BC MoT 2011 Engineering Configuration

Contents

This document will be updated with future releases of the software. Release notes for a particular update will be found at the end of the document.

Instructions

Please follow the instructions starting on page 4 to properly configure the BC MoT Highway Engineering files for use with AutoCAD.

Description

BC Ministry of Transportation and Infrastructure (BC MoT) supplies a set of files for assisting consultants with preparing AutoCAD drawings in accordance with ministry standards. The files are integrated into AutoCAD along with an add-on ribbon tab and menu. The ribbon tab provides access to utility programs, standard symbols, standard linetypes, drawing frames, and title blocks.

No other documentation is provided for the use of this software but support is available from ministry personnel.

Version Support

AutoCAD Versions Supported: **AutoCAD 2008-2012**

These files are supported for use with AutoCAD 2008-2012 and should be compatible with Autodesk vertical products based on the same AutoCAD versions.

There are two downloads provided, one containing 2010 DWG format files for use with AutoCAD 2010-2012 and one containing 2007 DWG format files for AutoCAD 2008-2009.

Limited Support for Versions Prior to 2008

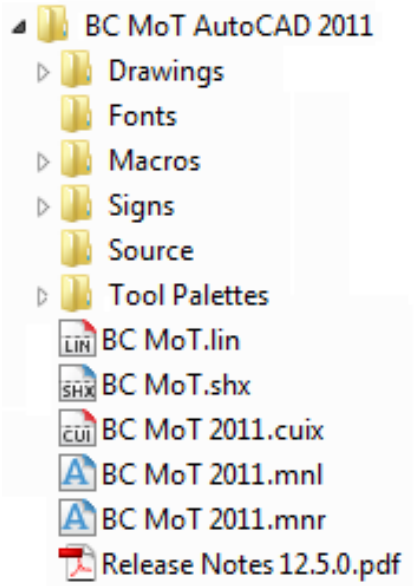
The CUI file provided can be used down to AutoCAD 2007 and an MNU file is provided that can be loaded in prior versions of AutoCAD but there are approximately 60 DWG/DWT/DWS files that would have to be resaved down to the previous format (2000 or 2004) in order to be used. LISP programs rely on DOSLIB DLL functions and DOSLIB versions are supplied to work down to AutoCAD 2000. Proper operation of all features and macros for these previous versions cannot be counted on.

Installation Download

The installation program for these files can be downloaded from the ministry web site. The installation copies the files to the computer and creates the folder structure seen below.

Folders and Files

The main folder name and location is selectable at the time of installation. The top folder may be moved/renamed if desired. The sub-folders and files, starting with **Drawings**, may not be renamed.



⇒ *menu and linetype files (see listing below)*

⇒ *standard drawing files (symbols, titleblocks)*

⇒ *standard/extra font files*

⇒ *macros/utility programs*

⇒ *traffic signs*

⇒ *backup files*

⇒ *tool palettes for symbol library*

The designation **2011** refers to the year that the files were released in rather than the specific version of AutoCAD supported. These are the latest files to be used with AutoCAD 2010 to 2012.

Differences for Prior Versions

The folders and files that specifically support AutoCAD 2008/2009 are contained in a separate download and have a **2009** designation while the included MNU/MNL files that support versions prior to 2007 are designated **2006**. The actual content of the folders and files is the same as the 2011 versions but the files are in a format supported by the previous releases (e.g. DWG 2007 format instead of DWG 2010, CUI or MNU instead of CUIX, etc.)

For versions prior to 2010, follow the instructions below, substituting the 2011 folder or file names as appropriate.

Accessing the Files and Menu within AutoCAD

AutoCAD should be configured to recognize the files and to load the CUI once the files have been copied to the computer. The supplied install copies the files. The remaining steps must be done manually.

0 – (Optional) Create a profile
1 – Add the BC MoT folders to AutoCAD's support path
2 – Add the tool palettes folder and the tool palette groups
3 – Load the CUI file
4 – Copy other files to proper locations (templates, plot style tables, hatch patterns)

Once these for steps are complete the ENGTools ribbon will be visible in AutoCAD and the symbol library will be available in the Tool Palettes window.

Instructions – Create a Profile

Some users may not want the BC MoT ribbon and associated palettes, folders and files always loaded into AutoCAD. Follow these steps to keep the BC MoT configuration separate from the daily working setup:

Step 1 – Start AutoCAD and select the **OPTIONS** command
Step 2 – Note the **Current profile** at the top of the dialog
Step 3 – Select the **Profiles** tab at the far top-right (current profile is highlighted)

Use the **Rename…** button to give the current profile a better name (optional)

Step 4 – Click the **Add to List…** button, type in **BC MoT** and click **Apply & Close**
Step 5 – Highlight the **BC MoT** profile and click **Set Current** (or dblclick the profile)
Step 6 – Close the **Options** dialog

The changes below will now be saved automatically to the **BC MoT** profile. Later, the **Options** dialog can be re-opened and the previous profile can be double-clicked to switch to the non-BC MoT configuration (do not do this now).

Instructions – Adding Folders to the AutoCAD Support Path

Four folders should be added to the AutoCAD support path. The Fonts folder is optional if the required files are copied to another folder in the support path.

BC MoT AutoCAD 2011
BC MoT AutoCAD 2011\Drawings
BC MoT AutoCAD 2011\Fonts
BC MoT AutoCAD 2011\Macros

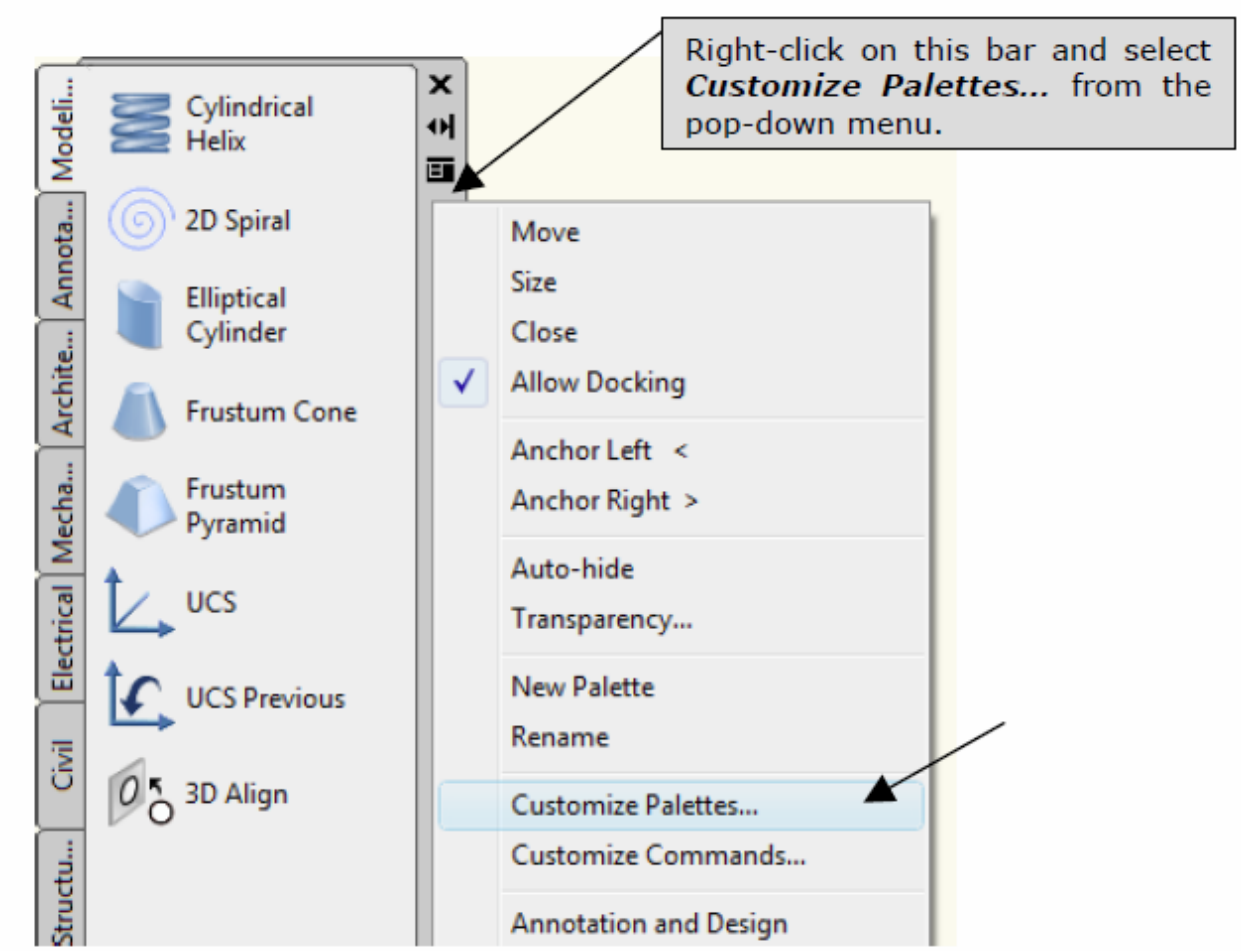
Step 1 – Select the **OPTIONS** command
Step 2 – Select the **Files** tab
Step 3 – Make sure **Support File Search Path** is highlighted
Step 4 – Click the **Add…** button
Step 5 – Click the **Browse…** button
Step 6 – Use the **Browse for Folder** dialog to select the first folder

Repeat steps 4 to 6 for the remaining folders.

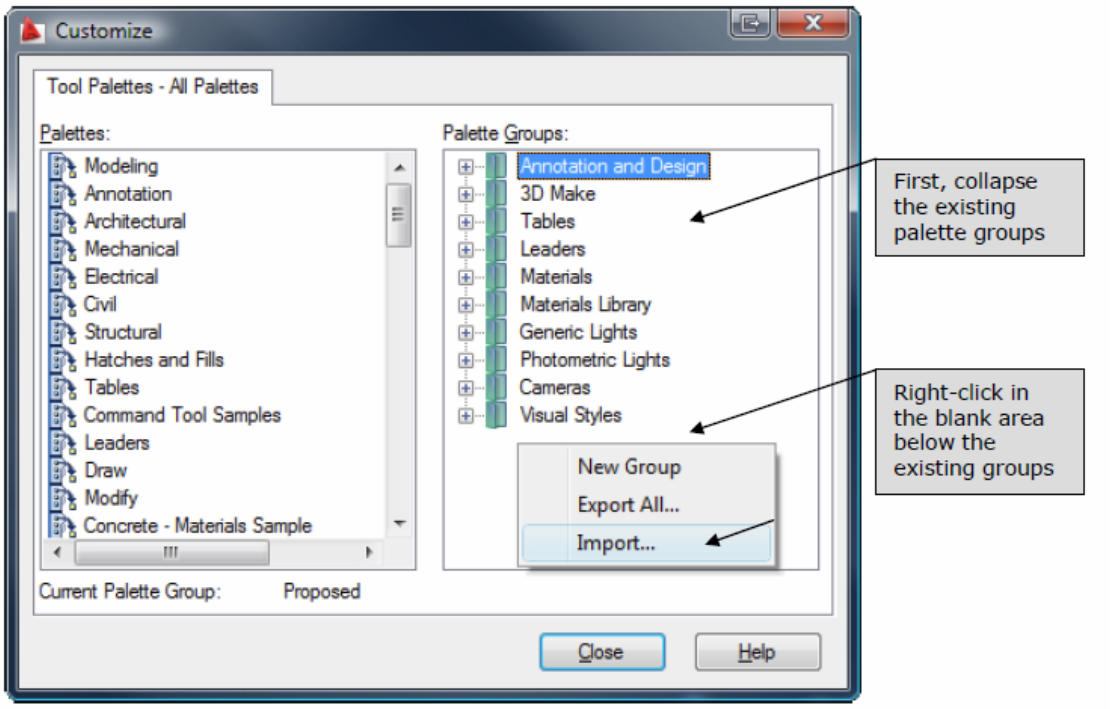
Instructions – Adding the Tool Palettes Folder

The Tool Palettes folder listed on page one must be added in order to access the BC MoT symbol library through the Tool Palettes window. Follow these instructions:

Step 1 – Follow steps 1 and 2 above
Step 2 – Scroll down to view **Tool Palettes File Locations**
Step 3 – Make sure **Tool Palettes File Locations** is highlighted
Step 4 – Click the **Add…** button
Step 5 – Click the **Browse…** button
Step 6 – Use the **Browse for Folder** dialog to select the Tool Palettes folder
BC MoT AutoCAD 2011\Tool Palettes
Step 7 – Click the Close button to exit the dialog
Step 8 – Open the Tool Palettes window if necessary (**TOOLPALETTES** command)
Step 9 – Select the **Customize Palettes…** command as shown



Step 10 – Use the right mouse button as shown to access the **Import...** command

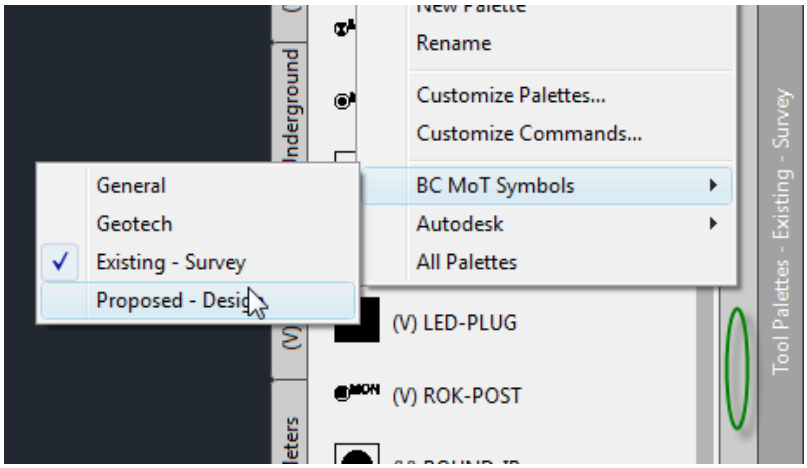


Step 11 – Browse to the **Tool Palettes** folder and select **BC MoT Symbols.xpg**
BC MoT AutoCAD 2011\Tool Palettes

*The BCMoT groups should be visible in the right side pane. The order of the groups in the right pane will determine the order shown in the menu below. Drag the **BC MoT Symbols** group higher to put it at the top of the list.*

Step 12 – Close the **Customize** dialog

Right-click on the bar again to see the **BC MoT** groups as shown here:



Note: If an empty **BC MoT Symbols** group already exists it can be deleted before re-importing in step 11.

Instructions – Loading the ENGTools CUI

Starting with AutoCAD 2009, the default user interface is the Ribbon. The drop-down menu is still supported. The following menu/ribbon files are supplied:

BC MoT 2011.cuix CUIX file for use with AutoCAD 2010 and newer
BC MoT 2009.cui CUI file for use with AutoCAD 2008 and 2009 (works for 2007)
BC MoT 2006.mnu for versions prior to AutoCAD 2007

Note: Although the **ENGTools** ribbon tab and menu are both supplied in the CUI/CUIX files, many older products do not support the ribbon. For products that don't support the ribbon, only the drop-down **ENGTools** menu will be available.

Loading the ENGTools CUI (ENGTools ribbon tab and menu)

Step 1 – Type **CUILOAD** or **MENULOAD** at the command prompt
Step 2 – Click the **Browse…** button

use the **Select Customization File** dialog to locate the menu file

Step 3 – Click the **Load** button just above the **Browse…** button
Step 4 – Click the **Close** button

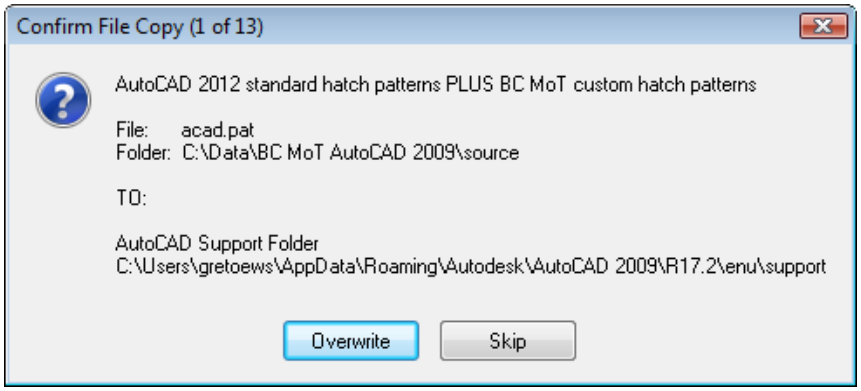
The **ENGTools** ribbon tab and menu can be unloaded using the same command.

If the ribbon or menu is not visible after loading the CUI/CUIX file, use the **CUI** command to modify the current workspace.

Instructions – Using Supplied Templates, Tables, Patterns

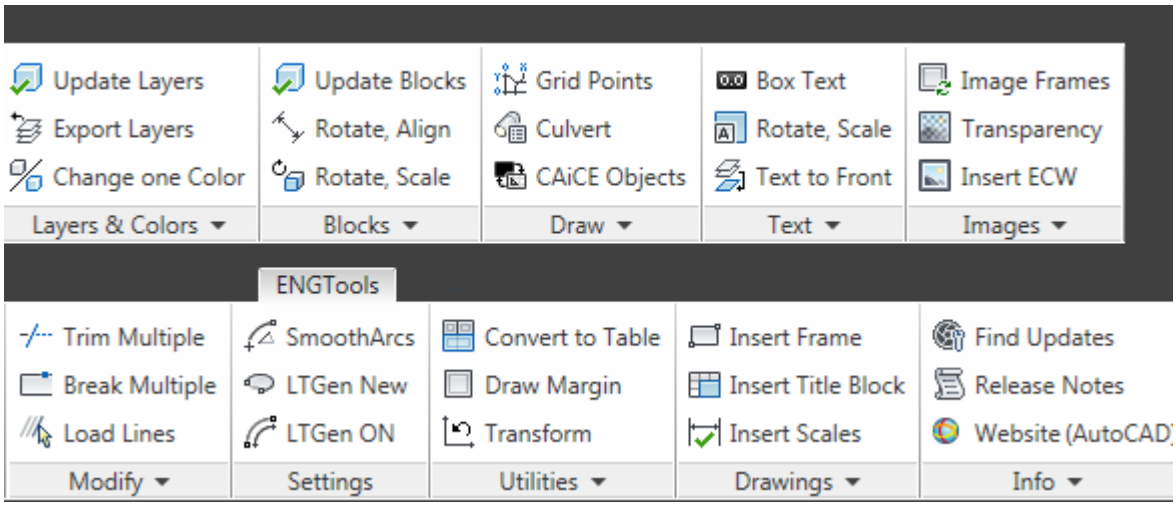
The **ENGTools** ribbon/menu contains a command under **Utilities** called **Copy BC MoT Files**. This command will copy a number of DWT, STB, CTB and PAT files to the proper location for your version of AutoCAD. The location varies for each user and version of AutoCAD.

Each file requires confirmation, with a choice to **Copy** or **Skip** the file. If the file exists the **Copy** button will change to read **Overwrite**.



What's New

ENGTools Ribbon Tab - New Panels and Commands



The following commands all have new HTML help files. The help can be accessed from the right-click menu, the command line (type H<Enter>) or the dialog box.

Blocks	> Import REF File
Draw	> Culvert
	> Grid Points
Text	> Elevation
	> Northing/Easting
Utilities	> Transform

1. Layer & Colors

Update Layers will adjust selected layers to match the current NCS standard (color, linetype, lineweight, plot style, plot on/off and description). Missing layers can be added and the dialog will also list non-standard layer names. This command will also allow you to update your layer filters to the current defaults.

2. Blocks

Update Blocks will redefine selected blocks to match all the current BC MoT symbols or add missing blocks. This replaces the previous **Update All** command.

3. Draw

Grid Points (GRIDPT macro) has been updated to use dynamic blocks, which means the properties such as grid point size, flip and show options can be updated via the properties panel and there are now only two blocks GRID-LEFT for left aligned labels and GRID-RIGHT for right aligned labels.

The macro now has an **AutoGrid** option to insert an array of GRIDPT blocks with a specified interval and options for alternating blocks.

Added an option to choose RomanS or Arial font and text height of 1.8m or 2.1m. Added an option to modify insertion layer and text/line layers. Added an option to use spaces for thousands delimiter.

Start the GRIDPT macro and select the Help option for more information. GRIDPT blocks in current drawings can be updated by selecting them, starting the GRIDPT macro, adjusting the settings and clicking the ***Modify*** button.

Culvert has been updated to automatically use the C-DRAN-CULV and C-DRAN-CULV-TEXT layers and has a new help file as well.

4. Text

Select Angled Text allows you to select one text item and all text with the same rotation angle will be selected as well. Existing selected objects will remain selected.

5. Images Panel

Images related commands are grouped in this new tab.

Insert ECW allows you to select multiple ECW files for insertion and will automatically place the images at the correct location and scale.

Reload Images will reload selected images from the reference file (GIF/JPG/etc) if the image has been updated.

6. Modify

The **Load Lines** command will allow loading previous BC MoT standard linetypes if you are working in a legacy drawing. The current BC MoT standard linetypes are built into the template drawings and assigned ByLayer so this command is typically not needed when working with the new standard.

The **Draw Bush Line** command (modifies a standard polyline) has been moved to this ribbon panel.

7. **Settings**

   This panel has been reduced to three commands

8. **Utilities**

   Convert to Table is a new command that will convert a table made up of individual lines and text entities into a real AutoCAD table object.

   Draw Margin will draw a polyline rectangle at the current plot margins on the current layout.

9. **Drawings**

   This panel has been simplified to insert the new reduced set of frame and titleblock blocks.

10. **Info**

    The Info panel links to various web sites and standards files as well as a **Find Updates** button which will check for updates to the supplied files.

Changes to Standard Layers

The standard layer list is built into the default template drawing and a spreadsheet is provided for reference (**ENGTools -> Info -> NCS Layers Spreadsheet**)

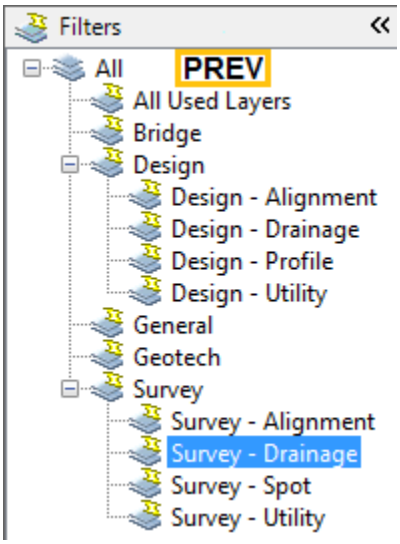
C-ALGN-ANNO	added for minor (red) alignment labels (coords, bearings)
C-ALGN-TEXT	changed from red to yellow, now used for major labels
C-ROAD-MRKG-RCLN	added for pavement marking – broken white line roundabout circulating lane
C-ROAD-MRKG-RYLN	added for pavement marking – broken white line roundabout yield line
V-ALGN-ANNO	added for minor (red) alignment labels (coords, bearings)
V-ALGN-TEXT	changed from red to yellow, now used for major labels
V-PROP-LINE	is now a 'no plot' layer
V-SITE-GATE	layer deleted (see GATEPOST note below)
V-SITE-MBOX	layer deleted (see MAIL-BOX note below)

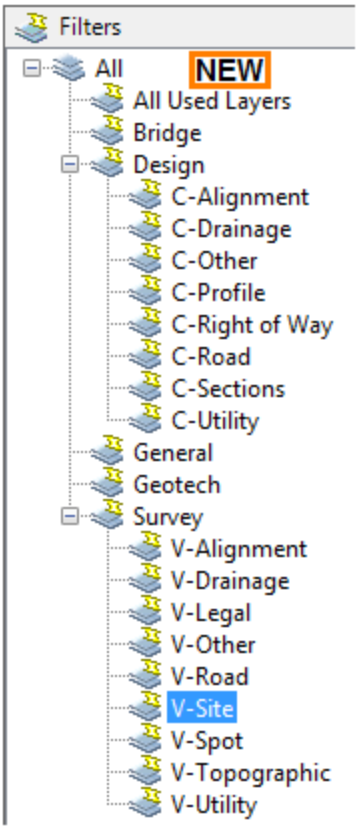
New Linetypes

ALGN-BWL-CIRC	for layer C-ROAD-MRKG-RCLN (1.0 metre dash, 1.0 metre gap)
ALGN-BWL-YIELD	for layer C-ROAD-MRKG-RYLN (0.6 metre dash, 0.6 metre gap)

Layer Filters

Layer filters have been improved.





Standard Symbols

A sample drawing showing all symbols can be found in the **Drawings\Sample** folder

KEYMAP	should go on layer B-ANNO-LEGN instead of B-ANNO-NOTE	
PASPSPLW	no longer used, ASP-SPLW used on both C/V-DRAN-SWAY	
REG-RW	removed, no longer used	
HRA-LT, etc	hollow roundabout arrows added to C/V-ROAD-ARRW	
RA-LT, etc	solid roundabout arrows added to C/V-ROAD-MRKG-ARRW	
PROFNOT1	previous name NOTE-1	(profile note without super elevation)
PDRYWELL	added to C-UTIL-SYMB	(drywell manhole or grate)
PM-WATER	added to C-WATR-SYMB	(water manhole)
STANPIPE	added to C-WATR-SYMB	(standpipe water blowoff)
IRRGJBOX	added to V-IRRG-SYMB	(irrigation junction box)
IRRGSPHD	added to V-IRRG-SYMB	(irrigation sprinkler head)
TRNS-FMR	added to C/V-POWR-SYMB	(underground transformer)
AIR-VALV	added to V-UTIL-SYMB	(air valve)
DRYWELL	added to V-UTIL-SYMB	(drywell manhole or grate)
MH-WATER	added to V-WATR-SYMB	(water manhole)
STANPIPE	added to V-WATR-SYMB	(standpipe water blowoff)

PT-GUY moved from V-UTIL-SYMB to V-POWR-SYMB

CON-PILR/FLAGPOLE/GARDPOST/GATEPOST/MAIL-BOX
moved from V-SITE, V-SITE-GATE and V-SITE-MBOX to V-SITE-MISC

Drawing Template

The new default drawing template is called **BC MoT NCS Template R1.2.dwt**. A copy of this file is in the **\Source** folder.

CAD Standards

A copy of the new template called **BC MoT NCS CAD Standards R1.2.dws**. This file may be used with the **CAD Standards** panel in the **Manage** ribbon tab to check for layer compliance. The CAD Standards checker does not correct all layer properties (e.g. layer descriptions) so the new **Update Layers ENGTools** command may also be useful for checking or updating the layer table.

SYM Folder

The old **Sym** folder with the individual block DWG files has been eliminated. All symbols are loaded by default into the standard drawing template or are added automatically by the relevant macros or ribbon commands from the **\Macros\Blocks** folder or the **\Drawings** folder.

When blocks are inserted from the BC MoT **Tool Palettes**, the blocks are copied from the **\Drawings\bc mot symbols.dwg** file if they are not already present in the current drawing.

The new **Update Blocks** command gets the updated block definitions from the DWS and DWT files in the **\Source** folder.

Sample Drawings

Sample drawings for symbols, hatch patterns, linetypes and drawing frames/titleblocks are found in the **\Drawings\Sample** folder.

Traffic Signs

All traffic signs are stored in the **Signs** folder, categorized into sub-folders.

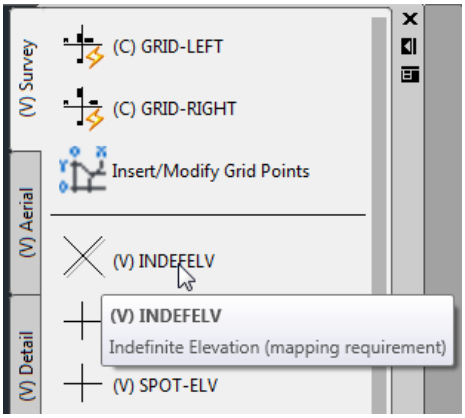
Tool Palettes

All BC MoT symbols are contained in the supplied Tool Palettes, divided into three categories:

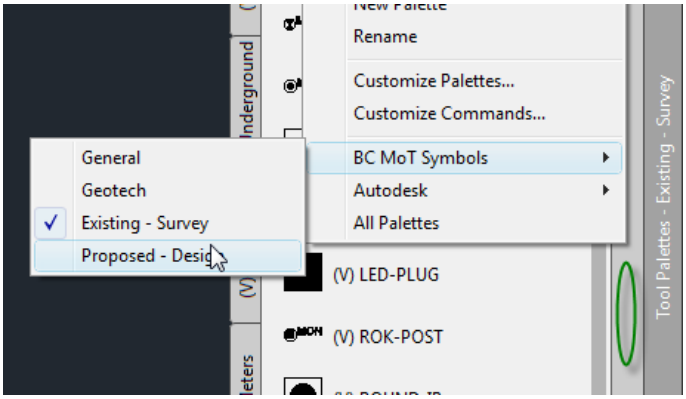
General
Geotech
Existing – Survey
Proposed - Design

All symbols will be inserted onto the correct layer when the tool palette is used. Right-click any symbol on the palette to see the insertion options.

In this example, the **INDEFELV** symbol will be inserted on the **V-TOPO-MISC** layer with all **ByLayer** attributes regardless of the current color, layer, linetype lineweight, plot style and transparency settings.



Right-click the **Tool Palettes** side bar (circled in green below) to access the **BC MoT Symbols** groups. If the palette is docked, the side bar will be the top bar.



Minimal Install to Allow Drawing of CAiCE Objects

BC MoT supplies three CAiCE macros to transfer x-section, profile and alignment data to AutoCAD. This procedure adds the KCDRAW command into AutoCAD. KCDRAW reads the transferred data and draws the x-section, profile or alignment into the currently open drawing.

This procedure is not required if the full install was performed as described on pages 4 - 7 of this document. Note that the three CAiCE macros can also create DWG files directly and the KCDRAW command is simply another option and is not required for the macros to work.

Step 1 – Copy/install the files but do not configure AutoCAD as described
Step 2 – Copy **highways.shx** from the **Fonts** folder to the **Drawings** folder
Step 3 – Copy **BC MoT Utilities.dll** from **Macros\Programs** to **Drawings**
Step 4 – Copy the **Blocks** folder from inside the **Macros** folder to **Drawings**

> Only the **Drawings** folder is now required, other files\folders may be deleted and the **Drawings** folder may be moved/renamed

Step 5 – Add the **Drawings** folder to the AutoCAD support file search path
Step 6 – Use the **NETLOAD** command to load the **BC MoT Utilities.dll** file
Step 7 – Type **KCDRAW** to start the "**Draw CAiCE Objects**" command

The following LISP code can be used to load the DLL in place of the **NETLOAD** command (modify the path as necessary, '\\' is required in place of '\').

(netload c:\\bc mot autocad 2011\\drawings\\bc mot utilities.dll")

Note that .NET DLL assemblies may not run from a network location due to permissions issues. The CasPol utility may be used to resolve this issue.

http://blogs.msdn.com/b/shawnfa/archive/2005/07/27/443975.aspx
http://blogs.msdn.com/b/shawnfa/archive/2004/12/30/344554.aspx

Disclaimer

Any files that are added to the AutoCAD path can potentially conflict with existing files of the same name. When two identically named files exist in separate directories and both directories are in the AutoCAD search path, one file may be ignored. In the unlikely event that this does occur, it is the end-user's responsibility to resolve the problem in the appropriate manner.

LISP programs and other files are supplied as-is. LISP programs, .NET macros and shortcuts provided by the ENGTools ribbon or menu may conflict with other customized commands on an AutoCAD installation. Efforts have been made to make sure that unique names are used but there is no guarantee that duplication will not occur. In the case where AutoCAD is otherwise un-customized there should be no conflicts.

There are no warranties, guarantees or liabilities for the use of these files on the part of BC Ministry of Transportation and Infrastructure. Please safeguard data by keeping backups or by saving drawings before using these files/programs.

Problems may be reported to the ministry.

Updates

None