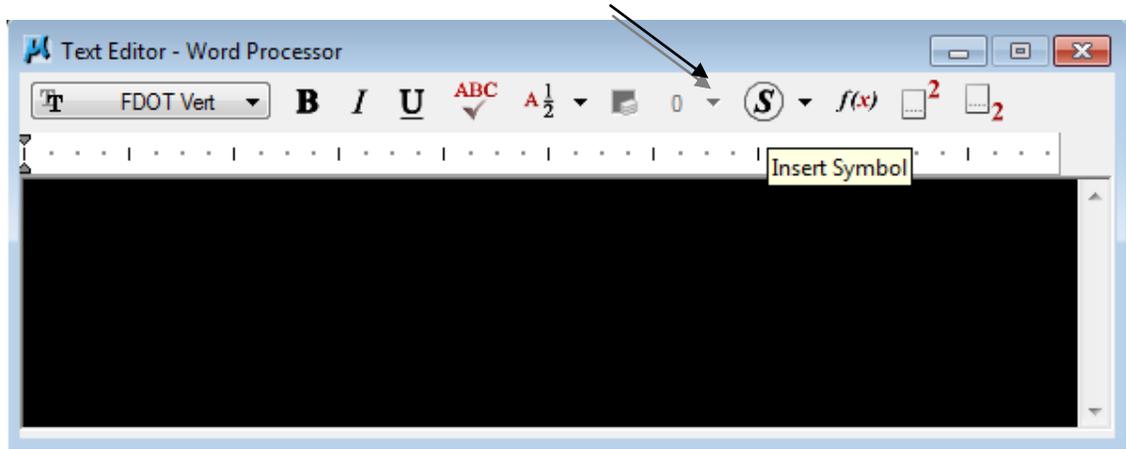
The Edit button opens the Advanced Unit Settings dialog box. This setting defines the units of resolution per master unit (US Survey Foot) which subsequently calculates the dimensions of the design plane. The Advanced Unit Settings should appear as shown here.



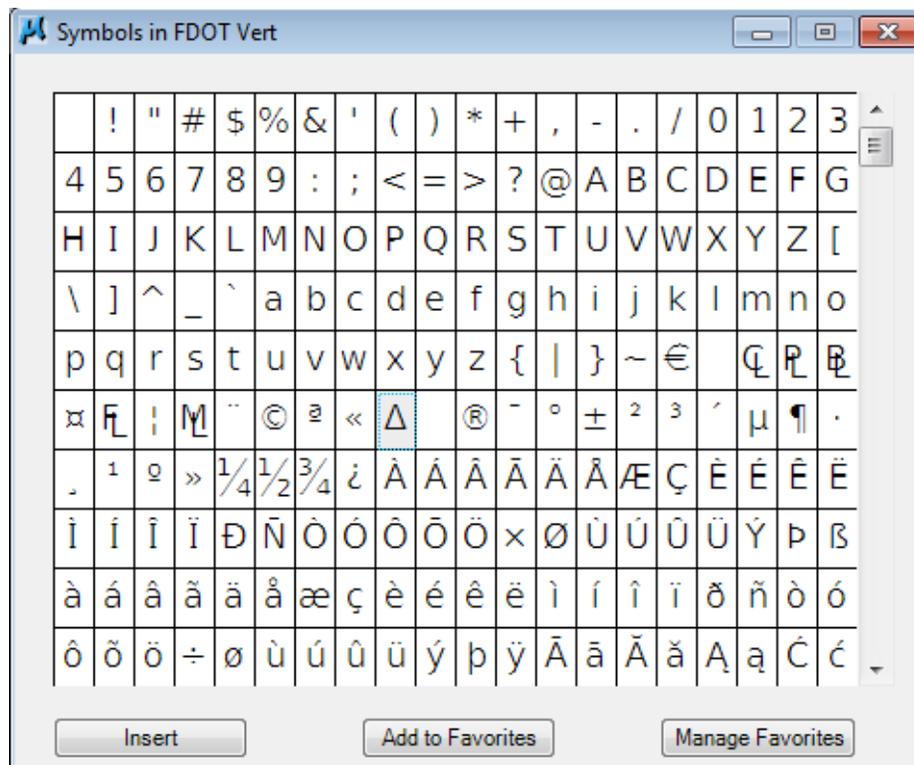
9.4 TEXT

9.4.1 TRUE TYPE FONT

The FDOT2010 workspace uses true type fonts (tff). Specifically, FDOT Vert and FDOT Vert Mono true type fonts. There are also bold and heavy versions of both fonts; FDOT Vert Bold, FDOT Vert Heavy, FDOT Vert Mono Bold and FDOT Vert Mono Heavy. These fonts are stored in the files FDOTVert.ttf, FDOTVertBold.ttf, FDOTVertHeavy.ttf, FDOTVertMono.ttf, FDOTVertMonoBold.ttf and FDOTVertMonoHeavy.ttf. Special symbol characters are also included in the FDOT true type font files. These characters may be accessed via the Insert Symbol tool provided in the MicroStation word processor dialog.



These characters include: fractions, mathematical symbols, survey symbols, boring symbols, Greek letters, and Super/Sub Scripts.



Note FDOT "Mono" fonts are fixed pitch fonts for use in columns and tables to make text line up properly.

9.4.2 TEXT SIZE

The following tables of text sizes are recommended text sizes for all right of way mapping projects at a given scale. **Readability** of text data should be considered as priority; however no text should be smaller than 3.2' on a 1" = 40' scale (0.08" actual plotted size).

- **Recommended Base Text Sizes for (English) R/W Mapping**
- **D-SIZE (24"x36")**

SCALE	RECOMMENDED TEXT SIZES
1" = 5'	0.5'
1" = 10'	1.0'
1" = 20'	2.0'
1" = 30'	3.0'
1" = 40'	4.0'
1" = 50'	5.0'
1" = 100'	10.0'
1" = 200'	20.0'
1" = 400'	40.0'

9.5 MICROSTATION LINE STYLES



- **Custom Line Styles**

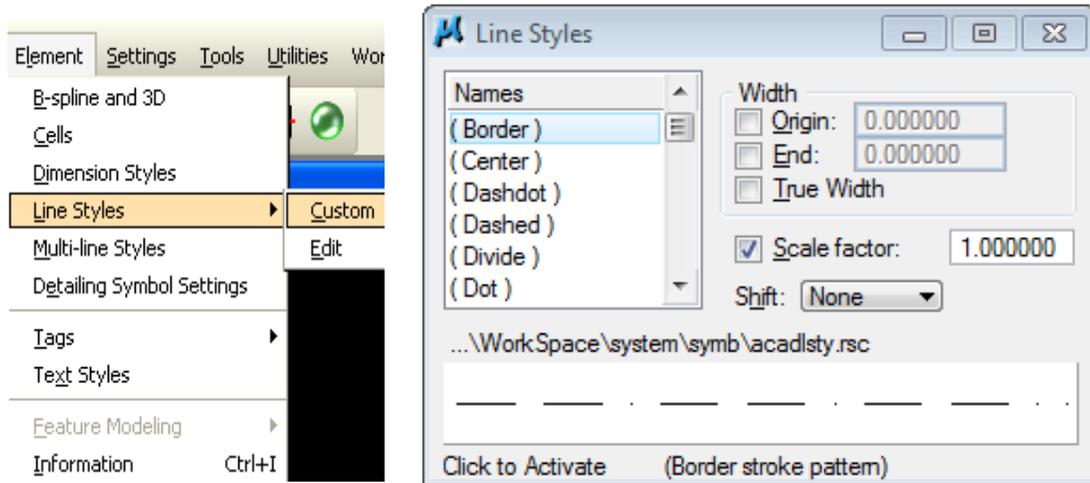
In addition to the standard line styles shown above, MicroStation allows for the creation of "Custom Line Styles". MicroStation line styles can be set as the active line style using "LC=" key-in. For English units, "**RWLINENG.RSC**" was created at a 1:1 scale. Standard MicroStation line styles are based on output device coordinates, and therefore are not truly WYSIWYG, as are custom line styles. Use custom line styles instead of patterned lines. When using Right of Way Mapping custom line styles, it is important to set the correct active custom line style scale.

For example: to place an English custom line styles simply set the scale the same as the drawing scale.

Note Only FDOT line style resource ".RSC" files should be used.

To set custom line style scale:

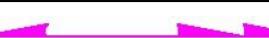
Select the MicroStation menu option: **Element > Line Styles > Custom.**



- **Right of Way Mapping Custom Line Styles**

Note Symbols in tables are not displayed at their required weights / thickness.

NAME	SYMBOL
ANGLE – Angle Delineator	
ARROW2 – R/W Width	
ARROWPOINT	
ARROWTIE	
CLIMIT - City Limit	
CLIMIT2 – City Limit(Hash Only)	
COLINE – County Line	
EECL – Existing Easement Centerline	
EXLA – Existing L/A RW	
EXRW – Existing State Road R/W	
GRTL - Grant Line	
LA - Proposed L/A RW	

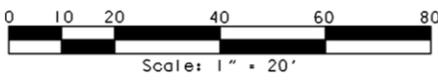
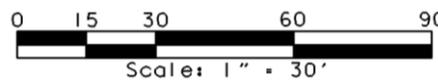
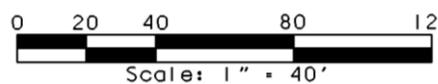
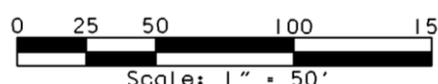
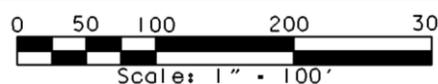
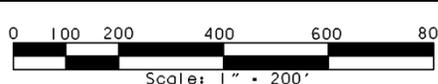
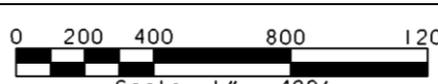
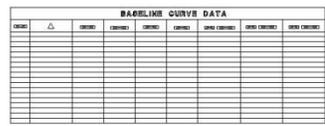
NAME	SYMBOL
LEADERLT – Leader Left	
LEADERRT – Leader Right	
LICENSE – License	
LOC - Limits of Construction	
NONVH - Non-Vehicular Access Line	
NSPF - Nat./State Park/Forest	
NSPF2 – Nat./State Park/Forest (Hash Only)	
PESMT - Perpetual Ease.	
QSEC - ¼ Section Line	
RR - Railroad	
SECLIN - Section Line	
STL - State Line	
SUBDIV – Subdivision Arrow	
SUBDIV2 – Arrows2	
SUBDIV2LT – Arrows 2 LT.	
SUBDIV2LTOnly – Arrows 2 LT.	
SUBDIV2RT – Arrows 2 RT.	
SUBDIV2RTOnly – Arrows 2 RT. Only	
SUBDIVLT	
SUBDIVRT	
TEMPE – Temporary Easement	
TIITF – Murphy Reservation Line	
TWPRGE – Township/Range	
WaterMapBoundary	

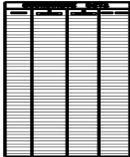
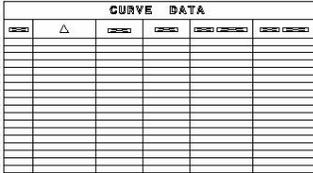
9.6 CELL LIBRARY

R/W cell library is ROW.CEL.

Important! R/W Cells must be placed with the True Scale toggle "ON".

- CELL TABLE**

ELEMENT	TYPE	SYMBOL	Macro
ARROW TERMINATOR LEFT (Place on ByLevel of Text Element Relative Toggle "ON")	C = ARRWLG		Place Delineator
ARROW TERMINATOR RIGHT (Place on ByLevel of Text Element Relative Toggle "ON")	C = ARRWRG		Place Delineator
LINE TERMINATOR@POINT G = Graphic type cell	C = ARRLT		Place Delineator
LINE TERMINATOR@POINT G = Graphic type cell	C = ARRRT		Place Delineator
BAR SCALE 1" = 20'	C = BS20		Place Bar Scale
BAR SCALE 1" = 30'	C = BS30		Place Bar Scale
BAR SCALE 1" = 40'	C = BS40		Place Bar Scale
BAR SCALE 1" = 50'	C = BS50		Place Bar Scale
BAR SCALE 1" = 100'	C = BS100		Place Bar Scale
BAR SCALE 1" = 200'	C = BS200		Place Bar Scale
BAR SCALE 1" = 400'	C = BS400		Place Bar Scale
BASELINE CURVE DATA BOX (Used with GEOPAK Table Tutorial)	C = BLBOX		
BASELINE SYMBOL	C = BL		

ELEMENT	TYPE	SYMBOL	Macro
CENTERLINE SYMBOL	C = CL		
CONCRETE MONUMENT OPEN	C = MONSQ		
CONCRETE MONUMENT SOLID	C = MONSQS		
CONCRETE R/W MONUMENT (R/W MONUMENTATION MAP)	C = MON		
COORDINATE DATA BOX (Used with GEOPAK Table Tutorial)	C = COORD		
CURVE DATA BOX (Used with GEOPAK Table Tutorial)	C = CURBOX		
CURVE DATA (English) (Used with GEOPAK Table Tutorial)	C = CDATA	<p>P. I. STA. Δ = D = T = L = R = P. C. STA. P. T. STA.</p>	
NORTH ARROW	C = NOARR		
PARCEL BUBBLE 100	C = PB100		
PARCEL BUBBLE 700	C = PB700		
PARCEL BUBBLE 800	C = PB800		
PARCEL BUBBLE 900	C = PB900		
PERMANENT R/W MONUMENT (R/W MONUMENTATION MAP)	C = PRWM		
PROPERTY LINE HOOK	C = PLHOOK		

ELEMENT	TYPE	SYMBOL	Macro
PROPERTY LINE HOOK	C= PLHTOP		
PROPERTY LINE HOOK	C =PLHBOT		
PROPERTY LINE SYMBOL	C = PL		
ROD MONUMENT OPEN	C = MONRD		
ROD MONUMENT SOLID	C = MONRDS		
SEGMENTED CURVE CHORD DIST./BEARING (Used with GEOPAK Table Tutorial)	C = SEGCUR	$\Delta =$ $L =$ $R =$ $C.D. =$ $C.B. =$	
SPRING LINE (Place on Symbology of Assoc. Element)	C=SPRING		Place SpringLine

9.7 LEVEL AND SYMBOLOGY STANDARDS

Refer to the Standard Rule Tables in Chapter 4 of this Handbook for the listing of Right of Way (RWENG10) elements and their symbologies. The list of elements shown may not contain all of the elements that appear within a Right of Way map, as this list would be extensive. The elements shown are those that are required for specific types of Right of Way maps.

All Right of Way Levels are 'Critical' levels, meaning that the attributes: Level, Color, Style and Weight will all be checked for Quality Control (QC) compliancy. The exception is for Text levels, where the Style attribute will be set as Non-Critical and excluded from compliance checking.

Note R/W elements must match the standard symbology for the R/W file they reside in. Non-R/W elements will be drawn in the symbology of their intended file type. For example: edge of pavement drawn in RWDETL01.DGN would be given the symbology as if drawn for DSGNRD01.DGN. All R/W level symbologies must use ByLevel settings.

9.8 R/W CADD WORKSPACE

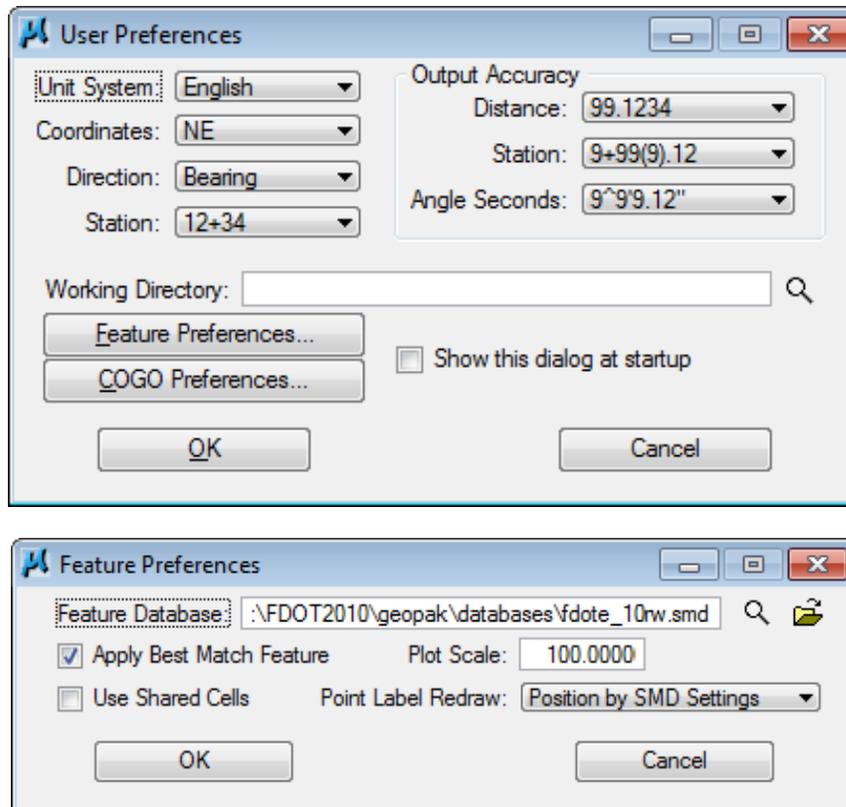
FDOT CADD Software for MicroStation, as outlined in Chapter 2 of this handbook, delivers the FDOT Menu with many tools which incorporates the R/W Mapping CADD Standards, Cell Libraries, Custom Line Styles, Notes, etc. to assist Right of Way Mapping in the plans preparation of FDOT projects. FDOT Right of Way Mapping training manual is also provided to outline these tools and can be accessed from the Engineering / CADD Systems Office:

<http://www.dot.state.fl.us/ecso/downloads/documentation/RightofWayMapping/RightofWayMapping.shtm>

9.9 GEOPAK FEATURE PREFERENCES

GEOPAK COGO uses feature attributes to plot elements in the design file. These Feature attributes are defined in a Survey Database (database fdote_10rw.smd), and should automatically be attached when using the FDOT2010 software. The GEOPAK configuration variable GPK_SURVMNGR_SMDFILE controls this.

The user can verify which database is being used or change to another database from the GEOPAK User Preferences dialog. This dialog can be accessed by selecting from the Applications menu **GEOPAK > Road/Site/Survey > Preferences**. Select the **Feature Preference...** button to display the **Feature Preference** dialog shown below.



The Feature Preference dialog shows the attached .smd file. A different working database can be located and attached if desired.

Plot Scale defines the scale at which linear elements such as custom line styles and cells will be plotted. It is important that the user set this prior to plotting elements into the design file project from the Coordinate Geometry dialog.

There are three **Visualization** settings on the Coordinate Geometry dialog used to control plotting of feature elements into the design file:

- ✓ *Disable Visualization* – When active no elements are visualized during the COGO session.
- ✓ *Temporary Visualization* – When active elements utilizing the feature symbology (or default symbology if no feature is present) are displayed during the COGO session.
- ✓ *Permanent Visualization* – When active elements utilizing the feature symbology (or default symbology if no feature is present) are displayed during the COGO session. Upon exiting the COGO session the elements remain in the design file.

There are two **Feature** settings on the Coordinate Geometry dialog used to control plotting of feature elements into the design file:



- **OFF (Feature)** When the Off option is set, any element subsequently stored does not have a Feature attached.
- **Delete (Feature)** The Delete Feature deletes any feature on subsequent commands, or does not attach features to newly stored elements.