

LaDOTD CAD Standards Help - MicroStation (2013)

Help Sources

The “CADconform” menu, which is located on the MicroStation Main menu, contains links to a number of help sources, including LaDOTD's Electronic Standards website, LaDOTD CAD Standards Help (this file), LaDOTD Plan Delivery_Transition Guide, LaDOTD CADconform Basics, CADconform Help, CADconform Reference Guide, Altiva Website and Altiva's LaDOTD CAD Standards Website. LaDOTD provides the following resources:

- ❖ www.dotd.la.gov > *Doing Business with DOTD* > *Electronic Standards for Plans*. This page includes a link to Altiva's LaDOTD CAD Standards web page, ProjectWise downloads, etc.
- ❖ Contact the Design Automation Manager, Hollis Ward, at hollis.ward@la.gov for latest LaDOTD CAD standards updates and support; and for guidance regarding the ProjectWise plan delivery process.
- ❖ Contact the ProjectWise Manager, David Ringuette at david.ringuette@la.gov for guidance regarding general ProjectWise support, security issues, electronic signature support, etc.

MicroStation Resources Installation

The DOTD MicroStation Resources download is installed using the Altiva DeployCAD installer. DOTD resource files reside in the \LaDOTD_CAD_Standards folder, which is normally installed in C:\DOTD\Workspace; or a network folder (e.g., S:\Workspace\projects). Note: The option to load MicroStation Resources in C:\Program Files\ Bentley\Workspace\Projects is no longer available. For additional installation information, read the Installation Notes in the License Agreement. The MicroStation Resources download page can be accessed directly at www.altivasoft.com/ladotd/.

Workspace Projects

For a list of Workspace *Projects*, see the “Selecting Workspace *Projects*” topic below. Workspace *Projects* are defined in *Project* configuration files (.pcf), which are located in the \DOTD\Workspace\Projects folder. *Project* configuration files define folder paths and settings that are unique to the associated discipline(s) (e.g., LADOTD_Road-Site). In ProjectWise, Workspace *Project* configurations are assigned to the ProjectWise *Project* discipline *Plans* folder in which they reside (e.g., \H.001234\Road-Site\Plans). When standards are loaded on the C drive or a network drive, the Workspace *Project* must be selected in the MicroStation startup dialog box.

Selecting Workspace *Projects*

Available LaDOTD Workspace *Projects* and associated functions are as follows:

LADOTD_Road-Site: Road, Site, Traffic and Landscape

LADOTD_Bridge-Facilities: Bridge, Structural, Mechanical, Electrical, Architectural and Traffic

LADOTD_Traffic: Traffic signing, pavement markings and TSI drawings

LADOTD_Right-of-Way_Map: Right-of-Way Map drawings

LADOTD_Survey: Electronic Survey Graphics

“No Project”: Used to conform borders; and to edit *dgnlib* files (DOTD administrators only).

Folder Information

Seed Folder

Subfolders contain drawing template files that are used to create new files. *Seed* folders and files are generally named according to the Workspace *Project* that they serve, such as *Road-Site*, etc. Seed file folders also include one for *Title Sheets*. Some important attributes of seed files include border reference files, levels, color tables, active settings, and CADconform feature table brands (standards used to create/check/certify graphics). When creating a new file, use the default seed file or select other appropriate seed files as needed.

Border Folder

Subfolders contain borders that are referenced to seed files and are generally named according to the Workspace *Project* that they serve, such as *Road-Site*, etc. Borders are classified as *full-size* or *letter-size*. Letter-size borders are specified as such (e.g., *road-site_seed2d_letter.dgn*). For more information about letter-size borders, see LaDOTD Plan Delivery_Transition Guide.doc.

Border reference files are attached to seed files using the *Relative* method. Borders attached using this method will display in seed files as long as the Workspace folder hierarchy is maintained. When new drawing files are created in a project design folder, using a copy of a seed file, the border will not initially attach and display. The border file pathname will appear red in the MicroStation *References* dialog box. The associated border file must be copied into the project drawings folder so that it will attach and display when the drawing file is reopened. The project copy of the border will display in drawing files as long as it remains in the project drawings folder, wherever that folder is moved or copied. Exception: When new drawing files are created or copied into ProjectWise, border reference files will not automatically attach and display in this manner. They must be attached manually.

Tip: Use the ProjectWise *Scan References* utility to resolve reference file attachments for multiple files. This utility is particularly helpful when large numbers of project files are imported to the system. Once reference file attachments are resolved, they must be moved to the Reference Drawings folder in order to clean up the project master drawings list. ProjectWise will “remember” the attachments.

Road Plan-Profile Borders: Specify these border reference attachments in the Inroads Plan and Profile Generator as *border_road plan-profile_sht4.dgn* (border with legend) or *border_road plan-profile_sht5.dgn* (following sheets). Inroads sets the reference scale to 240:1 (urban), and 600:1 rural). The global [active linestylecale](#) setting is preset in the plan-profile seed files to 20 and 50 respectively. This scale is consistent with the Engineering scale of the drawing. Note: Plan-Profile drawings cover a maximum of 300' per sheet at 1"=20'; or 900' per sheet at 1"=50'.

Road Cross Section Borders: Borders are provided at a scale of 1"=5' (urban) and 1"=10' (rural) in the border file. Cross section seed files reference these borders at 1:1 scale. The global [active linestylecale](#) setting is preset in the cross-section seed files to 5 and 10 respectively.

Cell Folder

Cell files are logically named according to disciplines. Recommended practice is to place cells using the CADconform Draft menu to the greatest extent possible, which will ensure that they are appropriately used and scaled. Some cells are only available in the discipline cell library.

*User-defined cells (from user cell libraries) may be used in some cases. Such cells must consist of elements that conform to CADconform features.

Symb Folder

Symbology resource files contain font and line style definitions that are used when viewing and printing drawings. These files are logically named according to disciplines.

Dgnlib Folder

Levels, level filters, text styles and dimension styles are associated with Workspace *Project* configurations. Examples:

- Levels and styles for the Bridge-Facilities *Project* are in bridge-structural.dgnlib.
- Styles for the Road-Site Project are included in road.dgnlib.

Applicable “dgnlibs”, which are used to define levels, text styles and dimension styles, are set in the Workspace *Project* configuration file. When levels and styles are actually used in a drawing file, then they are copied into the file. Level and styles appear in bold type when are being used in a drawing file.

Exception: “Facilities” levels (for Architectural, Mechanical and Electrical disciplines) are defined in seed files rather than *dgnlibs*, as they were in previous releases. Levels are generically named (e.g., Arch1-Arch20), because required level functions are hard to predict. User-defined descriptions are required to identify levels instead. See [Describing Facilities Levels](#).

Macros and UCMs Folders

These folders contain numerous productivity macros that are used in CADconform Feature Tables, etc.

Data Folder

Highlights are as follows:

- **DOTD Color Tables:** Contain colors that are used in seed files and borders.
- **Units.def:** Defines unit definitions for MicroStation drawing files. Unit definitions also include settings that can be used during file format conversion to fix files that have incomplete unit information. For instance, some DOTD legacy drawings have blank or unrecognized unit labels.

Docs Folder

This folder contains menu help files for the *DOTD* menu and the *BridgeFacilities-Apps* menu; as well as seed spreadsheets, font 103 special characters documentation, etc. Documentation will be updated as MicroStation resources evolve.

Seed UPFs and XMLs:

Files with these extensions contain various settings, including user settings, button assignments, file and folder history, screen layout of tool palettes, menus, etc. The UPF (User Preference File) contains all settings that are set in the User Preferences Dialog box, among other things.

Default files that contain these settings are automatically copied to a folder on the user’s computer. If a corruption is subsequently suspected, or if default settings need to be restored or updated, delete the existing file/files as needed. If it is unclear which file is creating a problem, it is normally okay to delete all of the files in the folder. The location of these files may vary depending on the Windows version as shown below.

*Underlined parts of the paths will vary.

- Windows 7 and Windows Vista:
C:\Users\d3407\AppData\Local\Bentley\MicroStation\8.11\ago0iv6KXiRYil\prefs
- Windows XP: C:\Documents and Settings\d3407\Local Settings\Application Data\Bentley\MicroStation\8.11\KPSKUUqR1pu0tAQ\prefs

Config Folder

this folder contains LADOTD_CAD_Standards.cfg (master configuration file), LADOTD_DockingPrefSeed.xml, and seed user preference files (.UPF).

- ***LADOTD CAD Standards.cfg***: This is the “Master Configuration File”, which defines folder paths, MicroStation settings and CADconform settings. DO NOT MODIFY.
- **\backup** Subfolder: Contains backups of LADOTD_CAD_Standards.cfg, and Workspace Project configuration files (.PCF).

MDlapps Folder

This folder contains third party MDL Applications:

- **Steel.ma**: Used by the Bridge-Structural discipline to place steel section shapes: Steel Section Parameters must conform to *BridgeFacilities CADconform* feature table standards. See [Steel Sections](#) MDL application.
- **CellWiz.ma**: Cell manipulation tool
- **Celltool.ma**: Places cells on or along elements.
- **InfoSnap.ma**: Interface enhancement tools. See [InfoSnap](#) MDL Application.
- **Detailer**: Primarily used by the Bridge-Structural discipline to customize and place steel welding and finishing symbols. See [Detailer](#) MDL Application.

Plotting Folder

DOTD requires *ProjectWise Interplot Organizer (Iplot)* for plotting DOTD hard-copy and PDF drawings. Iplot is required to ensure that drawing renditions are consistent regardless of which DOTD Section/District or Consultant prints the drawing. Iplot is also used by DOTD’s automated PDF publishing application in ProjectWise: Line widths, line patterns, plot labeling, drawing scale and other plotting attributes can be compromised if plotting is not configured consistently. Attempts to emulate output with different plotting software often yield unsatisfactory results. Attempts to resolve problems are often time-consuming, slowing project delivery and collaboration. Additionally, resolving plotting problems increases support time and resulting costs. DOTD does not have staffing levels to support unnecessary plotting problems, nor do most consultants.

When plotting DOTD drawings, the following delivered resource files are designed to automate plotting and ensure consistency:

Design Scripts (\pen folder) define line widths, line pattern rendition, resymbolization, plot labeling via text substitution, and other settings that affect the appearance of printed graphics.

- *Full.pen* and *half.pen* are for *Dsize* and *11x17* plotting respectively. These are the default scripts that print the default submittal phase (CHECK PRINTS) outside of the left border.
- Other scripts specify labels for various submittals. For instance, *full_fpp.pen* prints the plot label, FINAL PRELIMINARY PLANS. See the end of the design script for the plot label text. When it is necessary to omit the plot label, use *full_nophase.pen* or *half_nophase.pen*.

Color tables (\ctb folder) define colors for printing. The default color table is *bw.ctb*, which is used to plot standard monochrome drawings. For color printing, use *bridge-facilities.ctb* or *road-site.ctb*.

Settings files (\set folder) define settings used to automate plotting. Plot area, scale, layout, rotation, offsets, display attributes, attached *design script* (pen table) and color table, are among the settings that are predefined. Iplot is now configured to select *BorderShape_11x17.set* by default, because this is the most often used settings file. Settings file naming conventions are as follows:

- *BorderShape*.set*: Plot limits are defined by a shape element in the file. These settings files are used for printing entire drawings.

- *ViewFence*.set*: Plot limits are defined by a fence or view boundary. These are normally used for printing specific details. For view prints, first define the view window and save settings.
- *z_color*.set*: For color printing.
- *z_TIFF*.set*: For printing scanned drawings in TIFF format.

* Some minor adjustments to settings files may be necessary. Edit settings files in Iplot Organizer (Edit>Settings Files>Edit). Permissible adjustments to settings files are as follows:

- Default printer names may be updated in a *Common* section.
- Adjustments to the XY Origin on the Iplot *Layout* tab may be necessary, depending on the specific output device. Adjust margins to approximately 1/2" (22x34 - top, bottom and right).

Note: The printable areas on some printers may not be quite big enough to print at target scale. For example, a target drawing scale of 2:1 may print at something like 2.00123:1. This is acceptable.

Configuring ProjectWise InterPlot Organizer: Use Iplot Organizer for batch plotting.

The *\Plotting_cfg* folder includes shortcuts and associated batch files, which in turn set default folder paths for settings files, pen tables and color tables. Modify paths in these files as needed to set the installation path in the LaDOTD_CAD_Standards Workspace folder. Deploy the shortcut as needed.

Alternate Setup: This setup will configure InterPlot Organizer for operation on the MicroStation File Menu (if not already working): Open ProjectWise InterPlot Organizer using the standard shortcut on the Windows Start Menu. Then go to the *Edit* Menu and select *Configuration*. In the Configuration Options box, select *Edit>Configuration>Common>Edit*, which will open IP.CFG. Add a leading “#” character at the beginning of the old *IP_SETTINGS_PATH* path. Then add the following path:

IP_SETTINGS_PATH = C:\DOTD\Workspace\Projects\LaDOTD_CAD_Standards\plotting\iplot\set.

Using ProjectWise Interplot Organizer in ProjectWise: Start MicroStation and select *File>ProjectWise Login>File>Create Plots*. Then Add the DGN Input files and *Browse* to select the Settings file. Tip: Cancel the ProjectWise dialog box that opens for selecting settings files in order to see the MicroStation Workspace Settings File list (DOTD does not currently use “Managed Workspaces”).

Transparency: The Transparency element attribute is now supported with features in the BridgeFacilities, RoadSite and RoadDesign feature tables. These features provide various levels of transparency and associated shading. ProjectWise Interplot Organizer, DOTD’s “Publish to PDF” application, and Iplot “Preview” all support Transparency. When printing to paper, you will have to check on the “Rasterized” option. Note: This option can slow down plotting significantly.

Z_CADconform Subfolders

- **Databases:** DOTD CADconform Databases for standards and reports
- **Dictionary Files:** Used to Export/Import feature tables or feature table components
- **Docs:** LaDOTD help docs, Altiva’s DOTD website docs and feature table enabled docs
- **File DSN:** Microsoft Access Datasource Settings
- **HTML:** For a spreadsheet rendition of feature table content, logon as an administrator, open Feature Table Manager, and Export to HTML file output in this folder.
- **Menus:** CADconform Main Menu
- **Users:** CADconform User Profiles

General Information (Fonts and Line Styles)

Using Standard Fonts

- Font 101 (*LEROY*) is the font normally used for the *RoadSite* and *RoadDesign* drafting.
- Font 103 (*design*) is the font normally used for the *BridgeFacilities* feature table drafting.
- Font 103 is essentially the same as Font 101, except this font contains many more special characters. For a table of special characters and associated keystrokes, see *Font 103 Special Characters* on the DOTD menu, which is located on the MicroStation Main menu
- The *Body .128 (special characters)* feature is available in the *RoadSite>Annotation* feature group for placing text strings requiring special characters. This feature uses Font 103.
- TrueType fonts are mainly used in embedded spreadsheets and *Traffic TSI* drawings. These fonts are likely to be used more in the future.

Font Display Issues and Solutions

- Most legacy fonts are saved in the current symbology files so that they will be available for viewing in older drawings.
- If fonts do not display properly, view the drawing in an appropriate legacy Workspace (if available). In some cases the old fonts can be found and added to a current font library.
- If using old details in a new project, the entire drawing must be conformed to the new standards.

Line Style Display Issues and Solutions

- If the element-based line style scale is not set to 1.0
 - Select the affected line styles and change the element *line style scale* to 1.0 (type *change line style scale 1*), or set specific line styles using the Element>Line Styles>Custom menu. Then set the global [*active linestyle scale*](#) equal to the engineering scale. Example type *active linestyle scale 50*.
 - Special case: If a line (e.g., a survey utility line) is too short to display the line pattern. In this case, after following the procedure above, adjust the element *line style scale* of the short line to a value smaller than 1.0 (e.g., 0.5).
- If an old drawing has been copied for use in a new project, first conform the entire drawing to the latest standards using CADconform; and then set the *active linestyle scale* appropriately.
- Legacy Line Style Viewing: Most legacy line styles are saved in the current symbology files so they will be available for viewing in older drawings.
- Line style definitions are sometimes updated, so a line in a legacy drawing may not appear exactly the same as it did before. Under certain circumstances a new, renamed version may be created so that the old one can remain available for future viewing.
- If a line style has been renamed in the line style library (unusual), conform the lines to the new line style name using CADconform, or simply change the element's line Style name.
- If you have a problem viewing line styles in legacy project drawing, view it in an appropriate legacy Workspace. In some cases, old line styles can be found and added to a current font library.
- If you cannot find line style to fit your needs, request that a new one be created.

Important Functionality

Global *Active Linestylescale* Setting Solves Scaling Problems

If a border is measured in feet (e.g., 22'x34'), then the border should be referenced in at the same scale as the Engineer's Scale of the master drawing. In cases where the border is measured in inches (e.g., 22"x34"), as with road plan-profile borders and most other road design borders, then the border reference drawing scale will be 12 times the Engineer's Scale of the master drawing.

- ❖ Set the master drawing's global *active linestylescale* equal to the Engineer's Scale in order to resolve differences in border measurement (inches or feet), and differences between the *active linestylescale* of master drawing, referenced drawings and border. If the Engineer's Scale of the master drawing (printed "full size") is 1"=50', then the *active linestylescale* should equal 50.

Examples of scales resolved by the *active linestylescale* setting:

- Urban plan-profile seed files are created at an Engineer's Scale of 1"=20' and an *active linestylescale* of 20. Plan-profile drawings reference survey topo drawings having an *active linestylescale* of 50 and a reference scale of 1.0. The master drawing's *active linestylescale* of 20 overrides the survey's *active linestylescale* of 50, so that both display at a scale of 20.
- Border grids for plan-profile drawings are measured in inches (e.g., 22"x34"), so the *active linestylescale* is 0.0833 (1/12) for grid line display in the border drawing. These borders are referenced into urban plan-profile drawings at a scale of 240 (12x20); and into rural plan-profile drawings at a scale of 600 (12x50). The master drawing's *active linestylescale* (20 or 50) is equal to the Engineers Scale; and will override the *active linestylescale* of the border and survey.

Tip: To view the active linestylescale (at bottom of interface), type "*active linestylescale*"; then 'Enter'.

Tip: Avoid applying a "*line style scale*" directly to the line element. The true line style scale would then become a multiple of the global *active linestylescale* setting and the element *line style scale*.

Exception: If you have a very short line where the line style pattern is too large to display any line style symbol, then it is acceptable to compensate by setting the element *line style scale* to a value less than 1.0; enough to show the symbol.

Tip: Do not use MicroStation *Annotation Scale* setting in conjunction with the DOTD CADconform annotation scaling methods documented above.

Use element *line style scale* (not *active linestylescale*) on Pavement Marking drawings.

The *active linestylescale* setting can be used for all DOTD drawings, except for drawings that include Pavement Marking line styles. These line styles represent actual pavement markings (not symbols), measured in real world units. Place Pavement Marking line styles at an element *line style scale* of 1.0 and other custom line styles at element *line style scales* equal to the Engineer's Scale (e.g., 20).

Using Enter Data Fields

DOTD uses MicroStation *Enter Data Fields* for 'fill in the blank' functionality. These fields are distinguished by their underbar display characters. For example, see the Sheet Number fields on the Title Sheet *Index*. Use the *Enter Data Field* commands on the MicroStation Text menu for placement and editing. The *Edit Text* command can also be used for editing. Setting the Text Editor to *Dialog Box* is probably the best option in this case (Workspace>Preferences>Text>Text Editor Style> Dialog Box)

Title Block Enter *Data Fields*

DOTD title blocks include Enter-Data Fields as placeholders for text entry. Select the *Fill in Single Enter Data Field* command on the Text menu. Then select the data field and enter the text.

Title Blocks are usually a combination of data field information in the referenced border drawing and data field information in the master drawing. Use border data fields for information that will be constant for all drawings referencing that border; typically State Project Number, Parish, and Section/District/Firm name. Use master drawing data fields for information that can vary from drawing to drawing, such as Control Sections, Revisions, Sheet Number, Drawing Title, etc. Exceptions are as follows:

- **Title Sheets started prior to CAD Standards release 3.0):** Border and all title block annotation is included in the master drawing, rather than referenced.
- **Road Cross-Section drawings:** Fill in the constant data field information in the master drawing before copying the border for the number of cross-section drawings needed. Then fill in the variable title block information for each drawing.

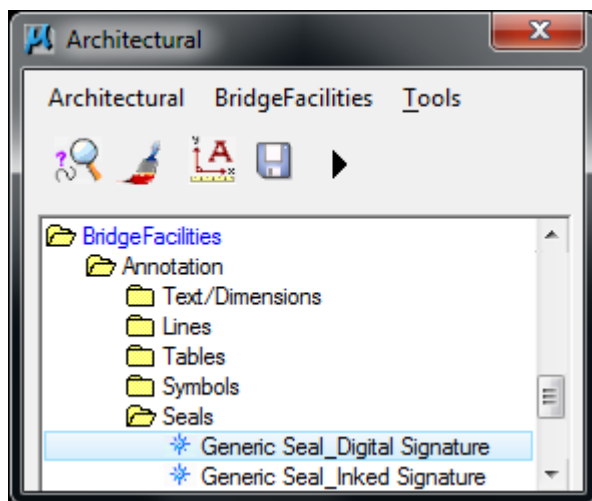
Placing Engineering License Seals

CAD Administrator Instructions:

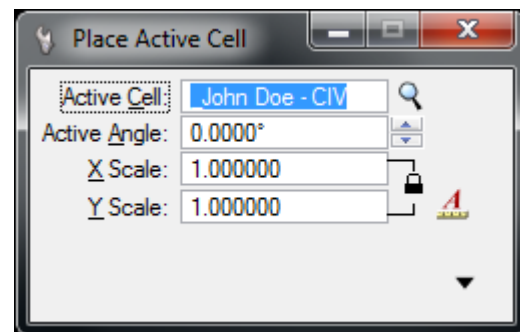
Generic (*John Doe* versions of engineering license seals are provided in the `\cell\publishing` Workspace folder. Seals for the *Road-Site* discipline are in `road-site_seal_e-sigs.cel` and `road-site_seal.cel`. Cells for other disciplines are in `seal.cel` or `seal_e-sigs.cel`. To create a new seal, open the appropriate cell library, copy a generic seal model and update to the new cell model Name and *License No.*, with the individual engineer's name and license number. Repeat this process for each new seal. Do not change text attributes of the seal. If the engineer's name is too long, scale it down to fit comfortably inside the seal. Do not change the other verbiage on the seal. Be sure to backup seal cell libraries for your site before upgrades of MicroStation resources. Then replace the delivered library with the customized library, or update as directed.

Engineer Instructions:

Use the *RoadDesign*, *RoadSite*, *BridgeFacilities* or *RightofWayMap* feature table (as branded on the drawing) to place the appropriate seal so that it will automatically scale correctly. The active seal feature will default to one of the generic seal cells. Then select the 'magnifying glass' icon in the *Place Active Cells* toolbox and browse to find the required seal cell for the individual engineer (in the same library). Double-click to activate the cell for placement. The steps in the process are illustrated below.



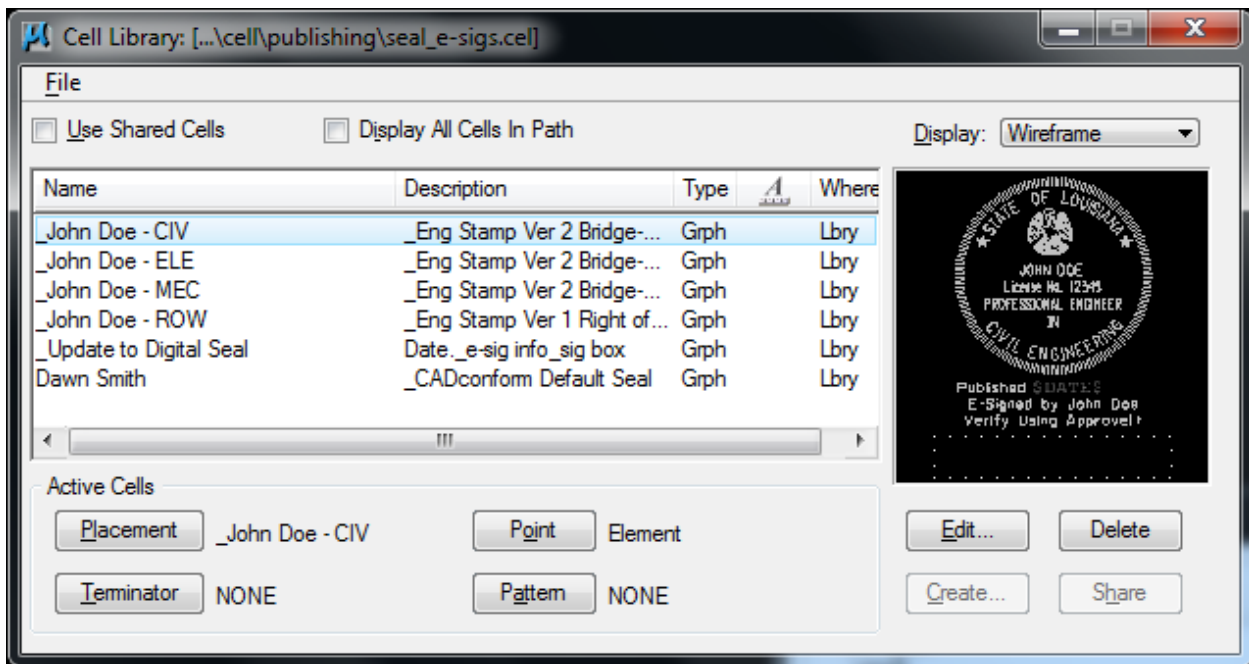
1. 1. Activate Seal Feature



2. The default Seal is now active

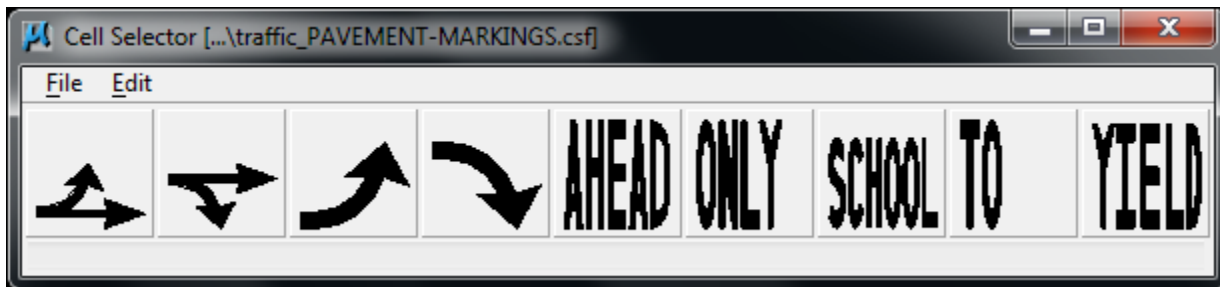
3. Select 'magnifying glass' to open the seal cell library and then select your seal.

- Continued on next page -



4. Select Your Seal for Placement

Cell Selectors



Cell Selectors Menus for Signs and Pavement Markings are now available in the CADconform *Traffic* Feature Table, which is allowable for the Traffic, Road-Site and Bridge-Facilities Workspace *Projects*.

- ❖ Two types of Cell Selectors are available in CADconform. The one above is an example of a *MicroStation* Cell Selector. *CADconform* Cell Selectors are in the form of a list that includes name and description columns that can be scrolled through. The current cell displays to the right.

Describing Facilities Levels - Mechanical, Electrical and Architectural

Generic level names are used for the Mechanical, Electrical and Architectural disciplines. Seed file levels include *Mech*, *Elec* and *Arch* levels (e.g. *Elec1-Elec20*). Generic naming is necessary because of the varying, unpredictable nature of level functions for these disciplines. Unlike levels for other disciplines, levels for these disciplines are included in the seed files so that the generic level description (“<If used, add description to design>”) can be updated to a real-world description.

- ❖ You will find tools to help manage “Facilities” Levels on the *BridgeFacilities-Apps* menu. Be sure to read *Bridge-Facilities Menu Help*.
- ❖ The ControlCAD *Check CAD Standards* report will count levels with the generic descriptions, so you will need to accurately describe the used levels, and then use the *Delete Unused Levels* function (on the “DOTD” Menu) finish the cleanup.

Embedded Spreadsheets

Embedded spreadsheets may be used to create summary tables in MicroStation. Information as follows:

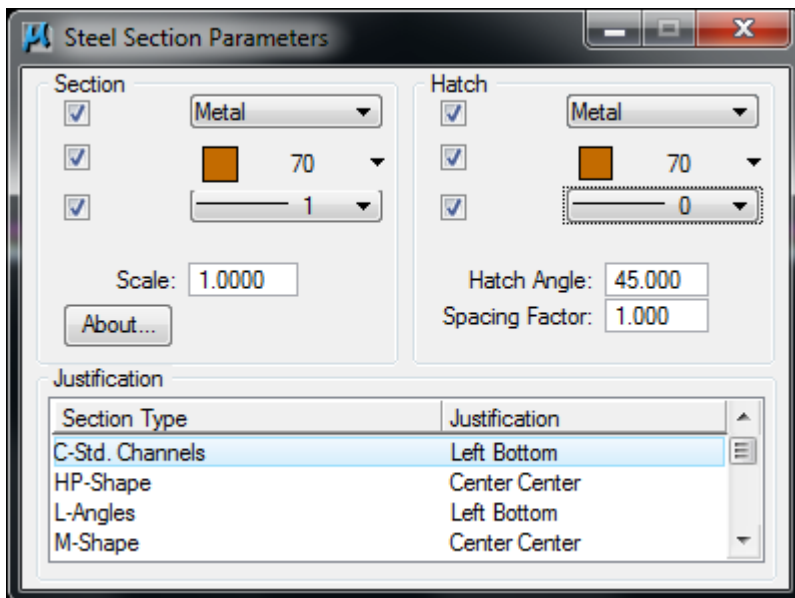
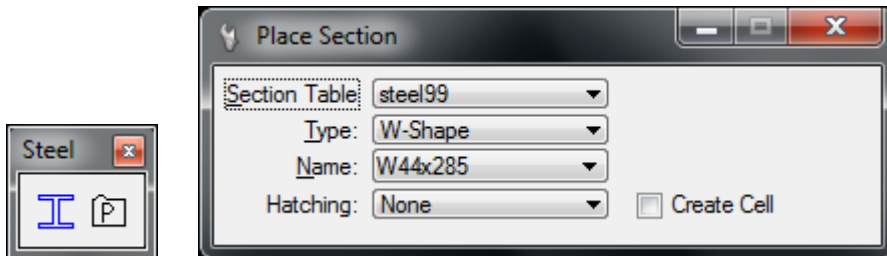
- Some Microsoft Office Excel spreadsheets are furnished in the DOTD CAD Workspace. These currently include Bridge Bent and Traffic TSI computations.
 - Bridge Bent – Open the Bridge_Bent_Quantities.xls spreadsheet, located in the \docs\seed spreadsheets folder
 - Traffic TSI – Embedded in Traffic TSI Seed Files
 - Road-Site – Use similar procedures as for Bridge below. *Format for feet (e.g., 20.00')*.
- The Bridge_Bent_Quantities.xls can be used as a seed or example setup for new Bridge quantity spreadsheets. Do not modify the example file.
 1. Starting in Microsoft Excel, select the table to be embedded and *Copy* it to the clipboard. In MicroStation, pick *Edit>Paste Special>Embedded Microsoft Office Excel<version> Worksheet*. On the MicroStation *Paste Ole Object* settings box, paste as *Embedded* using the *By Size* method. Set Scale to 20 times the Engineering Scale of the drawing, *or 20/12 times Engineering Scale for Road-Site*. Spreadsheets must be embedded, not linked
 2. Double-click on the spreadsheet image in MicroStation to open it in Excel. The *Protect Sheet* feature is turned on by default to prevent accidental modification. You must *Unprotect Sheet* to make modifications
 3. Use the same fonts and font sizes used in the example Excel file. Many other familiar fonts will not work as well when printed from the CAD file.
- ❖ Users are responsible for submitting accurate quantity computations. Provided spreadsheets are not guaranteed to be accurate. Please report any problems that you find so that they can be fixed.
- ❖ Axiom's *Microsoft Office Importer* may also be used to create tables for quantities and other purposes. This application produces CAD elements, which are subject to CADconform standards.

InfoSnap - Third Party MDL Application

- Instant access to element source, attributes, and data.
- With a single click of the tentative button you instantly have all the information you could wish for, right next to the cursor.
- Additionally, you can instantly make element attributes active and reuse them for new elements
- Gain full control over *AccuSnap's* balloon
- Perform instant navigation across reference files and DGN models
- Cleanup precious working area by automatically hiding or shrinking (and expanding) MicroStation dialog boxes on cursor flyover.
- Create context-sensitive menus popping up automatically at your cursor when needed
- Perform ad-hoc length estimates directly in graphics while executing another tool...
- ❖ No technical support provided by DOTD. Descriptions are provided by the developer
- ❖ Comments regarding problems or usefulness of this application are welcome.

Steel Section - Third Party MDL Application

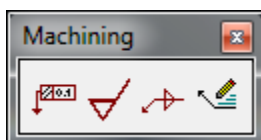
This application is used in by the structural drafting to place steel section shapes. It includes a library of many shape types and allows Steel Section Parameters to be set and saved. These parameters include color, weight, line style and hatching pattern style. The appropriate parameters are shown below. Spacing Factor and Hatch Angle may need to be adjusted.



Detailer - Third Party MDL Application

This application is primarily used to customize and place steel welding and finishing symbols. Set active level to Annotation, place symbols using *Detailer*, and conform using the CADconform *BridgeFacilities* feature table, if necessary.

- ❖ The *Datum* function is not working as of this writing. Do not turn it on! It will crash MicroStation if you try to use it.
- ❖ Activate Detailer from the BridgeFacilities-Apps menu



CADconform

CADconform Setup

The Altiva CADconform software download is located at www.altivasoft.com/ladotd/. General steps for setting up are as follows:

1. Load the software. If this is your first time, you might want to contact *Altiva Software Support at (281) 295-2254* to assist you with installing the software and obtaining a license key.
 - The installed CADconform software configuration file (CADconform.cfg) sets defaults that control how CADconform operates. Do not alter this file.
 - The LaDOTD_CAD_Standards Workspace delivers custom CADconform setting that may override CADconform.cfg. Do not alter these settings.
2. Load the software and drop the license key in the \CADconform\License folder
3. Start CADconform from the CADconform menu (located on the *MicroStation Main* menu)
4. Open *User Manager* to create new user profiles and manage user privileges as needed. Two seed user profiles (*dotd admin* and *dotd user*) are delivered in User Manager. The default passwords are “*admin*” and “*user*” respectively. Instructions as follows:
5. Change the password of the installed *dotd admin* profile, and save a copy of *cadconform.pwl*, which is located in \LaDOTD_CAD_Standards\z_CADconform\users\
6. Use the *New User* command in User Manager to create new user profiles for your site (if needed). An appropriate source profile should be selected before running the command so that the source settings will be copied to the new profile. Update settings when appropriate.

Note: The delivered user profiles are appropriate for most users, and should not be changed without careful consideration. Some examples of permissible changes are as follows:

- Allow trusted users to brand drawings
- Allow Draft to load on startup
- Lock feature tables

CADconform Operation

Each tool in the CADconform Toolbox (e.g., *Draft* and *Conform*) includes valuable commands and useful settings. Please take time to become familiar with these tools, and use help files as needed.

Feature Table Manager: Enables DOTD discipline administrators to create standard discipline-specific menus of features that are used for drafting and checking DOTD plans. Also useful for designers to review feature functionality and identify features in design.

Draft: Enables designers to draft plans using the standard DOTD feature table menus.

Conform: Used like a spell checker to check CAD standards for conformance and fix problems.

Batch Processor (“Generate Reports”): Includes functions to certify drawings, run reports and execute batch processes on drawings. The *Reports* function is used to generate reports about drawing features, errors and watermarks. The *Certify* function is used to affix a drawing’s “DOTD CAD Standard” certification stamp in the upper left border margin area.

User Manager: Used by administrators to create new users and manage user privileges, as described under CADconform Setup above.

CADconform Feature Tables

The following feature tables are available for designing, conforming and certifying DOTD drawings. Seed files are “branded” to automatically load feature tables that are normally needed. Other feature table brands may be added as long as they are specified as *Allowable* for the *Workspace Project*.

RoadDesign: Includes roadway design and related site work (*Roadway, Typical Sections, Cross Sections, Hydraulics, Driveways, etc.*)

RoadSite: Includes features that are common to site work, and minor roadwork such as access roads and sidewalks. This includes *Annotation, Erosion Control, Site Prep/Protection, Generic Site Plan* and *Landscape* feature groups.

BridgeFacilities: Includes *Annotation, Bridge* and *Structural* feature groups. Also includes *Site Prep/Protection* and *Generic Site Plan* feature groups (similar to *RoadSite*).

CADconform Cell Selectors are provided for bridge spans and bents (scales must be set manually, 1:1 or drawing scale, as appropriate).

Architectural: Used along with the *BridgeFacilities* feature table’s *Annotation* feature group

Electrical: Used along with the *BridgeFacilities* feature table’s *Annotation* feature group

Mechanical: Used along with the *BridgeFacilities* feature table’s *Annotation* feature group

Traffic: Traffic Signs, Signals, Pavement Markings, Misc. Line Styles, etc.: Normally used along with either *BridgeFacilities’* or *RoadDesign’s* feature table’s *Annotation* feature groups.

TitleSheet: Includes two major feature groups: *Seed File Features* and *Project Specific Features*

Survey: Features for electronic surveys (generated by Inroads Survey), which are referenced to plans

RightofWayMap: Features for Right-of-Way-Map drawings

ReviewCellLibrary: Used primarily as a quick way to review cell libraries. Cells placed using this tool will not automatically scale properly, and should not be used for drafting.

PreviewDictionary: Used to review dictionary files before deleting or importing into standard feature tables. It is often useful to know what you are getting before importing.

Important Information about CADconform Features

Feature Table Branding Issues: Drawing Seed Files (templates) are named according to their general function, and include “branded” feature table attachments. Brands are denoted by a red circle containing a ‘B’ in Feature Table Manager. It is not practical to cover all possible combinations of feature table brands in separate seed files; so it is permissible to add or remove feature table brands when appropriate. See the “Transition Guide” for additional information.

Feature Settings: Feature Table Manager can be used to become familiar with specific settings that are used for drafting and conforming drawings (element attributes, scales, default commands). Double-click on a feature or select the “wrench” icon to view the Advanced Feature Options tabs.

Feature Commands and Add-ons: CADconform features are normally designed to use a commonly used default command (e.g., *place smartline*) along with some optional settings and added key-ins. It is usually permissible to change the command after selecting the feature (e.g., change to *place block* command), or to apply settings that are not checked Conform (e.g., default patterning attributes).

“Variable” Features: DOTD allows variations from default feature attributes in certain cases. For instance, Concrete Object Lines are placed at weight 2 by default, but in some cases these features may need to be displayed lighter (subdued) or heavier (bold). CADconform features allow such variations in

a single feature by using *Ranges* (pick lists) of element attributes. Variations of element weight, style, color and level are allowed in varying combinations where appropriate.

Hidden Features: These are features that are not used for drafting, so they are hidden in the Draft menu. Such features include those used to cover elements generated by Inroads. Other *Hidden Features* are used to allow certain outdated drafting features to pass the Conform checker. Such features can optionally be displayed in the Conform checker pick list (magenta color).

Drafting Menu Tear-Off Option: DOTD feature tables are designed to take advantage of the Draft Short Menu *Tear-off* option. This option is available at the bottom of each feature group. Use this option to isolate specific feature groups, which are needed for the task at hand, in separate drafting menus. This function is particularly helpful when using large feature tables, such as *RoadDesign*.

Cell Scaling Methods: Border scale (for annotation); real world (1:1); or diameter (in feet) (plants).

Why not use ByLevel settings to drive standards? CADconform feature tables support ByLevel functionality, but using ByLevel settings altogether, in lieu of CADconform features, is generally not practical for DOTD drafting. Although DOTD uses ByLevel color extensively, ByLevel weight and line style are not used so often. Feature table *Ranges* provide flexibility for color, line style and line weight combinations, without having to extensively add unneeded levels.

CADconform features also add new facets to CAD standards that cannot be addressed with ByLevel settings. They can be used to run macros and key-in commands, set scales, apply settings, etc. They essentially function like mini-macros.

Why not use element *Match* commands to draft? Some designers like to place elements on the side and match them as they draft. This leaves unwanted clutter, and such elements can become out of date.

Preparing Plans for Submittal

- ✓ Fix issues that are not checked by CADconform. These issues usually show up in red in the ControlCAD *Check CAD Standards* report that DOTD reviewers run in ProjectWise. See *General Rules* below.
- ✓ Remove elements that are outside of the drawing border if possible. Move elements to a new *Design Model* if they need to be saved or referenced.
- ✓ Use *DOTD Menu* to *Delete Unused Levels* and *Delete Unused Linestyles*. Then compress file.
- ✓ Certify MicroStation drawings

General Rules for Certifying Drawings

It is important to use the following guidelines when preparing CAD drawings for delivery:

- ✓ Certify all project deliverable MicroStation *Design Files* using CADconform. Evidence of certification is a valid *DOTD CAD Standard* stamp.
 - ✓ Certify all *Reference Files* (DGN format)
 - ✓ Certify Standard Drawings that include a completed title block and referenced CAD border
 - ✓ Certify Surveys. Place the certification stamp near the left side the *survey Project Note*
- ✓ Do not certify borders. Do use the Conform checker to ensure that elements still conform.

ControlCAD Tools

ControlCAD has been transformed (according to DOTD specifications) to enable spreadsheet based feedback in ProjectWise at each submittal milestone. This enables QA/QC reports for CAD Standards and Attribute indexing to be an ongoing process throughout plan development. This new process applies to DOTD and consultant designers. A *ControlCAD Reports* subfolder of the discipline plans folder is created when a *CAD Standards* or *Attributes* report is first generated.

Check CAD Standards Report: This application, which is available to authorized DOTD reviewers on the ControlCAD right-click menu, creates a Microsoft Excel spreadsheet report that documents the status of a MicroStation file's CAD Standards. Column header labels and drawing file feedback, which are subject to change, are as follows:

- ✓ Document Name - (*name**); or (*name**)- Red text: Sheet number format issue, or problem issues in other columns (same row)
- ✓ CAD Stamp: “OK”, “Missing”, “File Modified” , “DGN not v8”
- ✓ Refs: “Attached” , “None” or “Missing” and *names** (“N/A” for border file)
- ✓ Border Ref: “OK” and *name** (“N/A for Ref” for border file)
- ✓ Drawing Scale: “border” or “user”; and *value* or “none”
- ✓ Active Linestylescale: *value* or *value*
- ✓ Missing Level Descriptions: *number** or “OK”
- ✓ Orphan Cells: *number*
- ✓ AutoCAD Styles: “yes” or “no”
- ✓ Working Units: *value** or *value**
- ✓ Dim: “2D” or “3D”
- ✓ Inroads Elements: “yes” or “no”
- ✓ Dictionaries (also called “Feature Tables”): *name* and *version*, or “none”

Black text: Usually okay. Red text: Fixes are usually required. * Corner comment info is included.

- **Check Attributes Report:** This application, which is available on the ControlCAD right-click menu in ProjectWise, and creates a Microsoft Excel spreadsheet report that documents all of the attribute values for all of the files in a *Plans* folder. Missing attribute values are listed as “BLANK”; attribute values that are not recognized by ControlCAD are identified as “not listed”. Corner comments include information, or additional issues that may need to be addressed.
- **Email Reports:** This application, which is available on the ControlCAD right-click menu in ProjectWise when one or more reports are selected, emails the reports to selected recipients. The ‘auto’ option sends a standardized email to a recipient list that is predefined in the *_emails.csv* file, with body text that is predefined in *_body.html*. These files must be located in the *ControlCAD Reports* folder. The ‘interactive’ option enables users to define recipients and author body text on the fly as one would normally do when drafting an email. This would be handy when recipient lists may vary and body text may include variable instructions including more specific information.
- **ControlCAD Indexer:** This user-friendly application, which is available on the ControlCAD right-click menu in ProjectWise, populates indexing attribute values for CAD plans. These attribute values are applied so that future searches can find files with such attribute values.

- ❖ Effective with DOTD CAD Standards Release 3.0, consultants will not use ControlCAD Indexer to index plans or ControlCAD Submittal to package DGN plans and XML index files for submittal to DOTD. Although ControlCAD Indexer is available to DOTD employees, it has not been integrated for access by users outside of the DOTD local area network yet. For additional information, contact Hollis Ward, at hollis.ward@la.gov.