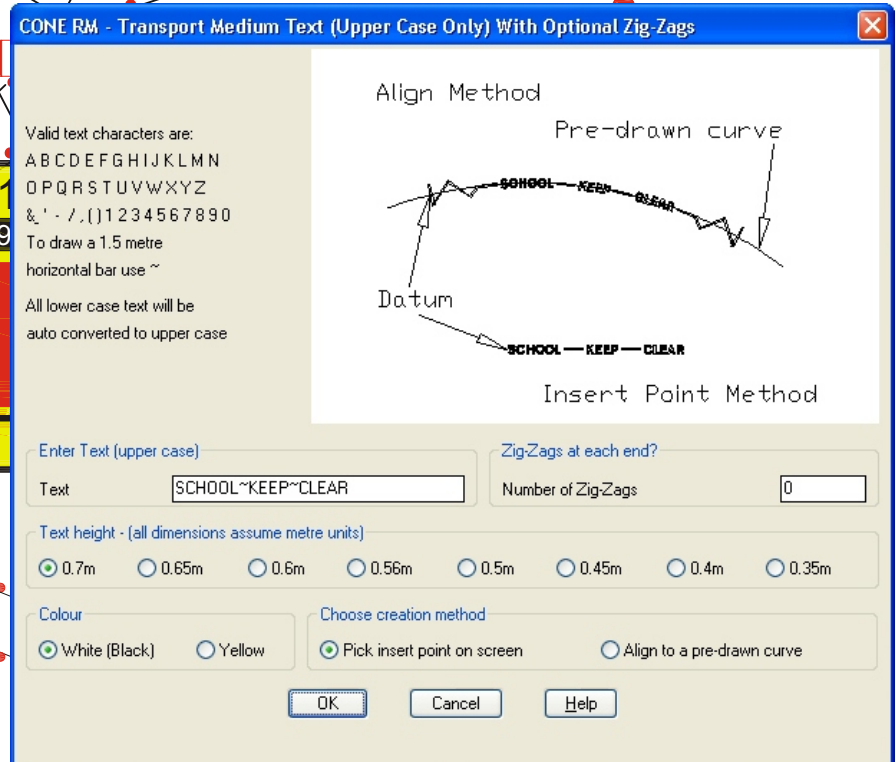
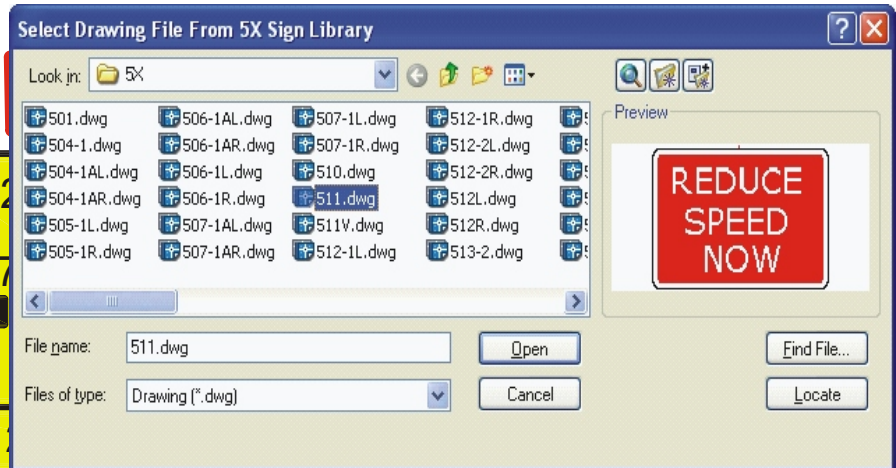
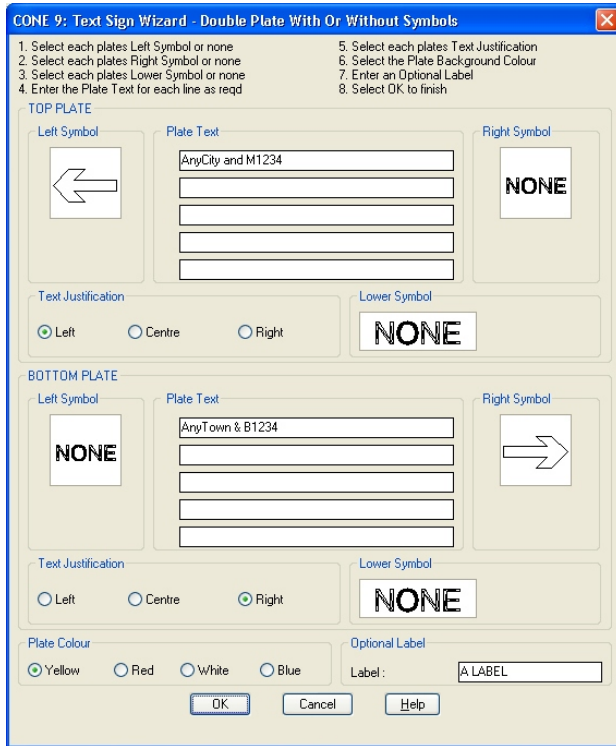


# 1 USER GUIDE



# VERSION 10

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## Introduction

Thank you for purchasing a copy of CONE 10 (UK Version)

This version of CONE is compatible with Full AutoCAD 2007+, and BRICSCAD V11.4.6 + and has been compiled with the production of both schematic (diagrammatic) and "real-world" temporary traffic management drawings in mind.

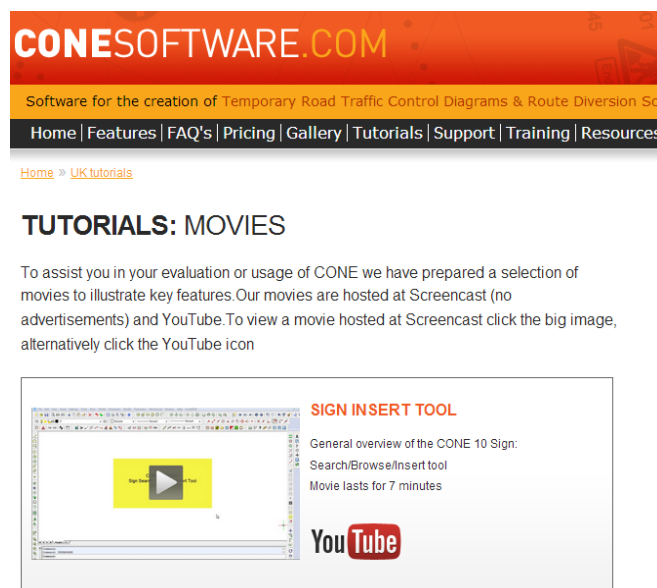
Whilst using CONE, you are strongly recommended to keep a copies of Chapter 5 and 8 of the Traffic Signs Manual as well as a copy of the current edition, with all amendments, of the Traffic Signs Regulations and General Directions (or relevant document for Wales, Scotland or Northern Ireland) to hand.

CONE is inherently a simple package to use, most of the work required to complete a temporary traffic management layout can be achieved by importing and positioning the appropriate sign, symbol or layout via the CONE pull down menu.

More detailed explanations of the general operation of CONE can be found in this manual

If you haven't already installed CONE please refer to the installation and authorisation instructions that came with the software

For all the latest news on CONE, sample drawings, tutorial and demo movies, support and resources please visit our web site at [www.conesoftware.com/uk](http://www.conesoftware.com/uk)



**CONESOFTWARE.COM**

Software for the creation of Temporary Road Traffic Control Diagrams & Route Diversion Scl

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[Home](#) » [UK tutorials](#)

### TUTORIALS: MOVIES

To assist you in your evaluation or usage of CONE we have prepared a selection of movies to illustrate key features. Our movies are hosted at Screencast (no advertisements) and YouTube. To view a movie hosted at Screencast click the big image, alternatively click the YouTube icon

**SIGN INSERT TOOL**

General overview of the CONE 10 Sign:  
Search/Browse/Insert tool  
Movie lasts for 7 minutes

**YouTube**

Technical support is free, please call 01484 489339 (UK Office hours)

Or email [info@conesoftware.com](mailto:info@conesoftware.com)

Or visit our web site [www.conesoftware.com/uk](http://www.conesoftware.com/uk)

## Pre-Requisites

CONE is inherently a simple package to use, inserting and positioning the appropriate sign, symbol or layout via the CONE pull down menu achieves most of the tasks required to complete a temporary traffic management layout. CONE also includes many tools and useful time saving facilities all of which are documented in this manual.

However you will also need a fundamental understanding of some of the PARENT CAD (AutoCAD or Bricscad) functions and this manual assumes that you will have attended a CAD training course or will have spent a day or so familiarising yourself with the following basic CAD commands: -

**Drawing Set-up:** How to start and set up new drawings

**Basic drawing settings:** LAYERS, COLOURS, LINETYPES, VIEWRES

**Viewing:** ZOOM and PAN

**Drawing Aids:** SNAP, GRID, ORTHO, OSNAP (Object Snap) and GRIPS

**Drawing objects:** LINES, POLYLINES, CIRCLES and TEXT

**Modify objects:** COPY, MOVE, ERASE, ROTATE, MIRROR, OFFSET, EXTEND and TRIM

You will also need to know how to UNDO, COPY and PASTE, SAVE, SAVE AS, and PRINT

## Training Courses

You will be able to obtain a training course in the use of AutoCAD from your local Autodesk Dealer

We offer specific CAD and CONE training at our Huddersfield office

Please visit our web site at [www.conesoftware.com/uk](http://www.conesoftware.com/uk)

The screenshot displays the website's header with the logo 'CONESOFTWARE.COM' and contact details: 'HOTLINE: +44(0)1484 489339' and 'EMAIL: info@conesoftware.com'. Below the header is a navigation bar with links for 'Home', 'Features', 'FAQ's', 'Pricing', 'Gallery', 'Tutorials', 'Support', 'Training', 'Resources', and 'Contact', along with a 'BUY NOW' button. The main content area features a 'TRAINING - OPTIONS' dropdown menu with links for 'Training Overview', 'Training Dates', 'Course Agenda', 'Location', and 'Enquiry'. The primary heading is 'TRAINING CAD & CONE10UK TRAINING COURSE FROM CADAPTOR SOLUTIONS'. Contact information includes 'CALL 01484 489339 or email peter@cadaptor.co.uk'. A note states that training costs are based on courses at Huddersfield premises and class sizes range from 2 to 5. It also offers in-house training and a link to a training calendar. A highlighted box for 'COURSE 1 (TWO DAYS)' lists 'Introduction to CAD + Introduction to CONE10UK'. An image of the 'CAD / CONE TRAINING MANUAL' is shown in the bottom right corner.

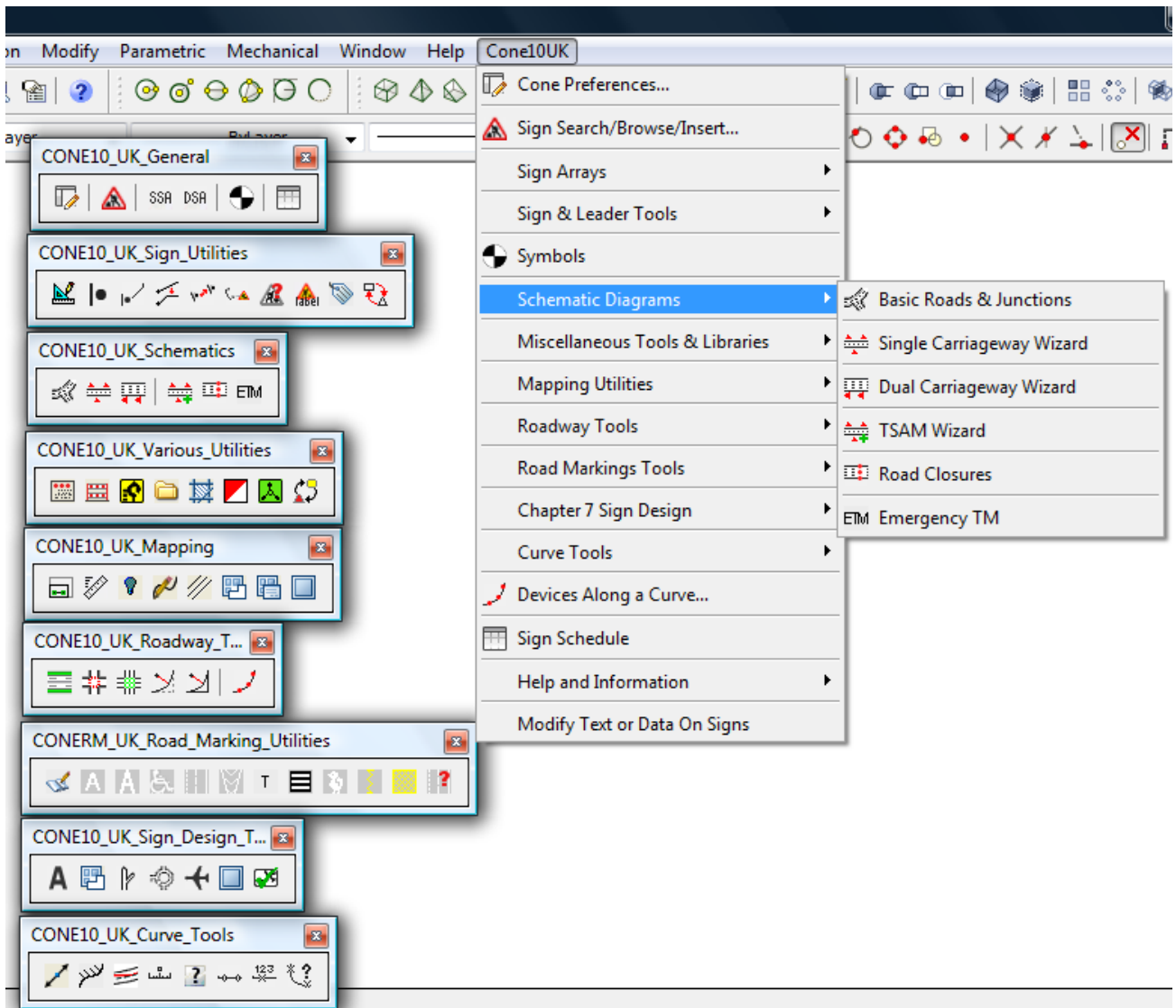
## Cone Pull Down Menu and Toolbars

Operation of CONE is accomplished via the **Cone10UK** pull down menu and/or via the CONE Toolbars.

The diagram below shows the Cone10UK pull down menu with one of the sub menu fly-outs in position.

The toolbars here are also shown within the drawing window; however it is normal practice for the user to position the toolbars around the edge main drawing window.

The actual look of the menu differs slightly in different parent CAD systems but the functionality remains the same.

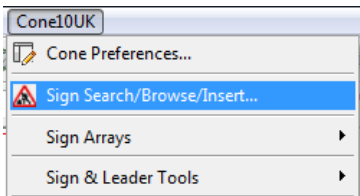


## CONE Tool Operation

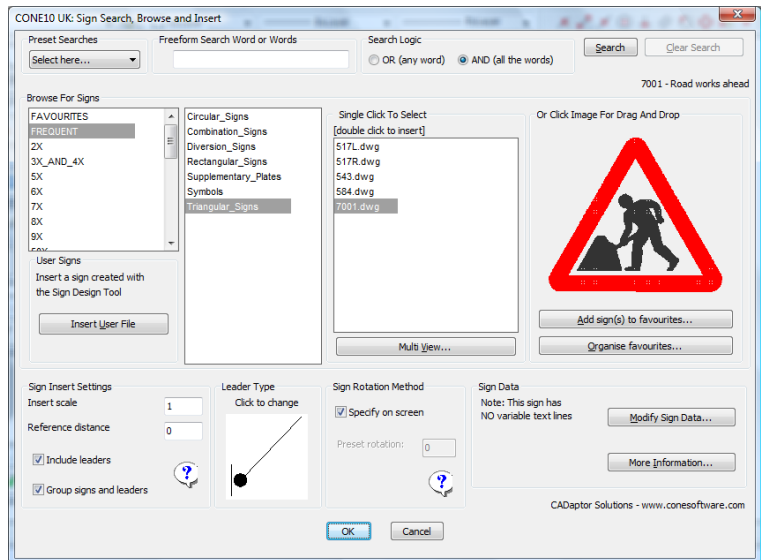
CONE tools are operated via the CONE pull down menu or CONE Toolbars, most CONE tools will initially load a dialog window where you select from various tool specific options and then select the **OK** button to proceed. Operation then transfers to the **Command** line where the tool specific prompts appear.

Example of CONE Tool > Dialog Window > Command Line Prompts

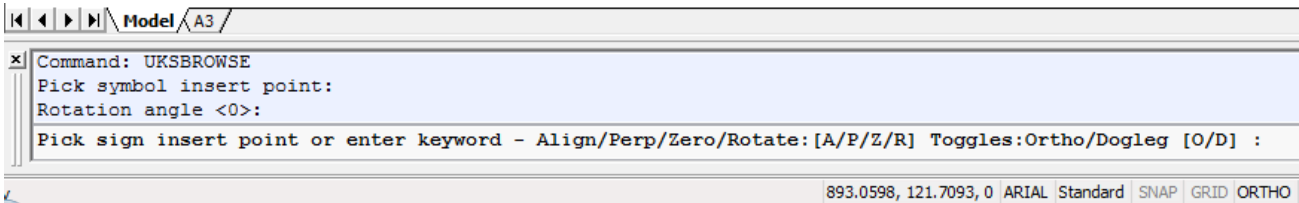
Tool



Dialog Window

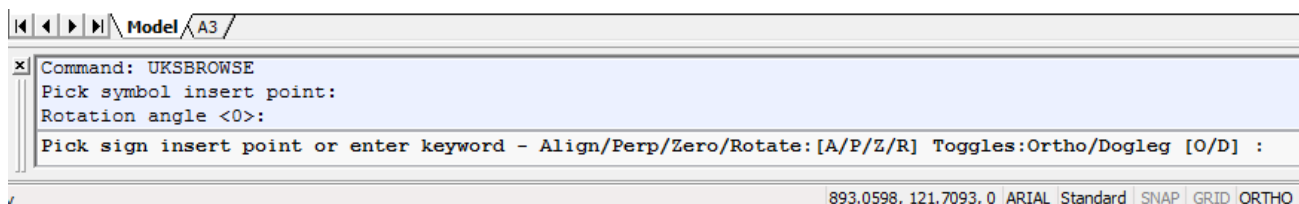
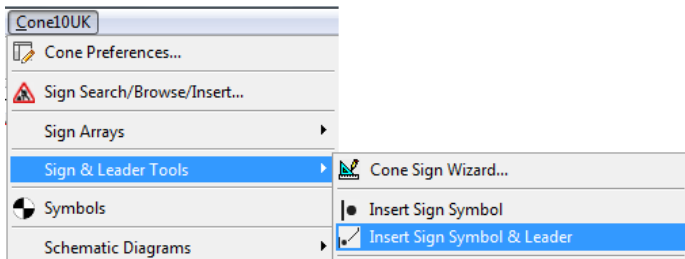


Command Line



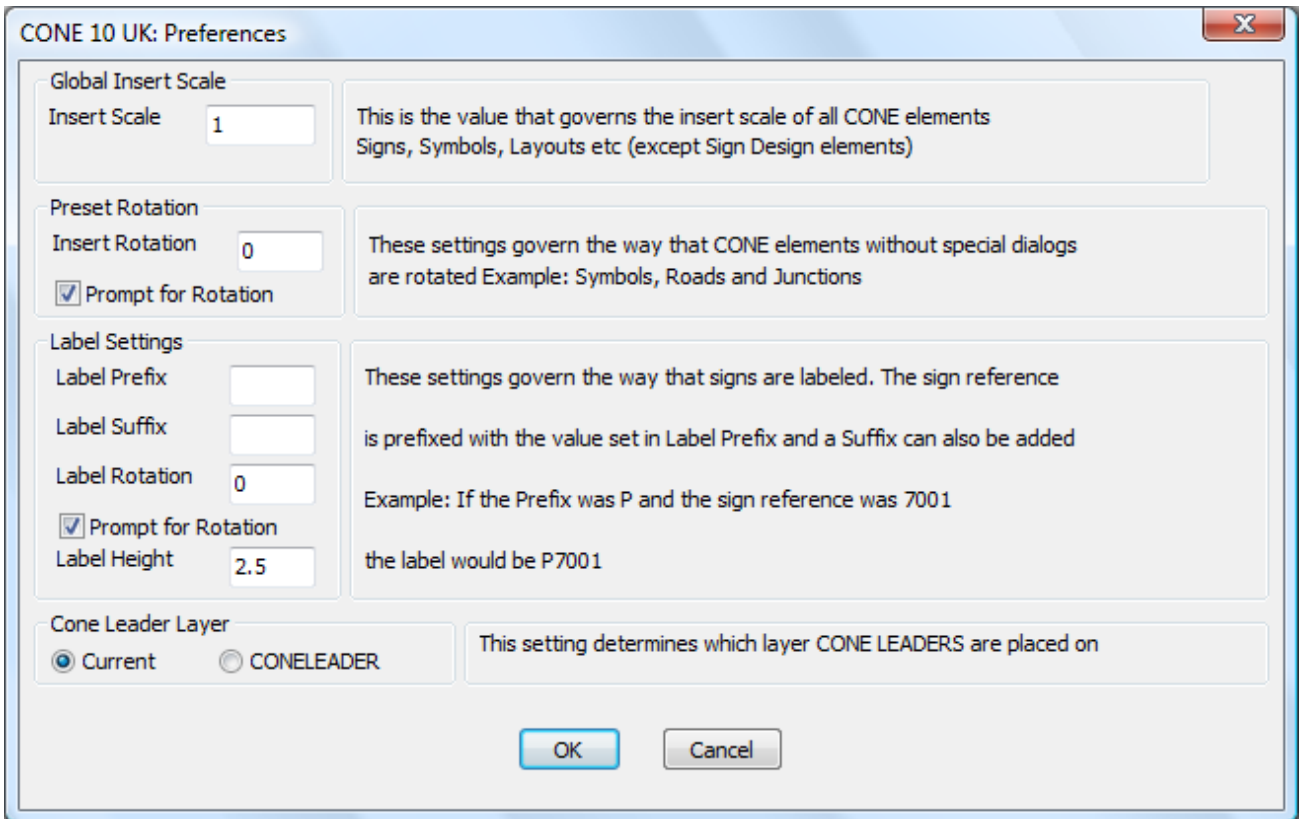
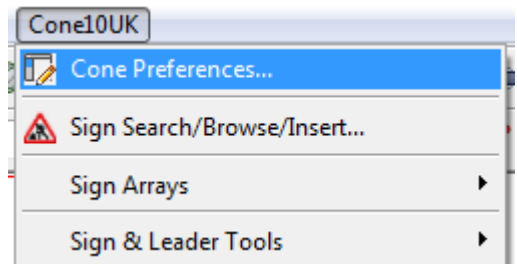
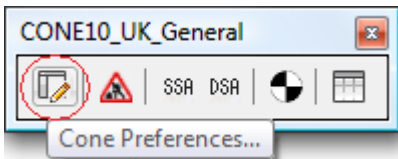
There is however a number of CONE tools that do not initially load a dialog window, in these cases operation immediately transfer to the **Command** line where the tool specific prompts appear

Example of CONE Tool > Command Line Prompts



Each tool documented in this guide shows which method of operation is used

## Cone Preferences



All CONE objects (signs, symbols, schematic layouts etc.) are inserted with a **Global Insert Scale** setting. (Note: Not including Sign Design objects and real world size objects such as Road markings and channelling devices)

Most CONE tools such as Sign Browse, Sign Arrays and Wizards allow you to change this setting within the dialog window applicable to the tool; however there are some CONE tools that only have a direct file insertion tool (Symbols, Road & Junctions and Road Diversion related)

If you need to change the scale prior to inserting objects from these tools then you should to change it in CONE PREFERENCES

**Global Insert Scale:** *Default value is 1.0*

Assuming you are working with a setting of 1 CAD unit = 1 metre then a **Global Insert Scale** setting of 1.0 is perfect when working on schematic schemes.

However if you are placing CONE objects onto maps then you may find that a insert scale of 1.0 results in signs that are too large in proportion to the map, in which case a **Global Insert Scale** setting of 0.5 to 0.75 is recommended.



### **Preset Rotation**

When inserting objects you may set the default insertion rotation angle or choose to be prompted on screen for an object rotation angle after insertion.

**Insert Rotation:** *Default value is 0.0 degrees*

If the **Prompt for Rotation** setting is NOT checked then CONE objects will be inserted with the rotation angle set here

**Prompt For Rotation:** *Default value is NOT checked*

If the **Prompt for Rotation** setting is checked then you will be prompted on screen for an object rotation angle after insertion of the object

Some CONE tools such as Sign Browse, Sign Arrays and Single/Divided highway schematics allow you to change this setting within the dialog window applicable to the tool, whereas some CONE tools only have a direct file insertion tool (Symbols, Road & Junctions and Mobile Works) If you need to change the rotation setting prior to inserting objects from these tools then you should to change it here in CONE PREFERENCES

### **Label Settings**

These settings only apply to the Label Signs tool and govern the way that signs are labelled

**Label Prefix:** *Default value is blank*

If you enter a prefix value here (example P) then labels will be prefixed with this value  
Example: The sign reference 7001 would be labelled P7001

**Label Suffix:** *Default value is blank*

If you enter a suffix value here (example \_XYZ) then labels will be prefixed with this value  
Example: The sign reference 7001 would be labeled 7001\_XYZ

**Label Rotation:** *Default value is 0.0 degrees*

If the Prompt for Rotation setting is NOT checked then labels will be inserted with the rotation angle set here

**Prompt For Rotation:** *Default value is NOT checked*

If the Prompt for Rotation setting is checked then you will be prompted on screen for a label rotation angle after insertion of the label

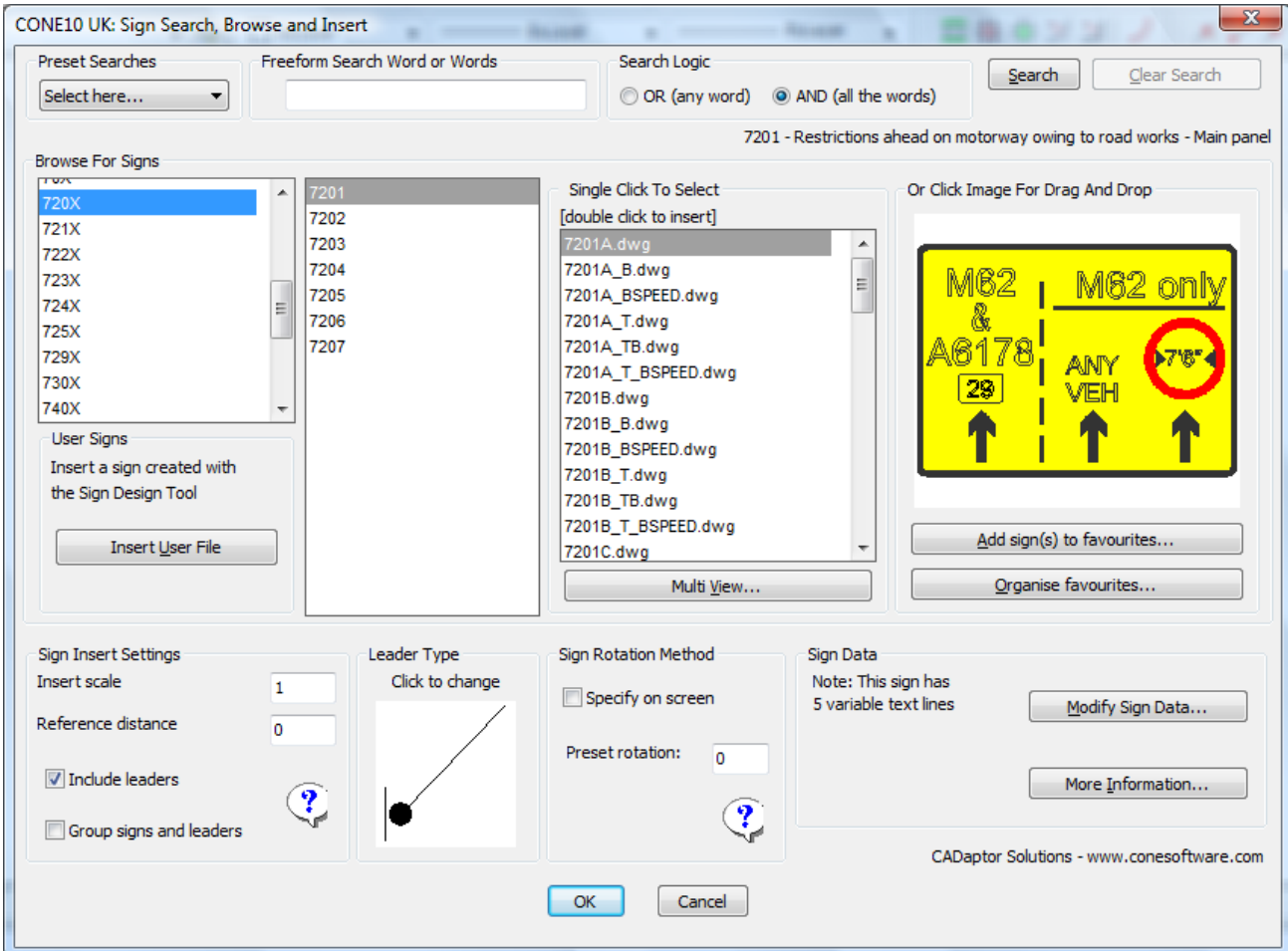
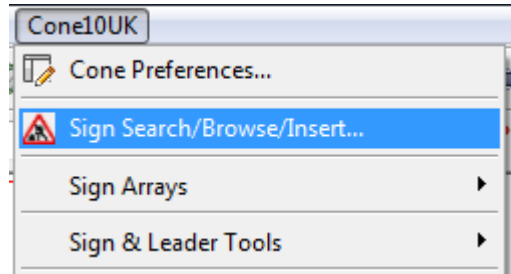
**Label Height:** *Default value is 2.5 units*

The value entered here sets the size of the text label

**Cone Leader Layer:** *Default current*

Determines which layer CONE leader lines are place upon

## Sign Search, Browse and Insert



The primary task of the Sign Search Browse and Insert tool is to enable easy insertion of signs into the current drawing; however the tool contains many other features, a summary of those features are included below and are described in detail on the following pages:

Summary of the **Sign Search Browse and Insert** tool features:

- Search for signs from list of preset search topics or enter any word or phrase
- Browse for signs
- Organise signs into user defined favourites
- Multiple sign viewing
- Multiple sign insert
- Insert signs at various scales and rotation angles
- Insert signs with or without sign symbols and leaders
- Insert signs a specific distance from a datum point
- Group signs, sign symbols and leaders
- Modify variable text before sign insertion

### Browse For Signs

Working from left to right there are three list boxes used for sign browsing  
The left hand list contains the top level sign categories (folder names) thus:

FAVOURITES	723X
FREQUENT	724X
2X	725X
3X_AND_4X	729X
5X	730X
6X	740X
7X	86X97X
8X	877X
9X	PERMANENT_VMS
50X	REG_53
70X	TEMPORARY_VMS
720X	ENGLISH_WELSH
721X	WELSH_ENGLISH
722X	

All of the above categories with the exception of FAVOURITES, FREQUENT and REG\_53 relate to numbering of signs documented in *The Traffic Signs Regulations and General Directions 2002*. (often referred to as *TSRGD*)

For example: 5X means signs beginning with the number 5, and 70X means signs beginning with the number 70, (such as 7001 - Road works ahead)

Selection of a category from the **left hand list** will change the contents of the **second list box** and automatically fill in the **third list box** with a list of signs from the first category of the **second list box**

Example: If you select 720X from the left hand list, the second list will change to show the various subfolders underneath 720X. Whereas if you select 5X from the left hand list there are no subfolders

The **third list box** contains the actual list signs (i.e. the drawing names)

You can navigate through the **third list box** by single clicking on the name of each sign, or by use of the **Up Arrow** and **Down Arrow** keys or you can use your mouse scroll wheel to scroll up and down

As each sign in the list is selected an image preview of the sign and any related data will be presented and the sign is set current ready for insertion.

### FREQUENT

The FREQUENT folder contains a list of signs that are frequently used in temporary traffic management diagrams. The FREQUENT folder has subfolders categorised by the sign shape (circular, rectangular and triangular) plus common combination signs (top plate with bottom plate), diversion signs and frequently used symbols.

You can use Windows Explorer to copy signs of your own choosing from any of the CONE signs folders to the FREQUENT folder, however the FAVOURITES section provides an alternative as described below.

**FAVOURITES** Up to 15 virtual folders (Favourites) are supported.

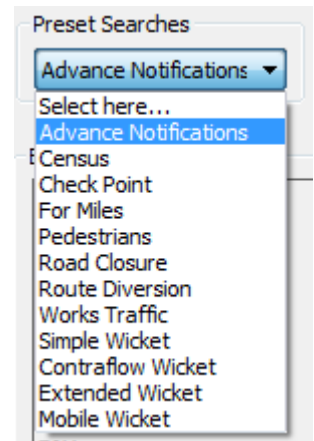
This is simple but effective method that allows you to organise the location of CONE signs to your own preferences

See **Organise Favourites and Add Sign to Favourites** (page 14) for more information

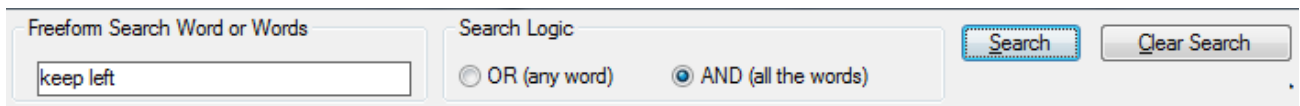
## Search for a Sign

### Preset Searches

Contains a list of preset search topics, simply select a topic from the list and the program will perform a search on the selected topic



### Freeform Search Word or Words



Enter a search phrase in the edit box and press the enter key or pick the **Search** button

How the program performs the search depends on the setting of **Search Logic**

### Search Logic

OR (any word)

If you enter: **Keep left** in the search phrase edit box and the search logic is set to OR (any word) the program will return a long list of signs that contain the words: Keep or Left

Example: Side Road Left or No Left Turn

AND (all the words)

If you enter: **Keep left** in the search phrase edit box and the search logic is set to AND (all the words) the program will only return list of signs that contain both of the words **Keep** and **Left**

### Clear Search

Pick this button to clear the current search and return to normal browsing

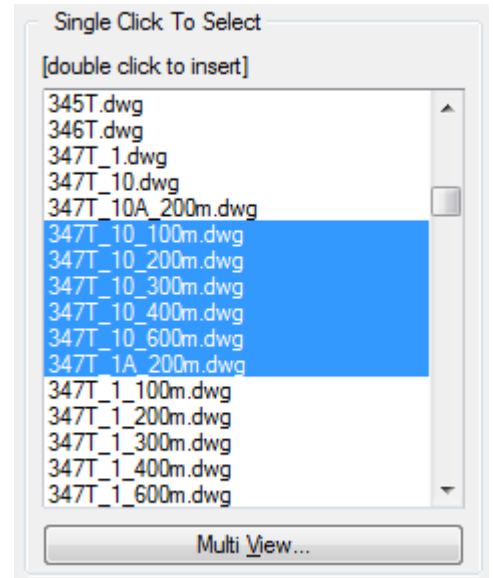
## Select and Insert a Single Sign

There are three ways of inserting a single sign

1. Select the **OK** button
2. Double click the file name in the third list box
3. Single click the image of the sign (in this case the dialog is represented after completion of the sign insertion)

## Select and Insert Multiple Signs

To select and insert multiple signs hold down the **Shift** key whilst selecting signs from the third list box and press the **OK** button



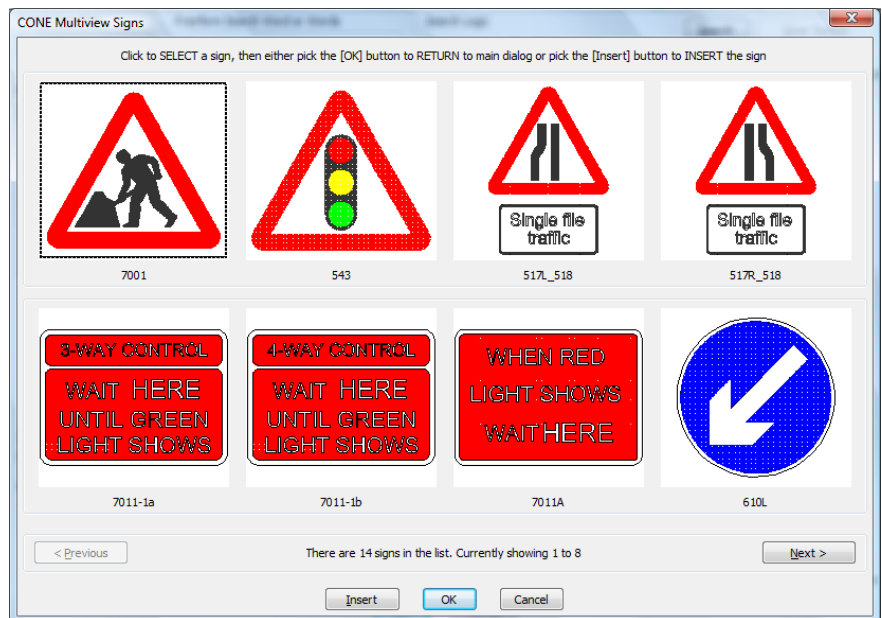
Note: For multiple sign insertion, any leader settings are ignored and the signs are inserted at the current scale setting and with a zero rotation angle. You are notified of this (just in case you multiple selected by mistake) and given the option to cancel the action. Follow the prompts at the Command Line to position the group of signs

## Multi View

The Multi View option provides an alternative method of sign selection and insertion

Picking the Multi View button will display all the signs listed in the third list box in a separate Multi-view dialog (8 per page)

Use the **Next >** and **< Previous** buttons in the Multi View dialog to navigate through the list

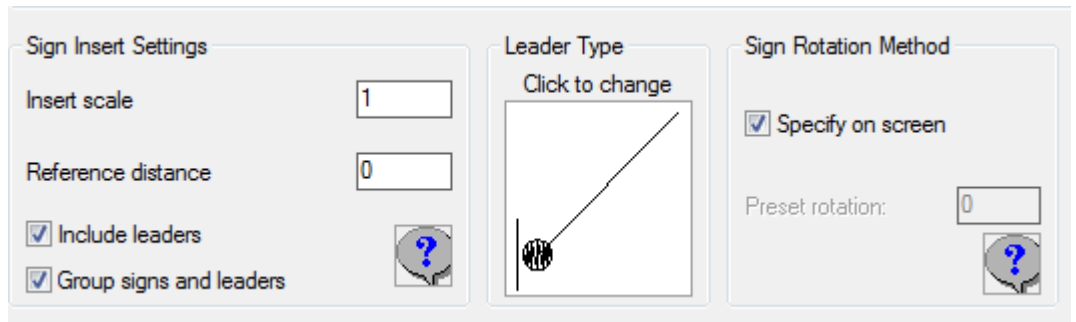


To insert a sign, first select a sign by clicking its image and then pick the **Insert** button

To select a sign and make it current, click its image and pick the **OK** button, the sign selected will now be the current sign in the main dialog window after you press the OK button

You can return to the main dialog window without doing either of the above by picking the **Cancel** button

## Sign Insertion Methods



How signs are inserted onto the drawing depends on the following settings:

Sign Insert Settings, Leader Type and Sign Rotation Method

### Sign Insert Settings

**Insert Scale:** (This is the same value as Global Insert Scale in PREFERENCES)

Assuming you are working with a setting of 1 CAD unit = 1 metre then a Insert Scale setting of 1.0 is perfect when working on schematic schemes

However if you are placing signs onto maps then you may find that an insert scale of 1.0 results in signs that are too large in proportion to the map, in which case an insert setting of 0.5 to 0.75 is recommended.

**Reference Distance:** *Default value is 0.0*

If you set a value other than zero here, then during insertion you will be prompted to pick a reference point (Datum), you will then continue to pick points (trace) on the drawing until the distance you entered is achieved. At which point the sign symbol or sign will be inserted

### Include Leaders

If the **Include Leaders** checkbox is checked then the sign symbol as shown in **Leader Type** will be inserted first and the sequence is as follows:

The sign symbol is inserted onto the drawing and you are prompted to:

Pick symbol insert point *Pick the symbol insert point*

The next prompt asks you for a:

Rotation Angle: *Enter an angle or show the angle by picking*

The sign will now be inserted and a leader line will connect to the sign symbol, the prompt will now show either

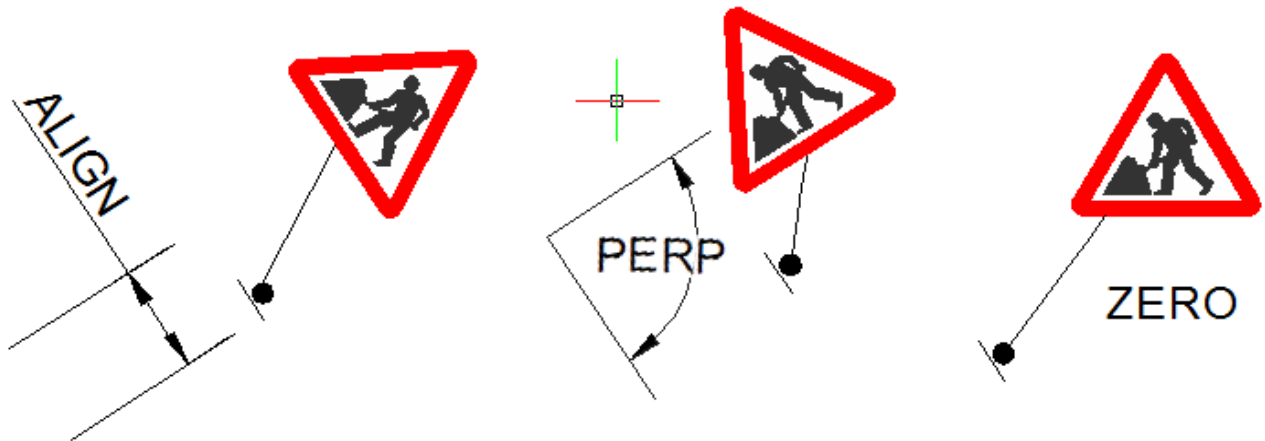
Pick sign insert point or enter keyword - Align/Perp/Zero/Rotate:[A/P/Z/R] Toggles:Ortho/Dogleg [O/D]

or

Pick sign - Toggles:Ortho/Dogleg [O/D]

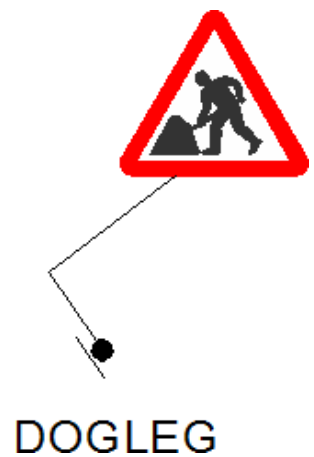


Depending on the Sign Rotation Method setting, you can simply pick the sign insert point or select a keyword



### Option Keywords

- ALIGN: Key A or a (the sign will be aligned parallel to the sign symbol)
- PERP: Key P or p (the sign will be aligned perpendicular to the sign symbol)
- ZERO: Key Z or z (the sign will be placed upright (zero rotation) )
- ROTATE: Key R or r (you will be prompted to rotate the sign manually)
- ORTHO: Key O or o, ( toggles ORTHOMODE ON or OFF)
- DOGLEG: Key D or d, (toggles Doglegging of the leader ON or OFF)

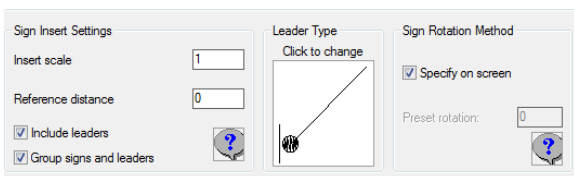


### Group Signs and Leaders

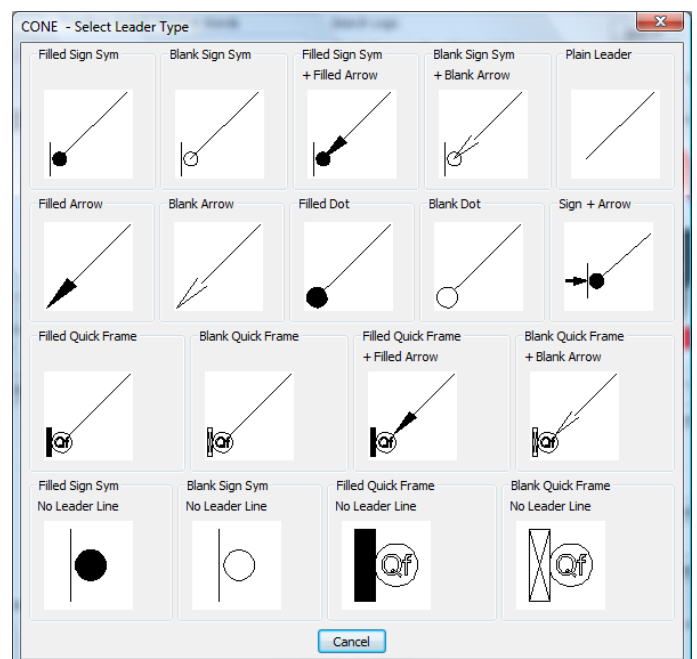
If the **Group signs and leaders** checkbox is checked then the sign symbol, leader and sign will be grouped together, making it easier to modify all three elements together

### Leader Type

The Leader type image is only active if the: **Include leaders** checkbox is checked.



You can change the current leader setting by clicking the leader image and selecting a leader type from the dialog that will be displayed



## Sign Rotation Method

### Specify on screen

If the **Specify on screen** checkbox is checked then you will be prompted for the sign rotation angle during insertion

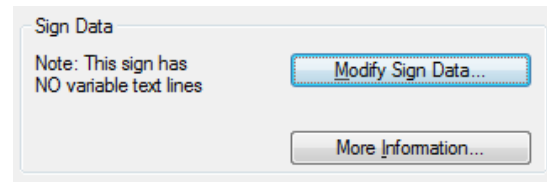
If the **Specify on screen** checkbox is unchecked then the sign will be inserted at the angle set in the **Preset Rotation** edit box

### Sign Data

All CONE signs have attribute data associated with them, you can modify this data by picking the:

#### Modify Sign Data button

All signs have basic data fields attributed to them namely **Qty, User Size, User 1 and User 2.**



Any data you enter here will be included in Sign Schedules.

The field most commonly used is the Qty field where you show only one sign on your drawing but two leaders connected to sign symbols; in this case a quantity of 2 would be entered

You can also access and change sign data after insertion in a drawing by using the: Sign & Leader Tools > Query/Edit Sign Data/Qty tool

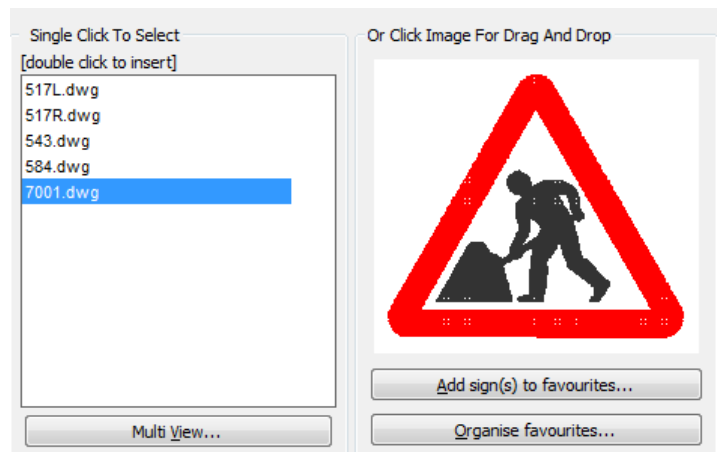
### More Information

Displays additional sign information in a secondary dialog window

## Organise Favourites and Add Sign to Favourites

This is simply a method that allows you to organise the location of CONE signs to your own preferences

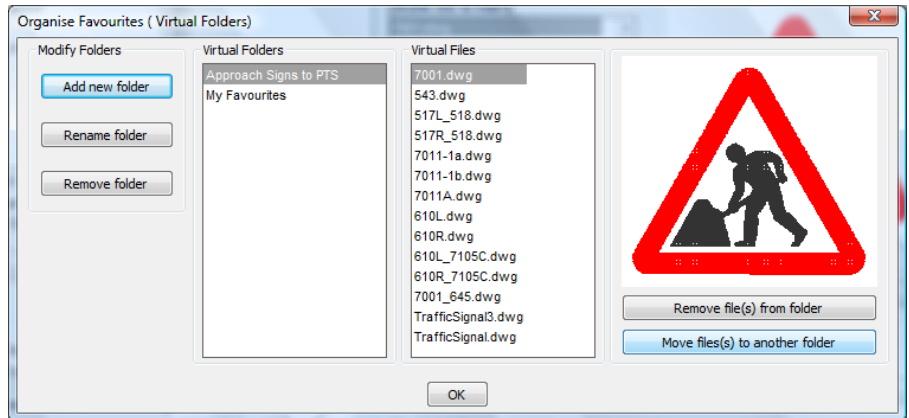
Up to 15 virtual folders (Favourites) are supported.





## Organise Favourites

To Organise Favourites pick the Organise Favourites button and secondary dialog window will be presented



### Add New Folder:

Pick this button and enter a folder description, the new Favourites folder will be created

**Rename Folder:** Select a folder from the Virtual Folders list and pick the **Rename Folder button** to change the folder description

**Remove Folder:** Select a folder from the Virtual Folders list and pick the **Remove Folder button** to delete the folder

*Note: A warning will be issued with an option to cancel this action*

Files (signs) can be removed from a folder or moved to a different folder by selection of:

### Remove file(s) from folder button:

Select a file from the Virtual files list and pick this button to remove a file

*Note: A warning will be issued with an option to cancel this action*

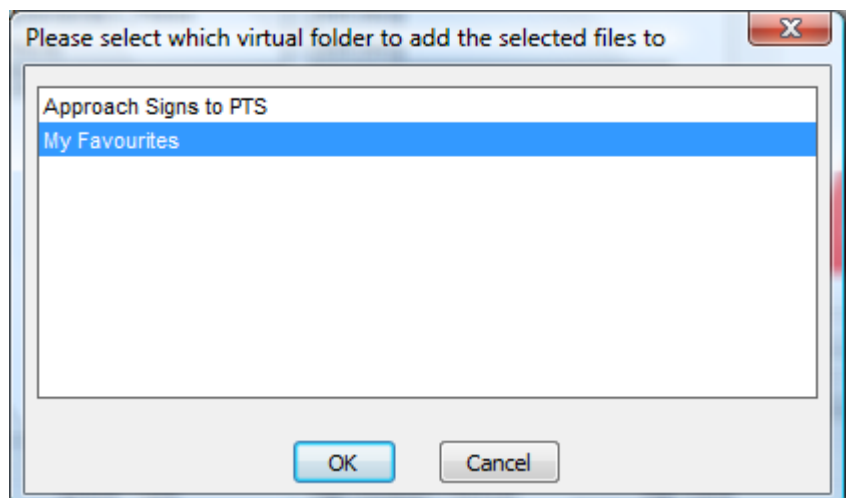
**Move file(s) to another folder:** Select a file from the Virtual files list and pick this button to move a file to a different Virtual Folder

*Note: A warning will be issued with an option to cancel this action*

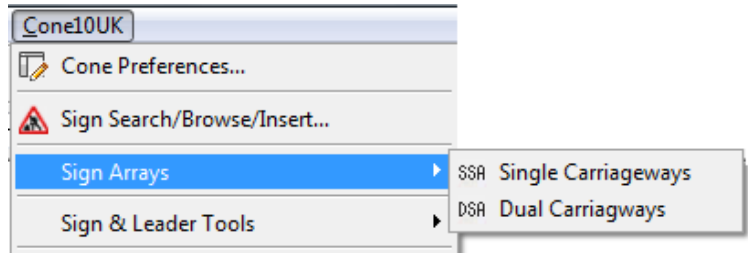
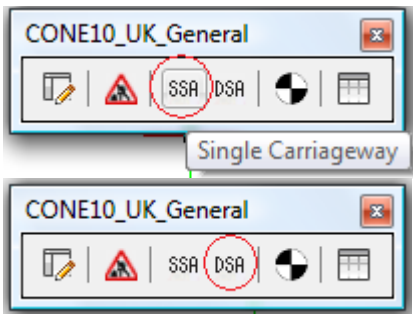
## Add Sign to Favourites

To add a sign to a favourites folder pick the **Add signs to favourites** button and a dialog will be displayed

Select the virtual folder which you would like to add the sign to and pick the **OK** button

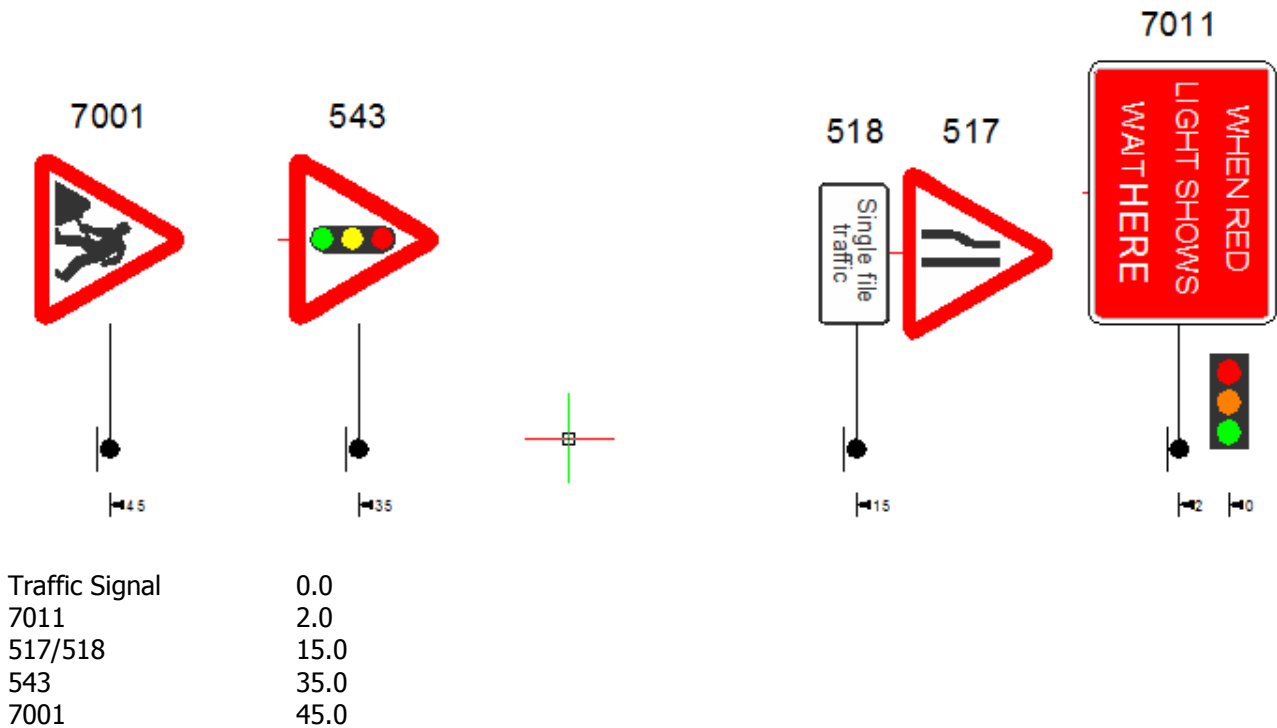


## Sign Arrays Introduction



Sign Arrays are list of signs (plus optional sign symbol and leader lines) with accumulative distances from a datum point

Example



The most common use for Sign Arrays are in the rapid and accurate placing of an array of signs leading up to the start of a works area but they can be used anywhere on your schemes.

CONE Standard Sign Arrays are provided for both Single Carriageway and Dual Carriageway schemes and the method of use is the same for both.

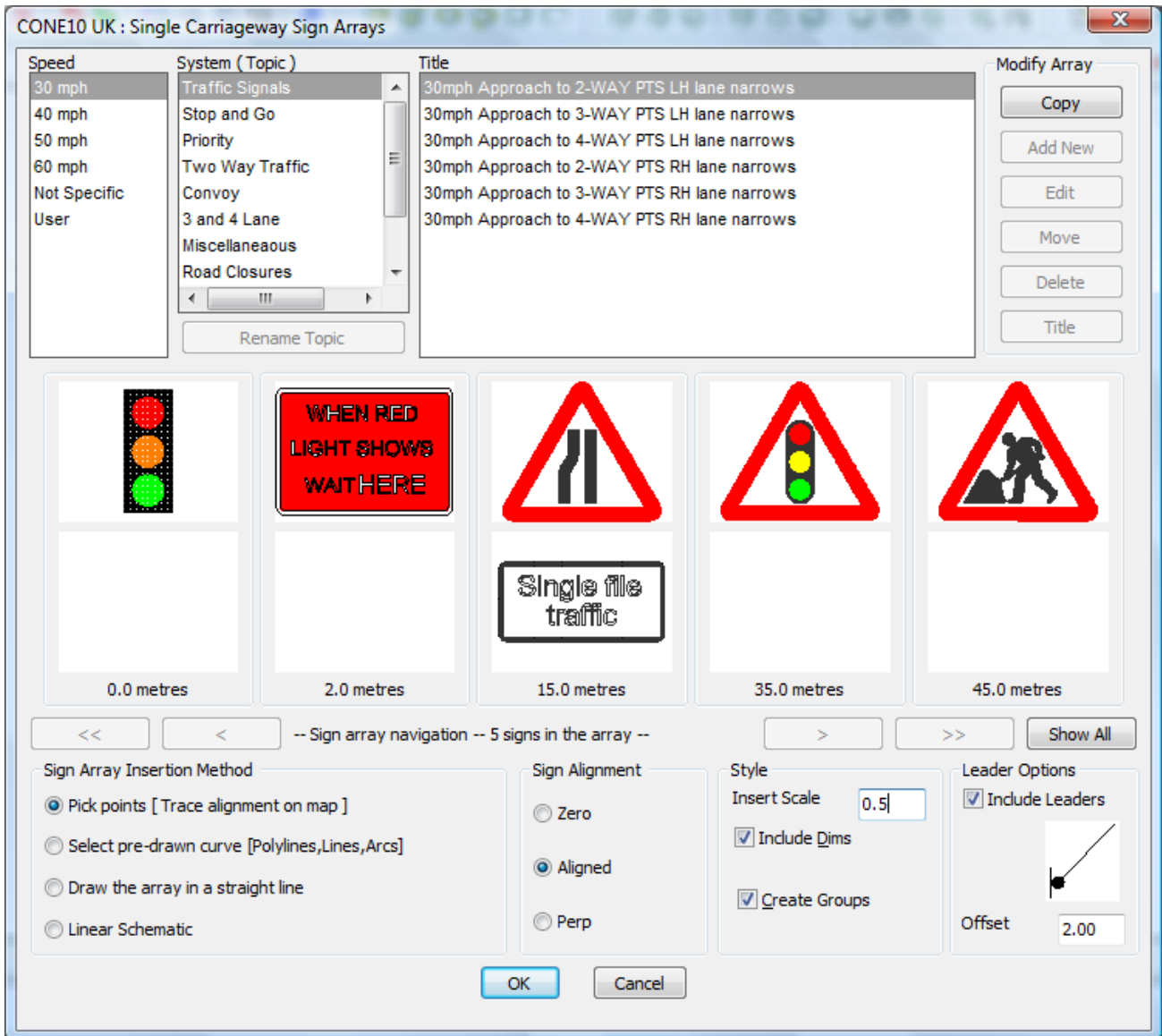
You cannot change CONE standard sign arrays but you can copy and modify them, or create your own arrays from scratch

Sign Arrays can be inserted into the current drawing in a number of ways:

1. Directly onto your drawing or background map image
2. By selection of pre-drawn curve (Line, Polylines and Arcs) that you wish your array to follow
3. In a straight line between two points
4. Linear Schematic; this is similar to method 3 except that the distances between the signs regularly spaced (not the actual real world distance)

## Sign Arrays Selection

Array selection is achieved by selection from three list boxes, working from left to right.



**Speed:** Select the permanent speed limit (or Not Specific or User)

Note: The **User** topic is where the arrays that you may create are stored.

**System (Topic):** For Single Carriageways arrays the list will be a list of systems (Traffic Signals, Stop and Go etc) for Dual Carriageways the list will be the Number of Lanes.

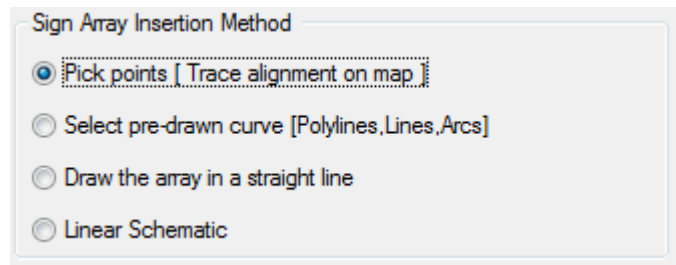
**Title:** The third box contains a list of sign array titles, you choose from this list to set the current array.

The images of the currently selected array are displayed below, complete with the distances from the datum point.

If there are more signs than can fit into the dialog then use the navigation buttons: < << >> > to move through the array, or pick the **Show All** button.

## Sign Arrays Insertion

Having selected a sign array the next step is to configure how the array will be inserted on your drawing.



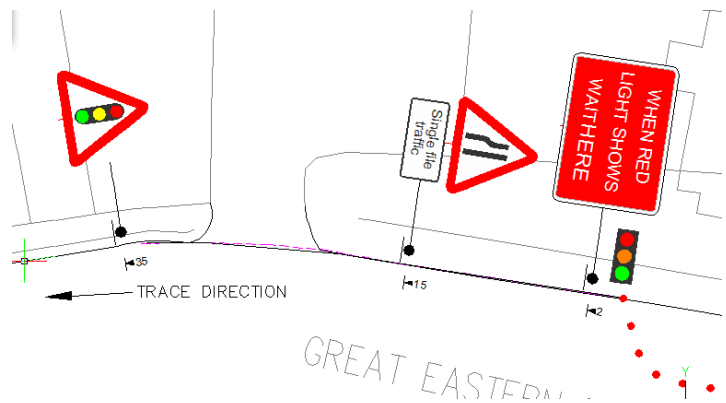
### Sign Array Insertion Method

Sign Arrays can be inserted into the current drawing in a number of ways:

#### Method 1 - Pick points: (Trace the alignment directly onto your drawing or background map image)

You first pick the start point (Datum) of the array (usually the works area taper start point)

You then carry on picking more points (as if you were tracing the edge of the carriageway) and as the distances of each sign from the datum point are reached the sign or, sign symbol leader and sign are inserted into the drawing.



When all the distances have been reached, the array is ended.

There are various keyword options that govern the style of the array

Command: UKSARRAYS

Pick the Array Start Point (Datum) : *Pick the array start point*

Pick Next Point, enter Keyword or hit Enter to terminate early Align/Perp/Zero/Mirror/Undo/Esnap/Ortho/Help [A/P/Z/M/U/E/O/H] : *Pick the next point or option keyword, see below*

*Note: Only the first letter of each keyword is entered*

**Align** The signs are aligned in the same direction as the Sign Symbol

**Perp** The signs are aligned perpendicular to Sign Symbol

**Zero** The signs are inserted with Zero rotation

**Mirror** The signs are mirrored onto the other side of the traced line

**Flip** Reverses the direction of the Sign Symbol

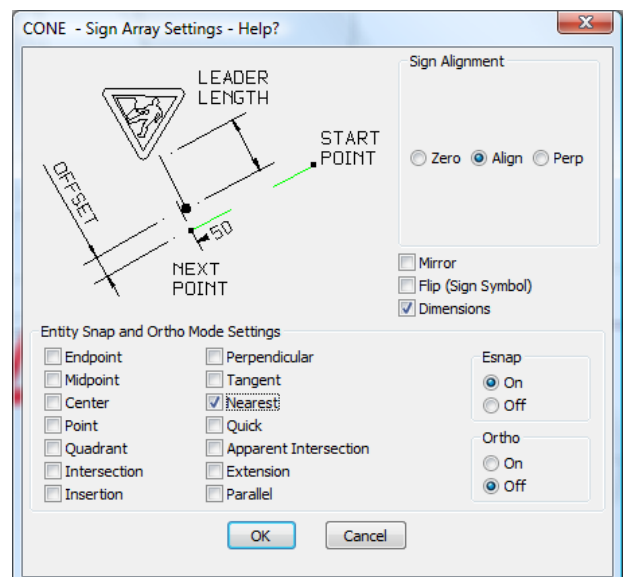
**Undo** Undo the previous step

**Esnap** Toggles Esnap (Osnap) ON/OFF

**Ortho** Toggles Ortho ON/OFF

**Help** Displays the Settings/Help dialog where all the above can be changed at once

**Enter Key** Terminates the array insertion early



**Method 2: Select a pre-drawn curve** (Line, Polylines and Arcs) that you wish your array to follow.

Command: UKSARRAYS

Select a pre-drawn alignment curve (Line, Arc, Polyline or Spline) : *Select a pre-drawn curve*

Pick the array start point (Datum): *Pick a point*

Press the SPACEBAR to toggle the sign array direction and side, press the ENTER key when done:

After selecting the curve you are prompted to pick the start point (Datum) on the curve, a magenta icon is placed on your drawing showing the array direction and side, pressing the SPACEBAR will toggle the direction and side and show the four possible alternatives. Press the enter key when the icon is showing the direction and side required. The array is then fully inserted.

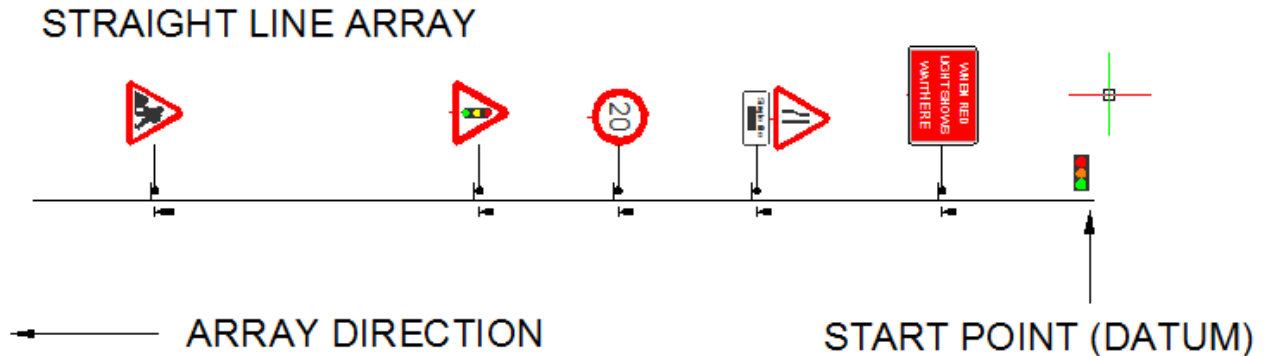
If the curve you selected is not long enough to accommodate the entire array, then you have the option of having the signs that can't fit on the curve inserted at a point tangential to the end of the curve, or you can simply cancel and revise your pre-drawn curve.



### Method 3: Draw the array in a straight line

This method draws the array in straight line at an angle you choose.

You are prompted to pick the start point (Datum) and then a second point, which determines the angle of the array, then lastly you are prompted to select the side to place the signs. The array is then fully inserted.



Command: UKSARRAYS

Pick the array start point (Datum): *Pick start point*

Pick a point in the array direction: *Pick a point*

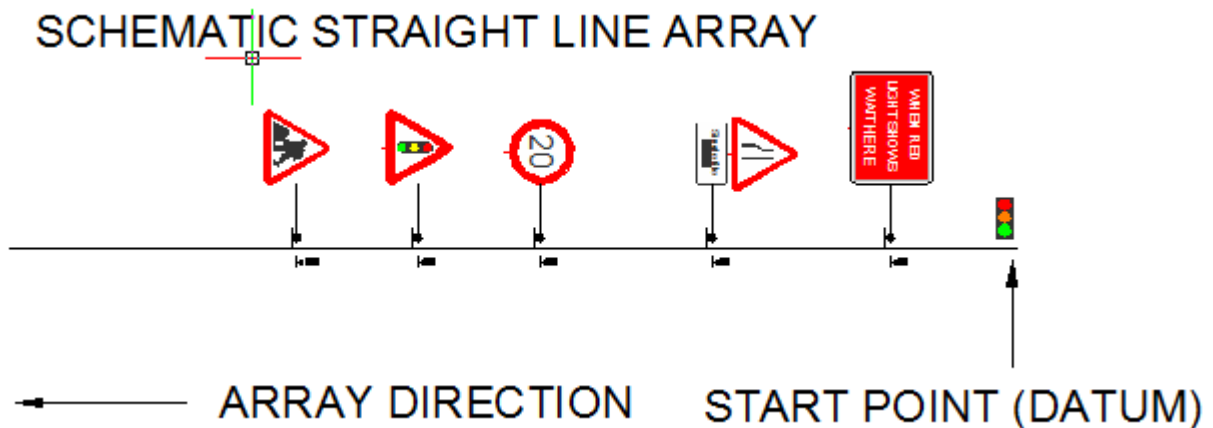
Press the SPACEBAR to toggle the sign array side, press the ENTER key when done:

After picking the two points to show the array direction a magenta icon is placed on your drawing showing the array side, pressing the SPACEBAR will toggle array side.

Press the enter key when the icon is showing side required. The array is then fully inserted.

### Method 4: Linear Schematic

This is similar to Method 3 except that the distances between the signs regularly spaced (not the actual real world distances)



Command: UKSARRAYS

Pick the sign array start point (Datum) : *Pick start point*

Pick a point in the array direction : *Pick a point*

Options: Align/Perp/Zero/Mirror/Flip or press enter when done

*Note: Only the first letter of each keyword is entered*

**Align** The signs are aligned in the same direction as the Sign Symbol

**Perp** The signs are aligned perpendicular to Sign Symbol

**Zero** The signs are inserted with Zero rotation

**Mirror** The signs are mirrored onto the other side of line

**Flip** Reverses the direction of the Sign Symbol

## Sign Alignment

These options determine the sign alignment

**ZERO:**

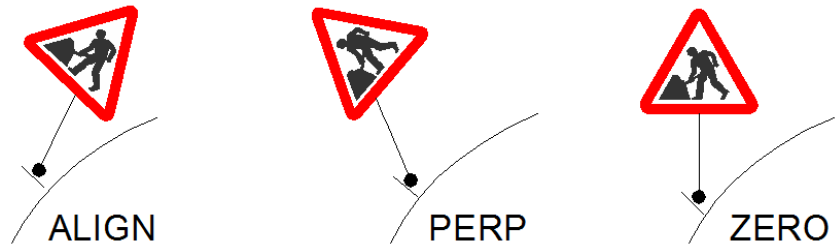
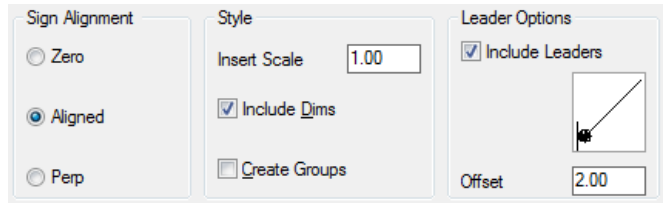
The signs will be placed upright (zero rotation)

**ALIGN:**

The signs will be aligned parallel with the direction of the curve.

**PERP:**

The sign will be aligned perpendicular to the direction of the curve.



## Style

**Insert Scale:** (This is the same value as Global Insert Scale in PREFERENCES)

Assuming you are working with a setting of 1 CAD unit = 1 metre then a Insert Scale setting of 1.0 is perfect when working on schematic schemes.

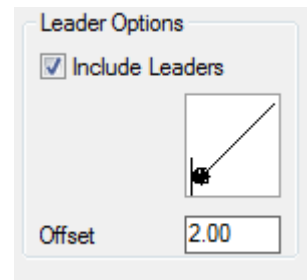
However if you are placing signs onto maps then you may find that a insert scale of 1.0 results in signs that are too large in proportion to the map, in which case a insert setting of 0.5 to 0.75 is recommended.

**Include Dimensions:** Check this option to have a dimension (the distance from the datum to the sign symbol insert point) placed on the drawing.

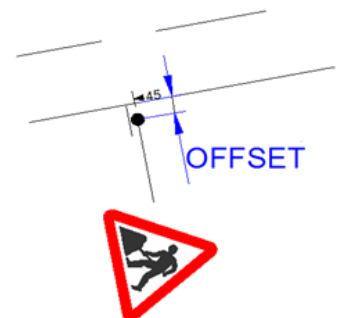
**Create Groups:** Check this option and the sign symbol, leader and sign will be grouped together.

## Include Leaders

If the **Include Leaders** check box is checked then the sign will be inserted attached to a sign symbol as defined by the current leader setting. (Click the leader image to change)



**Offset:** You can also specify an Offset distance for the symbol, this is the offset distance from the points you pick on the drawing or the curve selected.

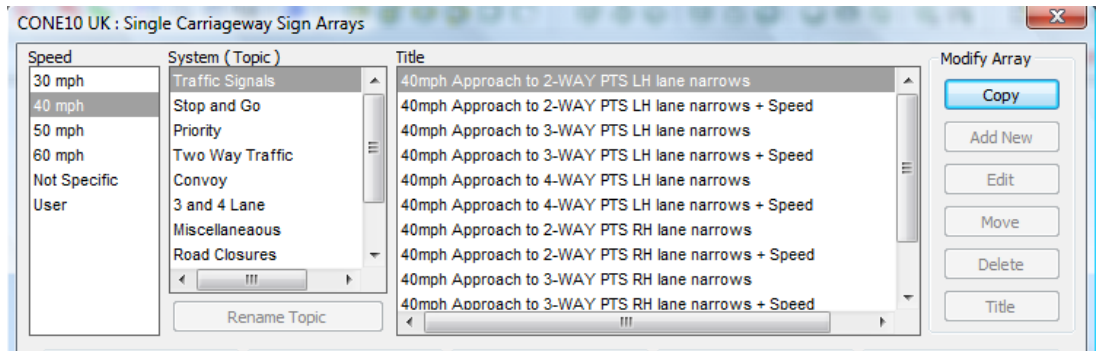


## Creating a Custom Array

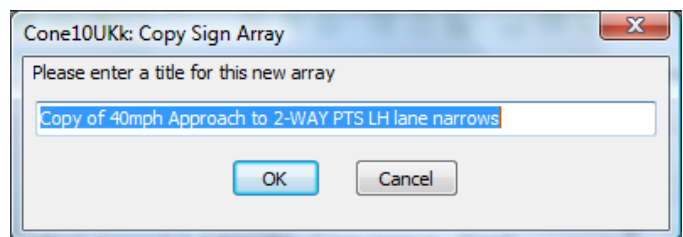
There are two methods of creating a Custom Array.

- A. Make a copy of a standard sign array and then modify the new array.
- B. Create a new sign array from scratch.

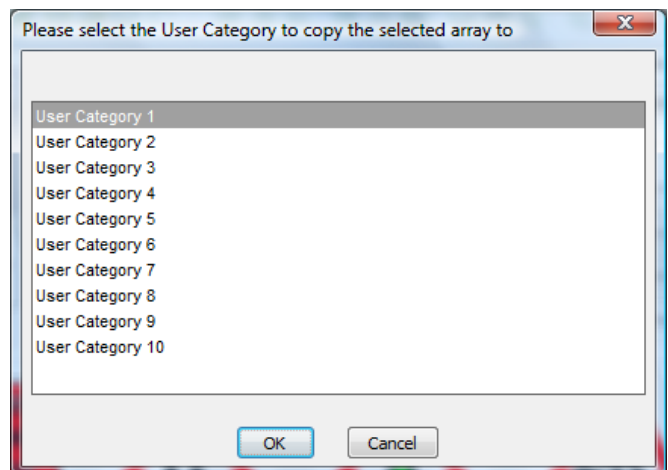
### A: Make a copy of a standard sign array and then modify the new array



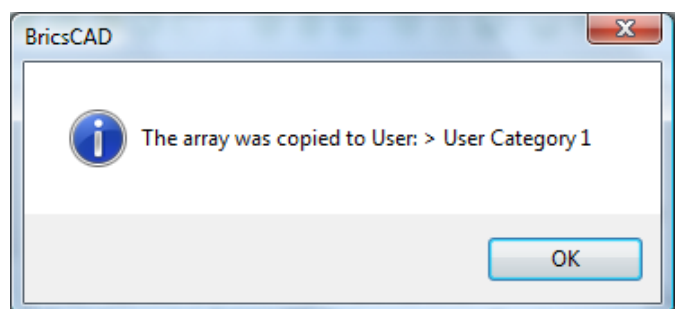
1. Use the **Sign Array** tool to select the array you want to copy
2. Pick the **Copy** button.
3. Enter a title for this new array and pick the **OK** button.



- 4: Select the **User Category** that you wish to house the copied array and pick the **OK** button.



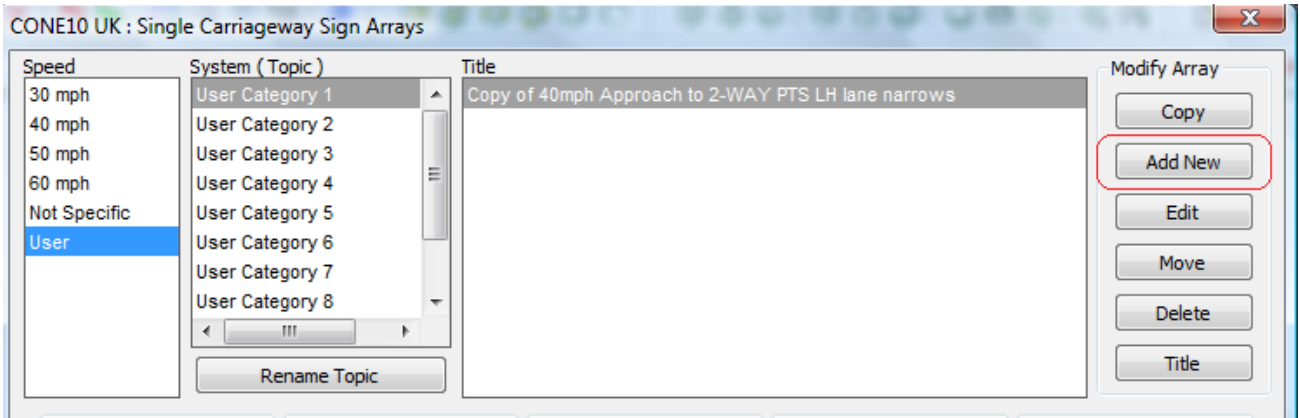
- 5: The program will respond with (or similar)



The array is now ready for modification, see page 23



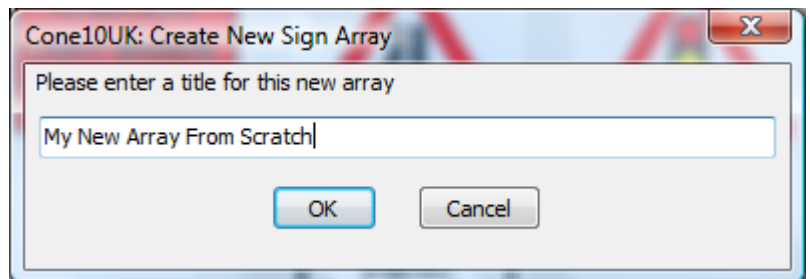
## B: Create a new sign array from scratch



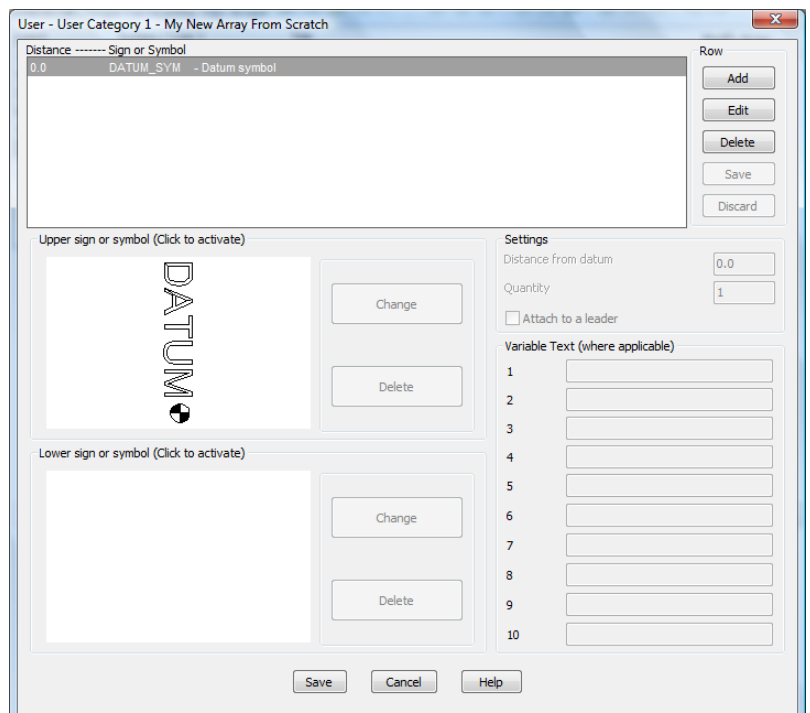
To create a new sign array from scratch

- 1 Select **User** from the **Speed** list box
- 2 From the **System** list box select the **User Category** that you wish to house the new array
- 3 Pick the **Add New** button.

- 4 Enter a title for this new array and pick the **OK** button.

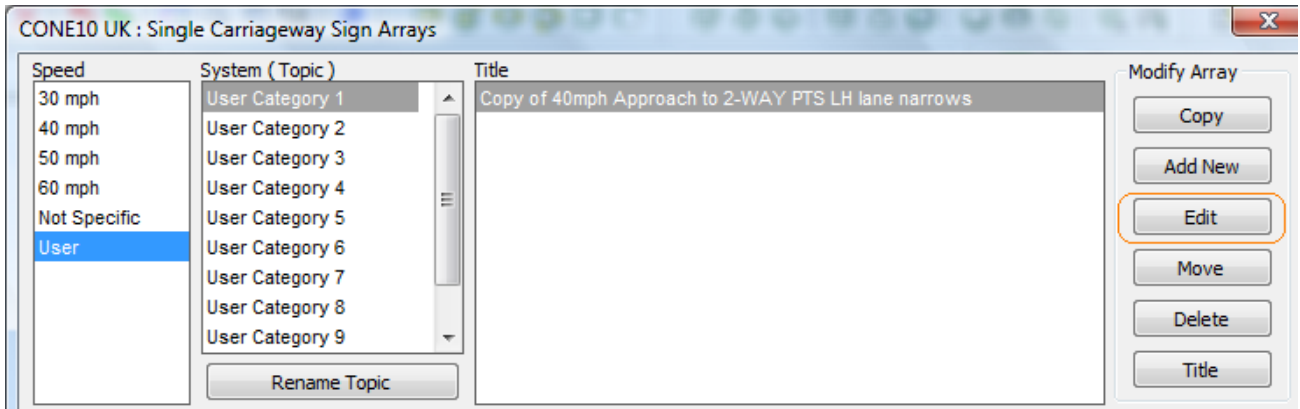


The program will now launch the Array Editor where you add the signs to your new array, see page 23

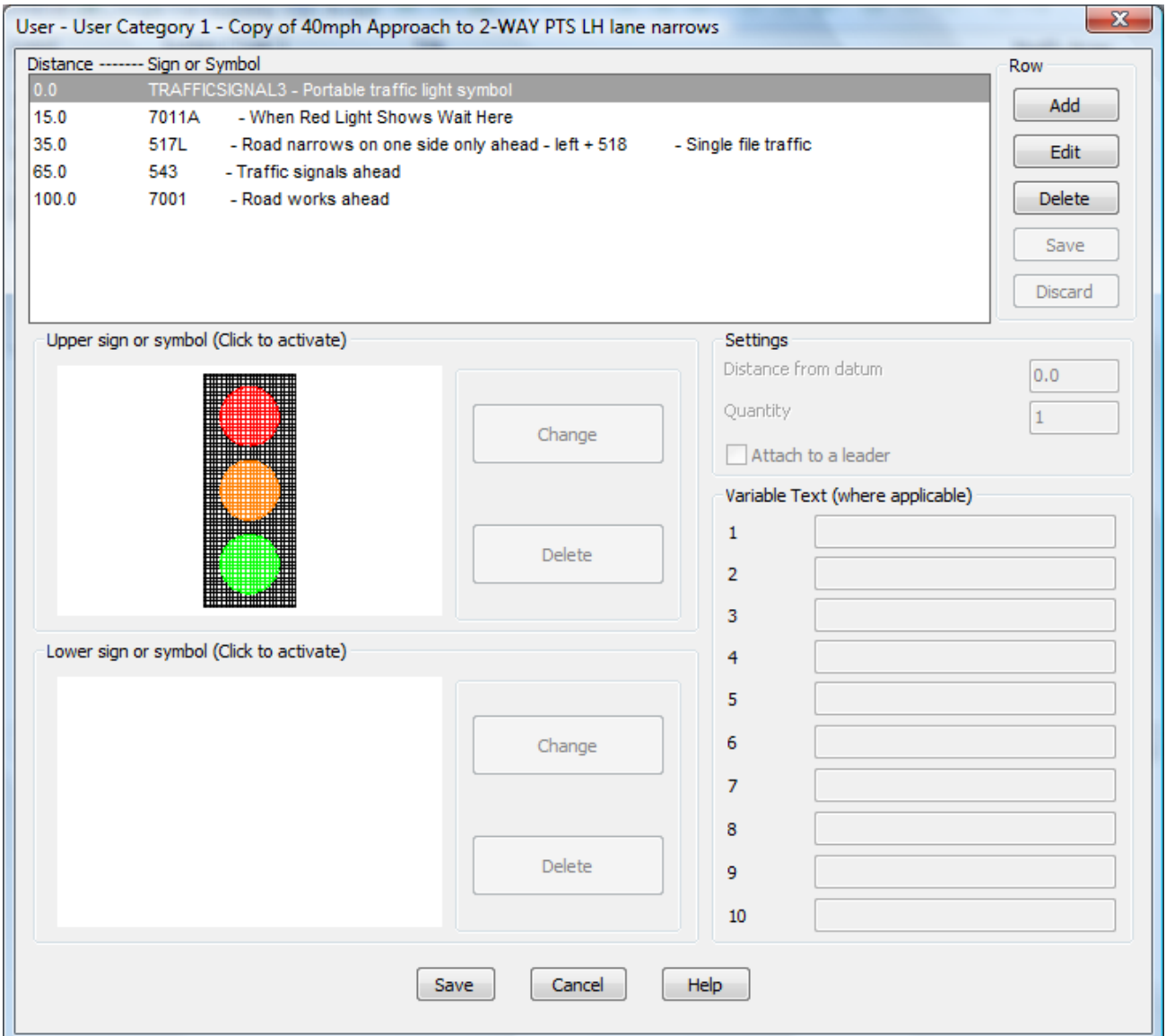


## Modifying a Custom Array – The Array Editor

To modify a custom sign array, select the array you wish to modify and select edit.



The Edit Array dialog will be displayed.



## CONE 10 UK – User Guide

The list of signs or symbols in the array is displayed in a selectable list box along with the distance from the datum.

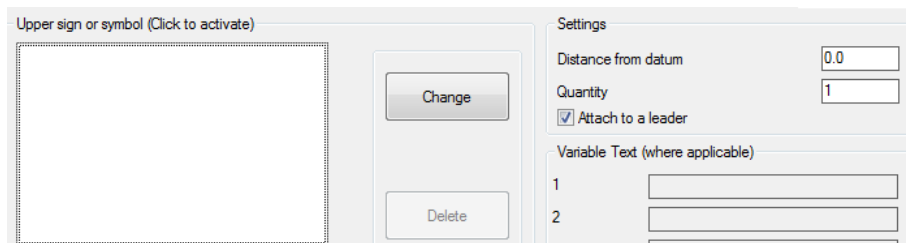


The **Row** options are Add, Edit or Delete

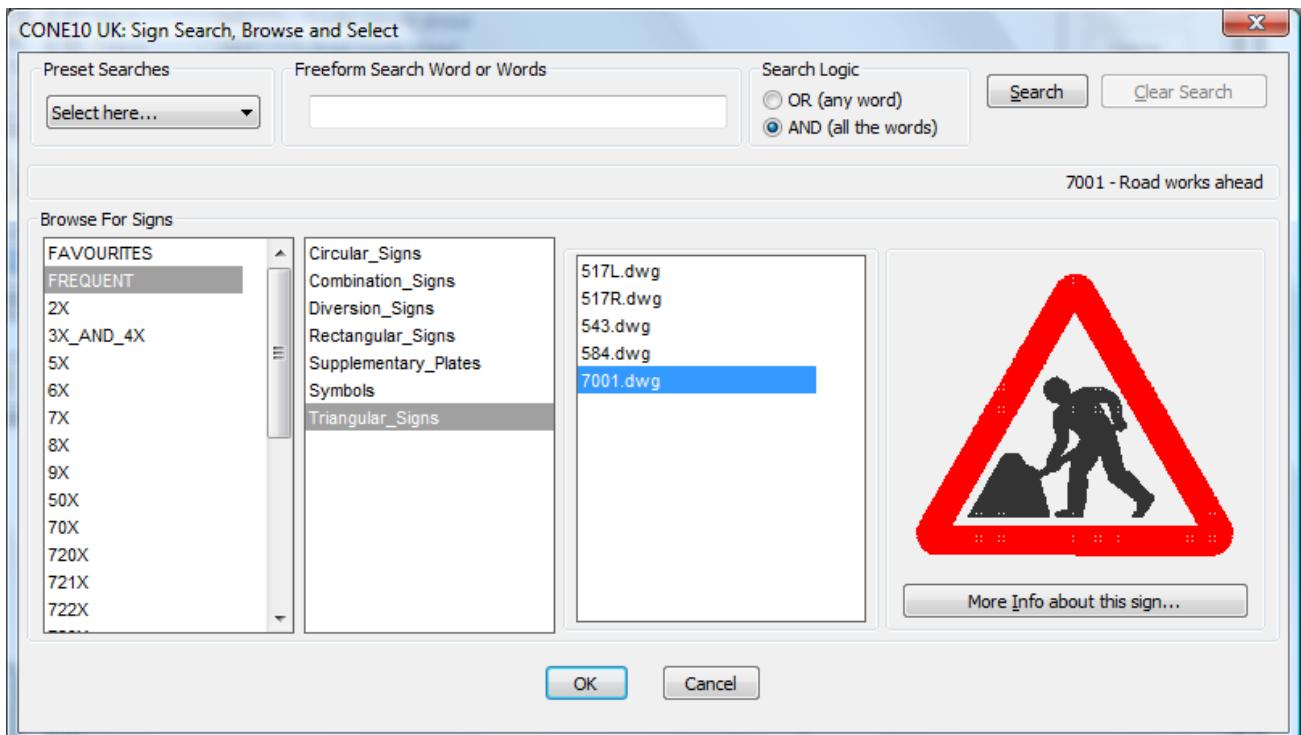
**Add:** Adds a sign to the array

First enter values for:

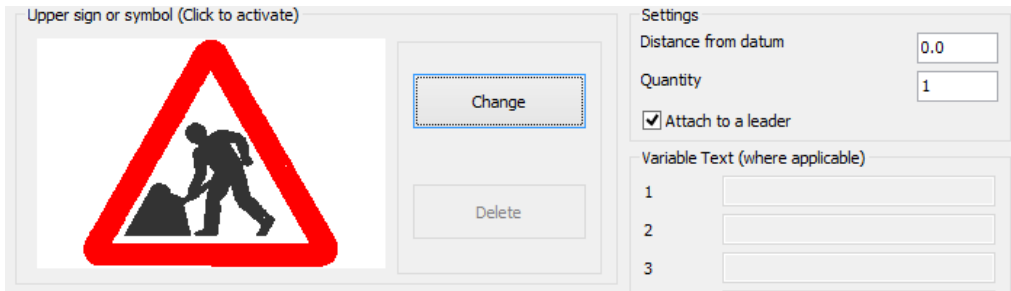
1. Distance from the datum,
2. Qty,
3. Whether the sign is attached to a leader



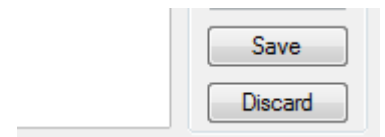
Next pick the **Change** button and select a sign from the **Sign Search Browse and Select Dialog** that is presented:



Select the sign required and pick the **OK** button, the selected sign will now be displayed thus:



Click the **Save** button to confirm and have the sign added to the sign array list or click the **Discard** button to cancel this operation.

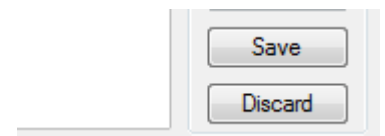


**Edit:** Change a sign or change the distance from the datum

First select the sign you wish to change from the sign array list and then pick the Edit button

Now either enter a new distance or pick the Change button to select a different sign (as for the Add action)

Click the **Save** button to confirm or click the **Discard** button to cancel this operation



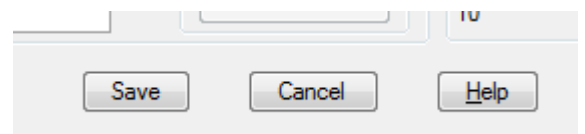
**Delete:** Removes the selected sign from the array list

Select the sign you want to delete in the main array list box

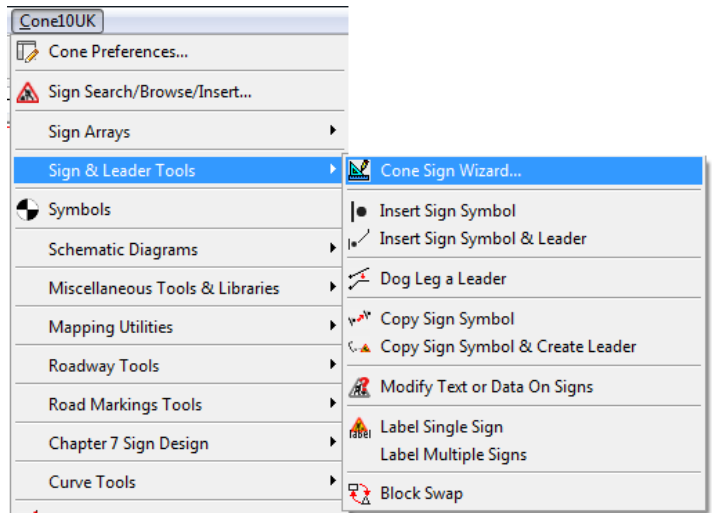
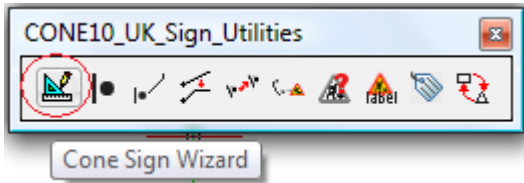
Press the **Delete** button

Confirm your action

To save your changes and return to the main sign array dialog click the **Save** button at the bottom of the dialog



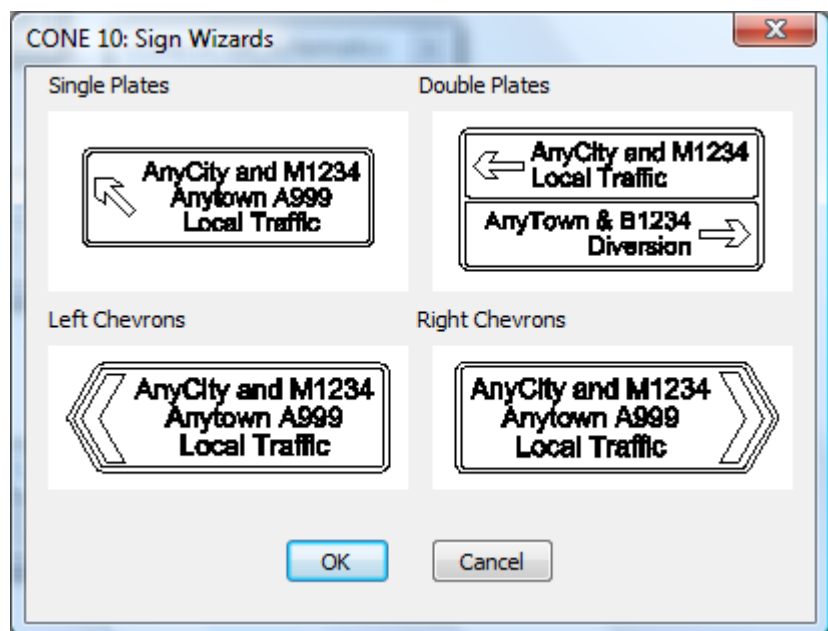
## Sign and Leader Tools: Cone Sign Wizards



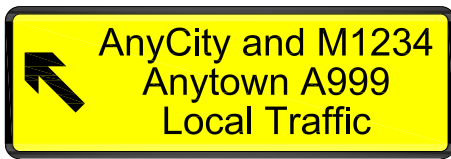
The Cone Sign Wizards enable you to create custom signs.

After selecting the tool from the pull down menu or toolbar a dialog box will then be presented (see below)

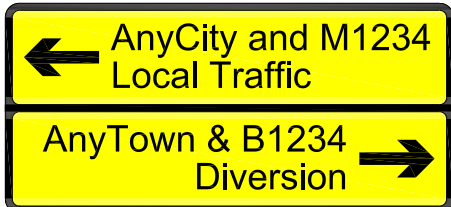
Click one of the icons to load the appropriate wizard



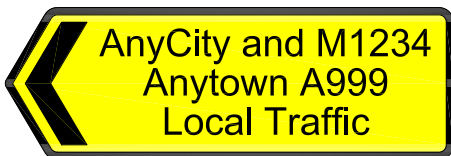
**Warning!** Due to the flexible nature of the CONE sign wizards it is quite easy to create **non-prescribed signs** and it is the responsibility of the creator to ensure that all signs produced with the sign wizard are **fit for purpose**.



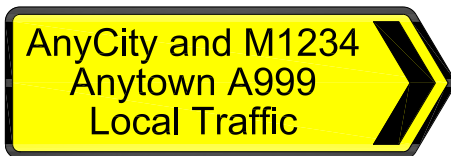
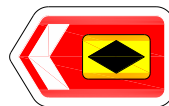
The **Single Plates** wizard enables the creation of information and directional signs similar to the signs found in the REG\_53, 2X and 70X libraries



The **Double Plates** wizard enables the creation of double plate type information and directional signs similar to the signs found 2X library



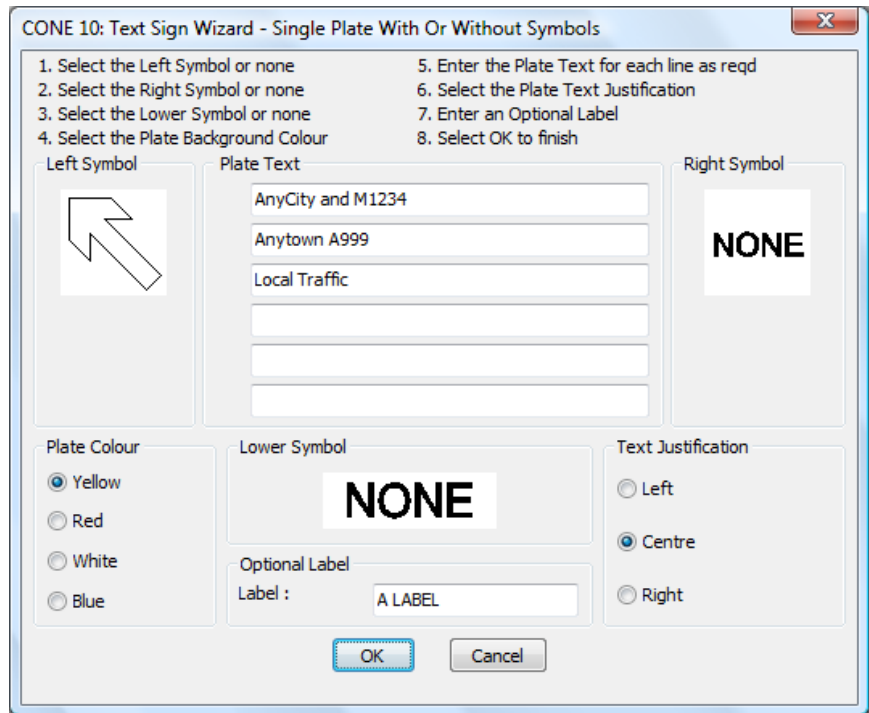
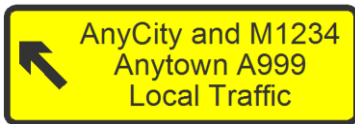
The **Left Chevrons** wizard enables the creation of directional signs similar to the signs found in the 2X library



The **Right Chevrons** wizard enables the creation of directional signs similar to the signs found in the 2X library

All the wizards operate in a similar manner; the next pages describe the operation of the single plate wizard only

Sign and Leader Tools:  
Single Plate Wizard



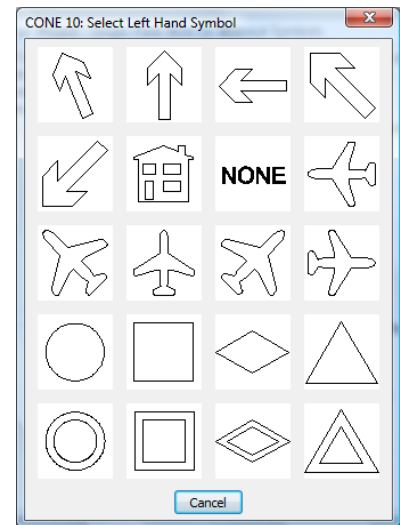
The Single Plate wizard can contain up to 6 lines of text and can have either left, right or lower symbol or none at all

The text can be LEFT, RIGHT or CENTRE justified, select the appropriate **Text Justification** radio button

To change the **Left Symbol** or to set it to NONE click the Left Symbol image

A sub dialog will appear see as shown here ->

Select the desired symbol and the dialog window will close automatically



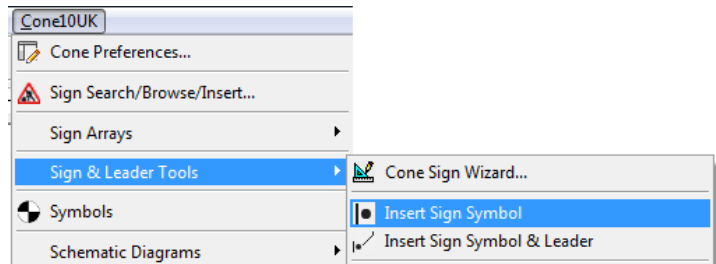
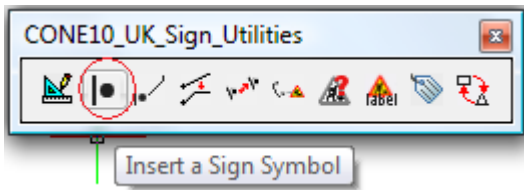
A similar dialog will appear if you click the Right or Lower symbols

To change the background colour of the sign select one of the **Plate Colour** radio buttons (Yellow, Red, White or Blue)

Enter an **Optional Label**, the information you enter here will be used by the **Bill of Quantities**, **Label Single Signs** and **Auto Label Signs** tools.

Select **OK**, the dialog window will close and the sign will be created, then you will be prompted for an sign inert point.

## Sign and Leader Tools: Insert a Sign Symbol



Command: UKSIGNSYM

Pick Symbol Insert Point: *pick symbol insert point*

Rotation angle for block <0>: *show angle by moving the mouse or enter an angle or press enter for zero degrees*

Sign Symbols are used to indicate the position and direction of the sign face on your drawing

Example



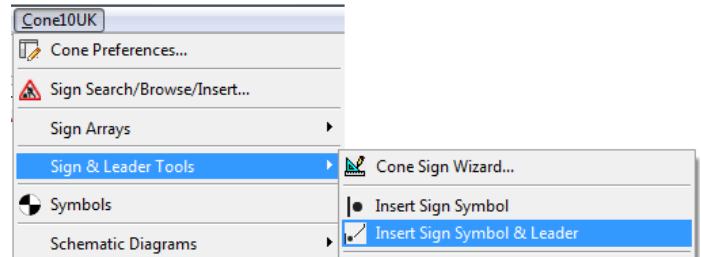
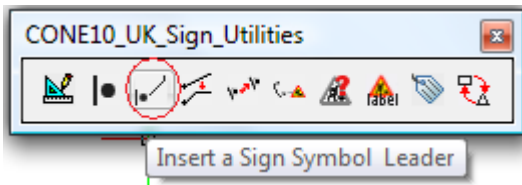
Select the Insert a Sign Symbol tool from the menu or toolbar, the sign symbol will be inserted in the centre of the screen and you will be prompted to position the symbol.

After left clicking the mouse to position the sign symbol you will be prompted for a rotation angle.

Show the rotation angle by either dragging and clicking the mouse or typing a value and pressing the enter key



## Sign and Leader Tools: Insert a Sign Symbol & Leader



Command: UKSLEADER

Pick Symbol Insert Point: *pick symbol insert point*

Rotation angle for block <0>: *show angle by moving the mouse or enter an angle or press enter for zero degrees*

Pick Leader End Point: *pick the leader end point*

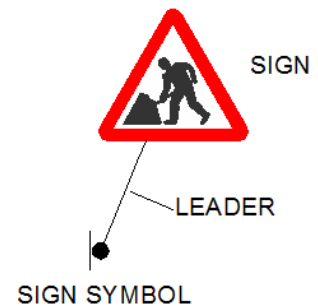
**Sign Symbols** are used to indicate the position and direction of the sign face on your drawing, the **Leader** line is a link to a view of the actual sign face.

Select the Insert a Sign Symbol & Leader tool from the menu or toolbar, the sign symbol will be inserted in the centre of the screen and you will be prompted to position the symbol.

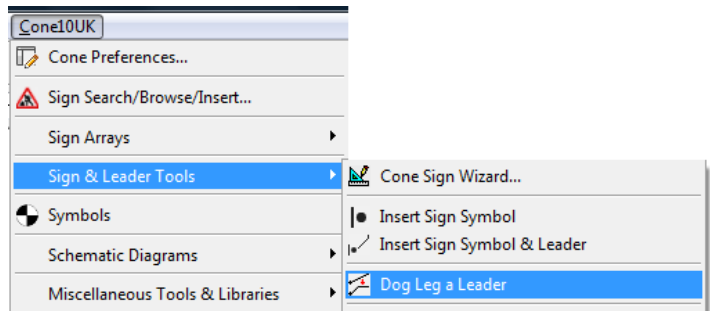
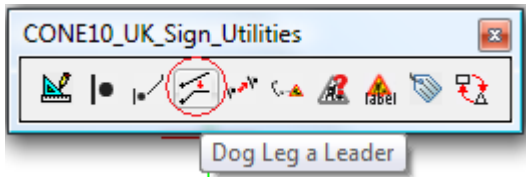
After left clicking the mouse to position the sign symbol you will be prompted for a rotation angle.

Show the rotation angle by either dragging and clicking the mouse or typing a value and pressing the enter key.

Finally you will be prompted to pick the leader end point



## Sign and Leader Tools: Dog Leg a Leader



Command: CDOGLEG

Select a Leader *pick the leader line you wish to dog-leg*

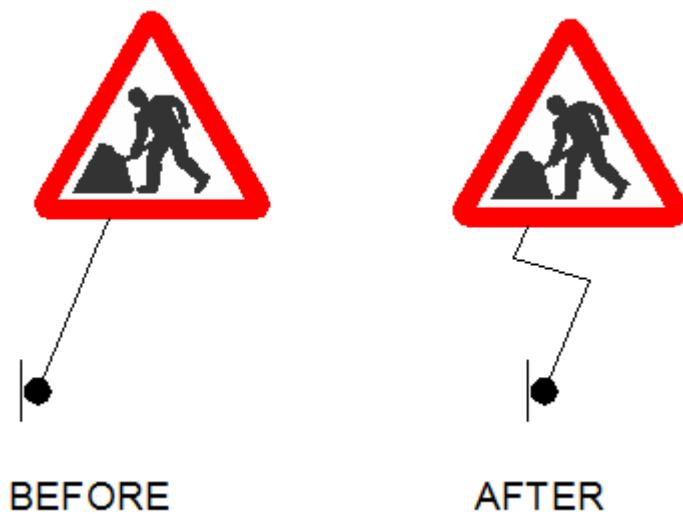
Leader is not connected, select objects that are connected to the leader or press enter to ignore:

Select objects: *select any un-linked sign face (if required), then press [ENTER]*

Pick new Leader end point : *move mouse to new position and left-click*

Leader lines are used to link the Sign Symbols and the view of the sign face.

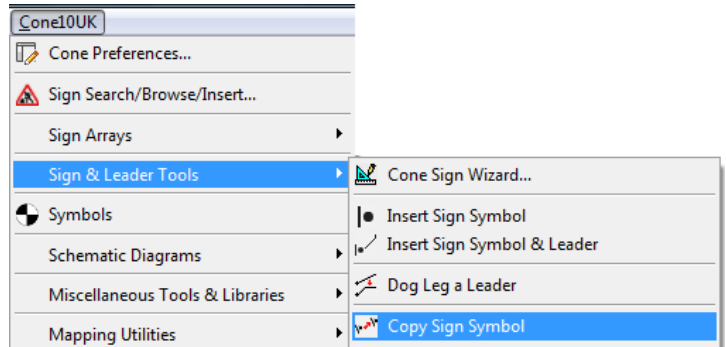
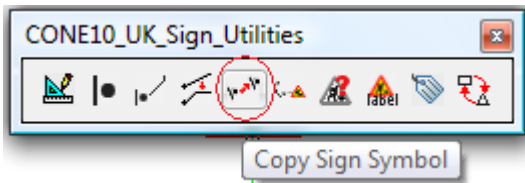
Occasionally, you will want to break the straight line (dog-leg) to increase legibility of the drawing.



If you have drawn a sign & leader line together using the "Sign Search/Browse/Insert..." tool and selected the **Group** option they will be linked and the tool will know to move the sign face as the leader is dog-legged.

If however they were not grouped or created separately using "Insert a Sign Symbol and Leader Line" command, it is still possible to create a dog-leg by manually selecting the associated sign

## Sign and Leader Tools: Copy Sign Symbol



Command: CCSS

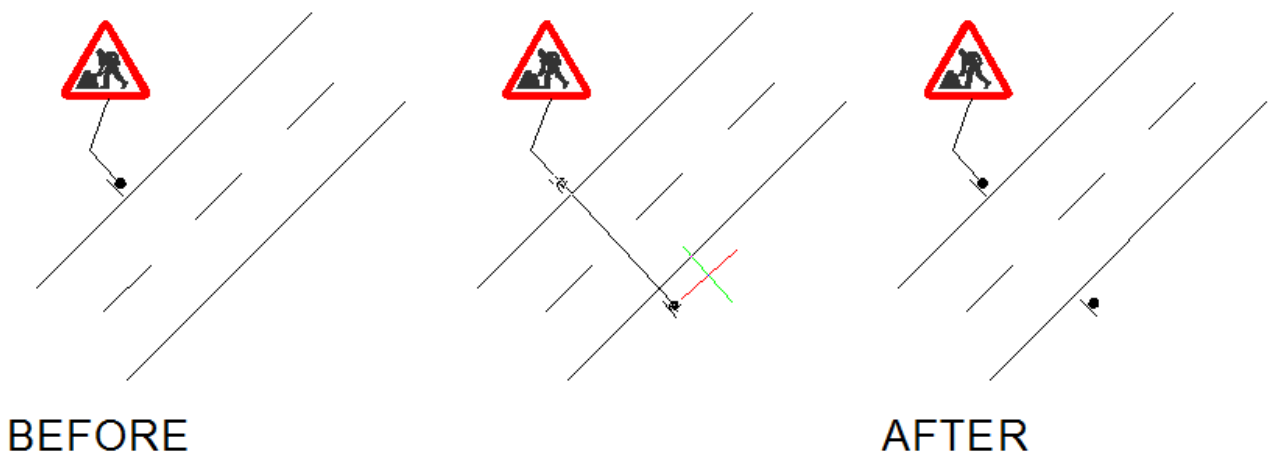
Select a Sign Symbol to copy *pick the sign symbol*

Pick new insert point *pick a new insert point*

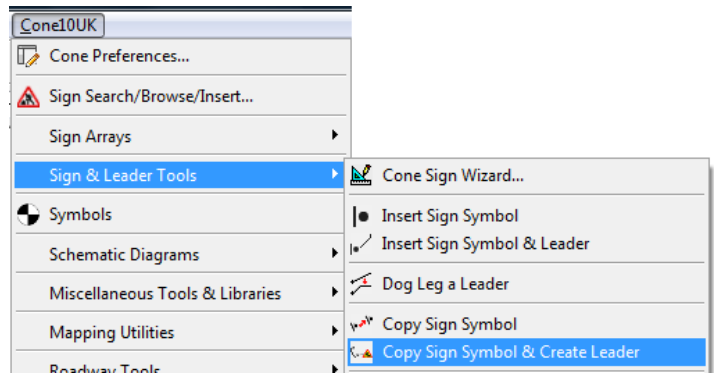
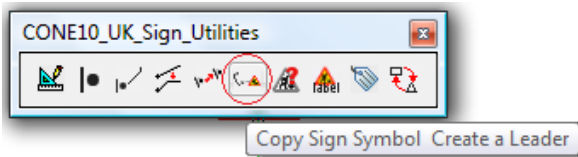
The tool will keep on copying the sign symbol until you press the enter key

Sign Symbols show the position on the drawing where the sign is to be located. When the same sign is to be placed on BOTH sides of the carriageway this tool provides a quick method of copying the symbol orthogonally, you can of course just use the standard CAD copy command

Example:



Sign and Leader Tools:  
Copy Sign Symbol &  
Create Leader



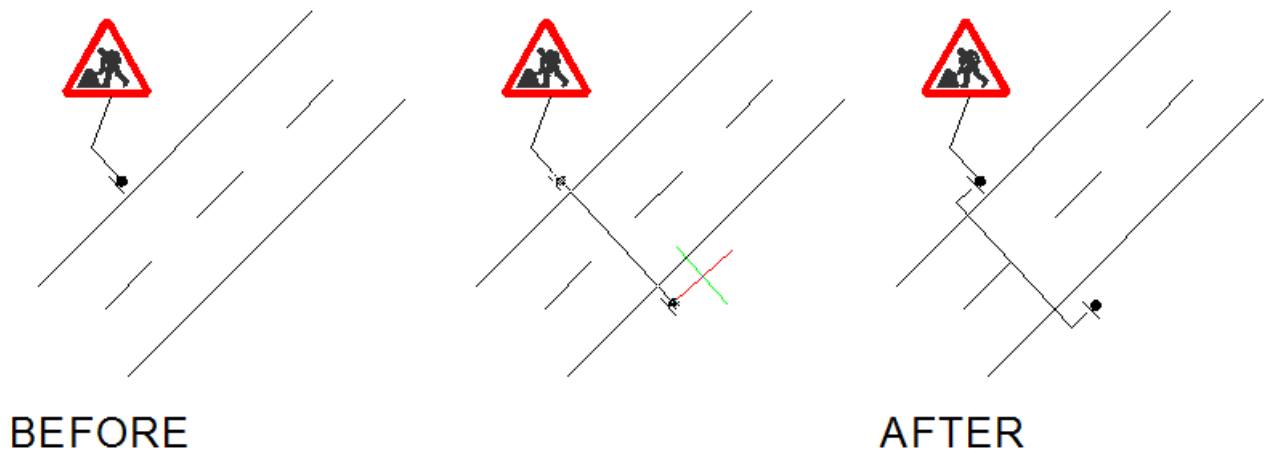
Command: CCSSL

Select a Sign Symbol to copy *pick the sign symbol*

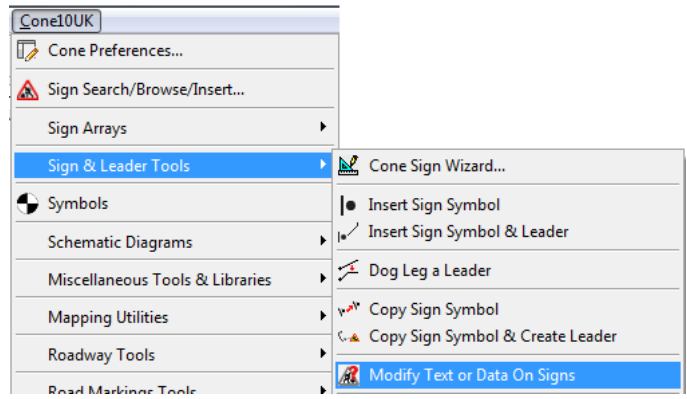
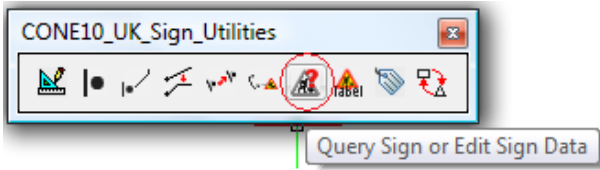
Pick new insert point *pick a new insert point*

This tool is similar to the previous tool except that the tool draws a leader line linking the two symbols.

After the new sign symbol position is selected, the sign is drawn, and the leader lines are drawn connecting the two symbols



## Sign and Leader Tools: Modify Text or Data on Signs



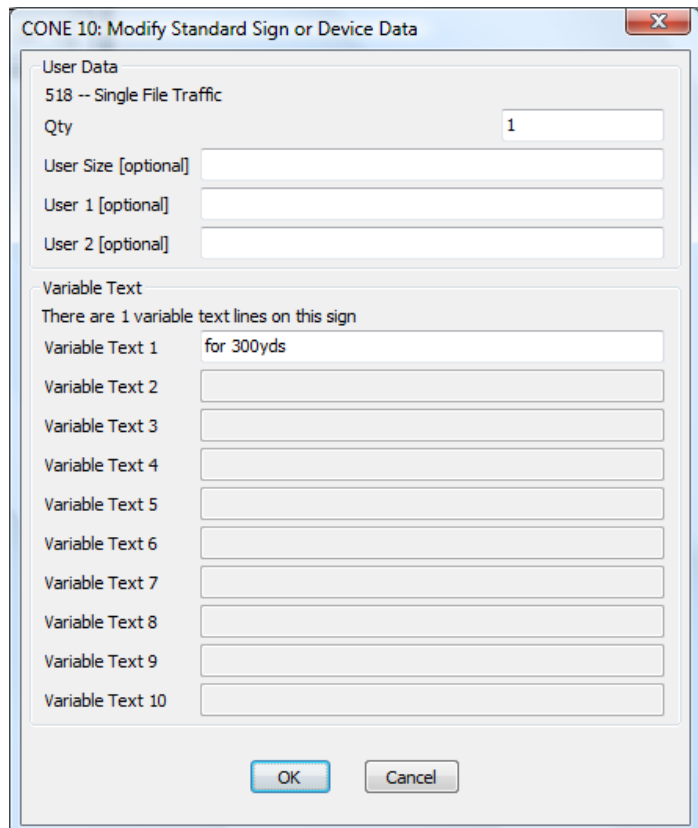
Command: CMODSIGN

Select a CONE sign or device: *select a CONE sign (on its edge)*

This tool allows you to change the variable text on signs that have variable text.

The tool can also be used to change the quantity (for sign schedule purposes) of signs to be used at a location

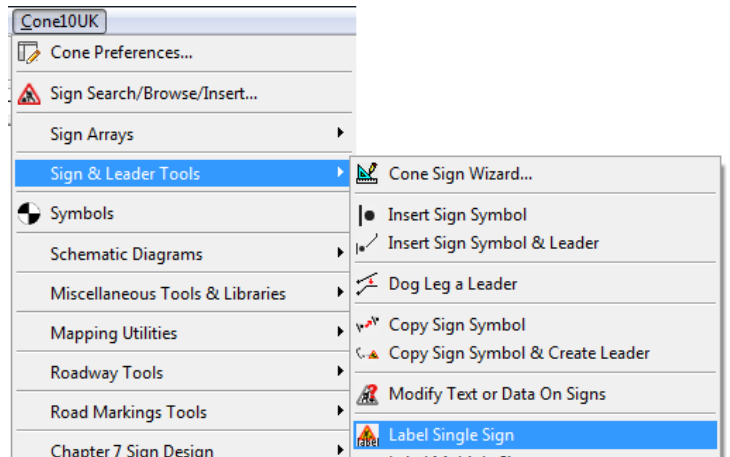
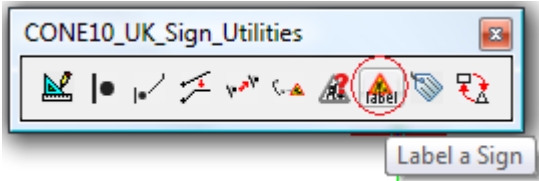
**DO NOT** explode the signs, or double click on the sign to try and edit the definition of the sign block, this may cause other problems on the drawing, or when producing a bill of quantities.



Change the text as required; please note entering longer text will not update the width of the sign.

Select the **OK** button to update the sign, or Cancel to ignore any changes.

## Sign and Leader Tools: Label Single Sign



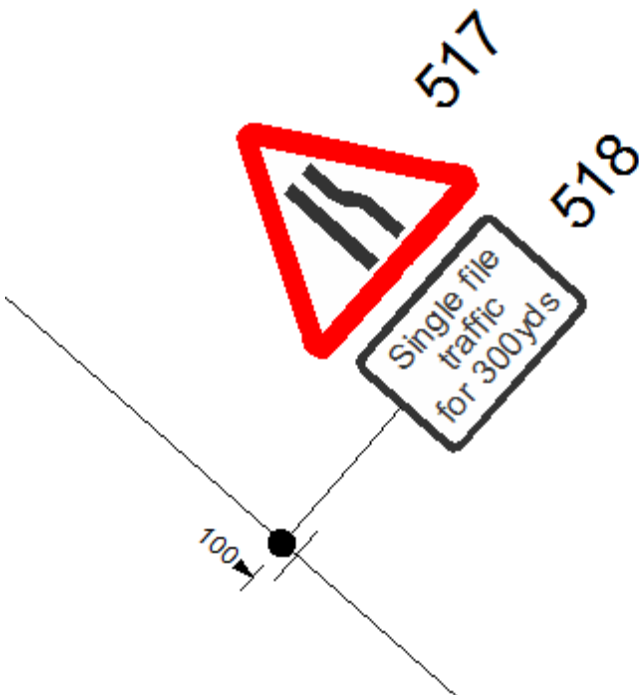
Command: UKSLABEL

Select a sign to label: *select the traffic sign on the drawing*

Pick label insert point *move then left-click the mouse to position the text*

Specify rotation angle or [Copy/Reference] <0>: *click mouse to rotate the text, or press the enter key*

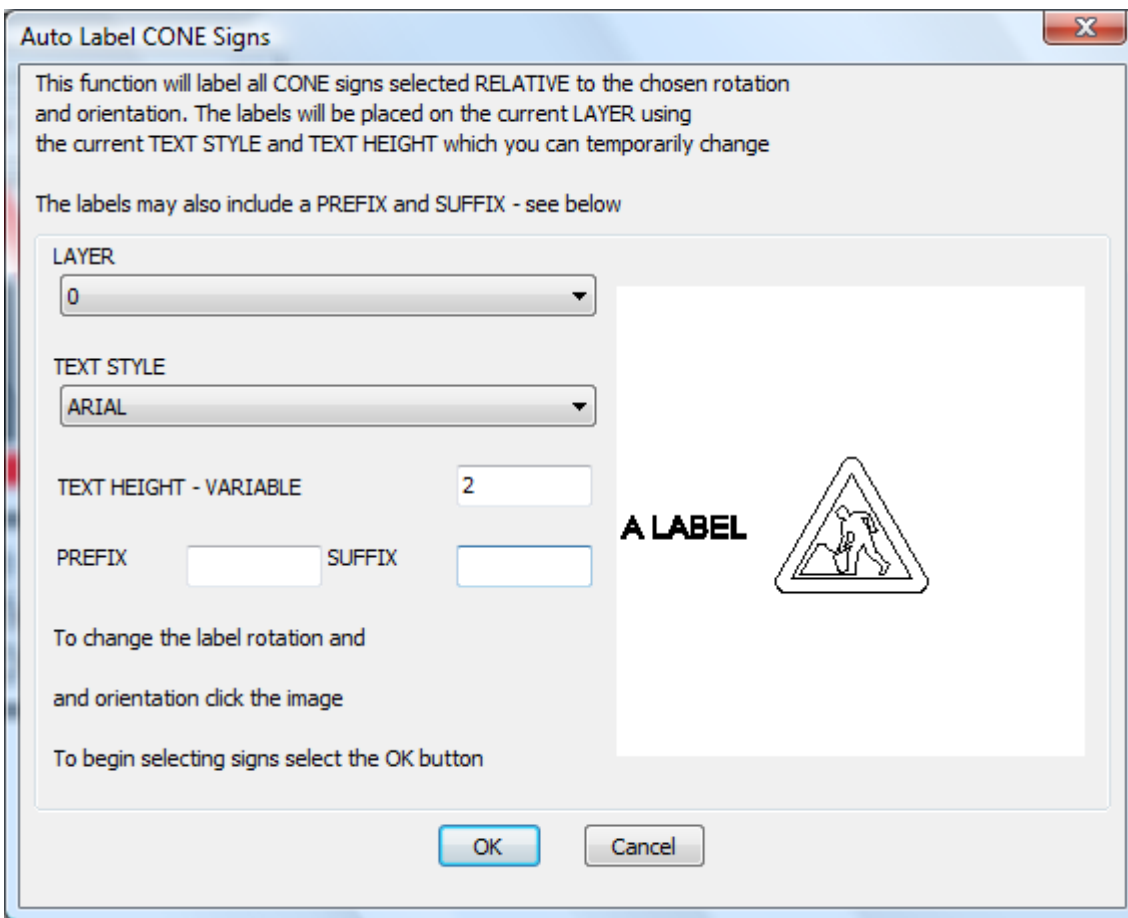
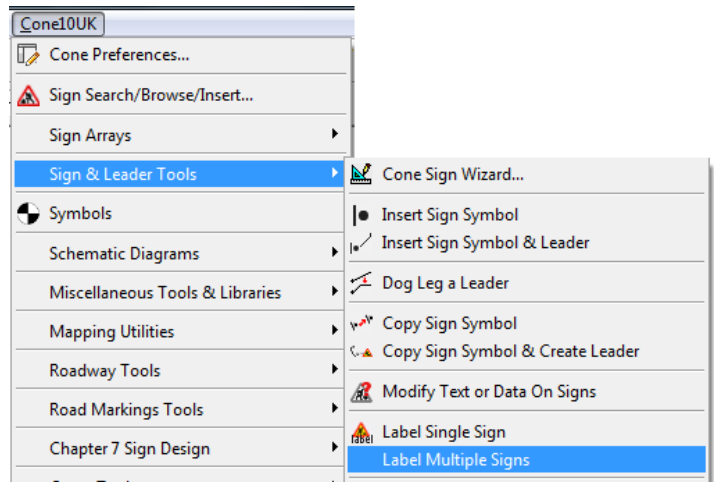
This tool allows you to add a text label showing the prescribed sign number next to a CONE traffic sign.



NOTE: text size and rotation parameters are set from the Cone Preferences dialog

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## Sign and Leader Tools: Label Multiple Signs



This tool allows you to add a text label showing the prescribed sign numbers next to a selected group of one or more traffic signs.

The options are from top to bottom:

**LAYER:** select from the list of layers on the current drawing.

**TEXT STYLE:** select from the list of defined text styles in the current drawing

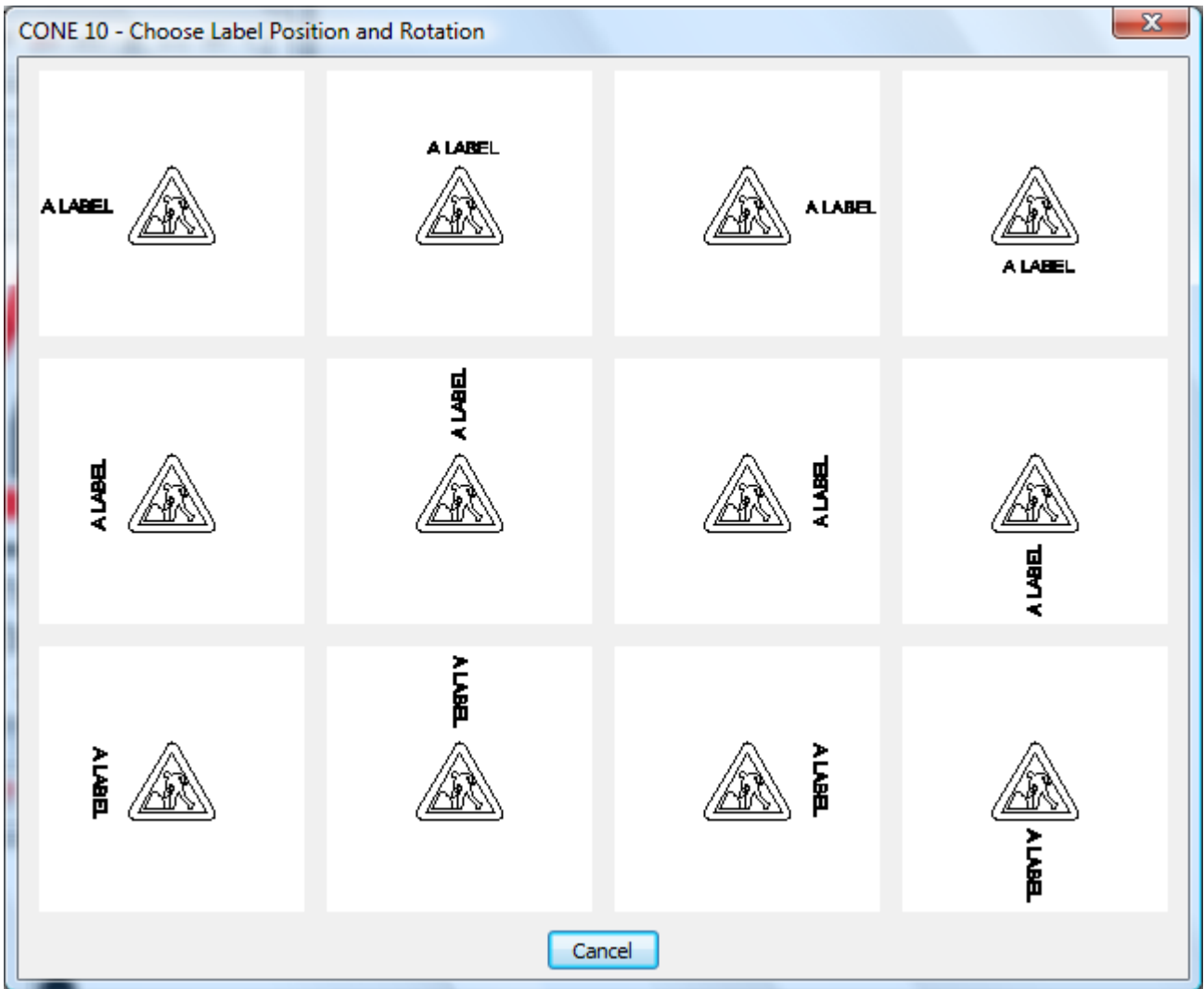
**TEXT HEIGHT:** enter the text height for the labels, (in drawing units)

**PREFIX & SUFFIX:** Enter a string to appear BEFORE and/or AFTER the sign number



## CONE 10 UK – User Guide

To change the placement of the label, click on the sign icon, the following dialog shows the options available to select.



Click one of the icons to change the labelling position, or **Cancel** to return to the previous dialog

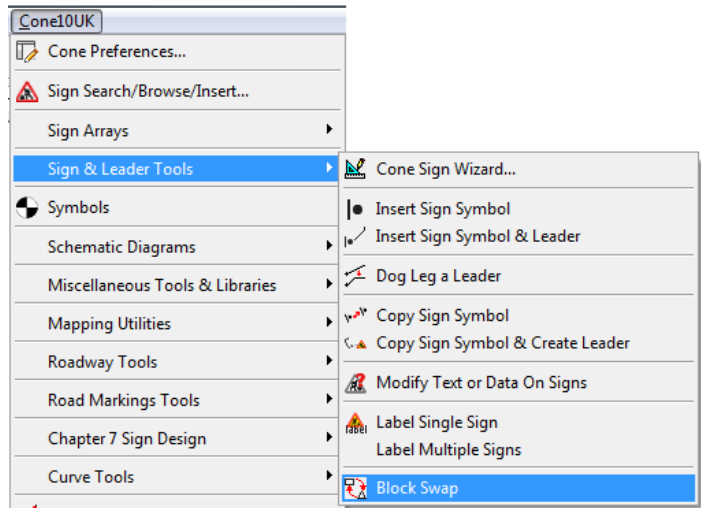
After selecting the labelling options, click the **OK** button to continue.

Command: UKMSLABEL  
Select Signs to Label  
Select entities

The tool will now prompt you to elect the signs to label, use normal CAD selection techniques and press the enter key when finished selecting

The selected signs will now be labelled

## Sign and Leader Tools: Block Swap



Command: UKBLOCKSWAP

Select replacement block: *select the block to use to as the replacement block*

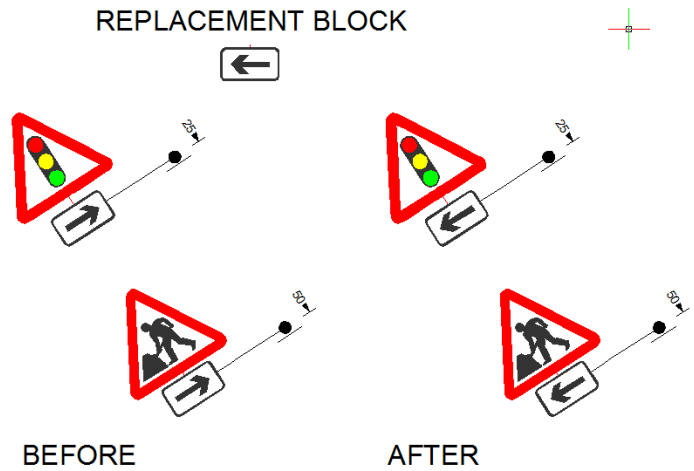
Select blocks to be replaced: *select one or more blocks to be replaced*

Select objects: *x number found*

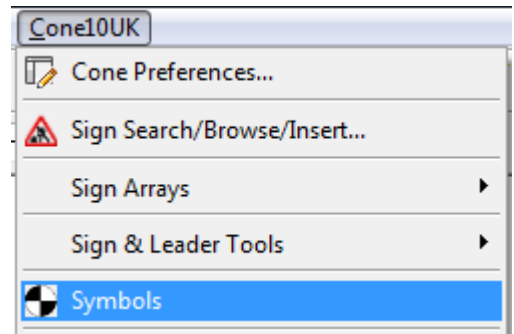
Select objects: *press [ENTER]*

This tool allows you to swap a single or number of blocks (signs or symbols) to be the same as one already placed on the drawing.

In this example we change the Right Hand Hazard Arrow signs into Left Hand Hazard Arrow signs



## Symbols

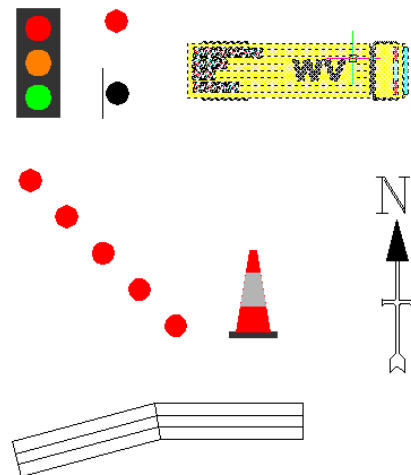


Symbols are simple drawings that you can use to enhance your drawings

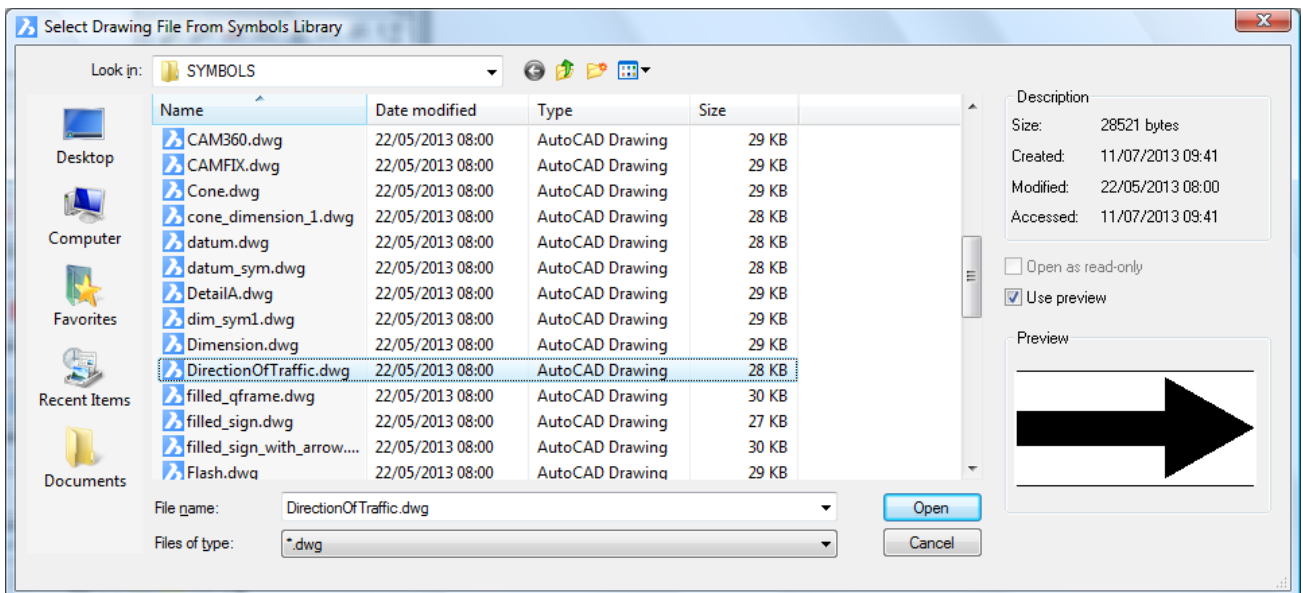
The CONE Symbol Library is sub divided into the following folders

- Changeovers - Reverse Curve**
- Changeovers - Straight**
- Cut Lines**
- Entry Crossovers**
- Exit Crossovers**
- Linear\_Devices**
- Safety Cameras**
- Single Carriageway Changeovers**
- Straight Coning**
- Tapers**
- Vehicles & People**

### SOME EXAMPLES



There is also a selection of symbols in the root folder as shown below



Select each drawing name and the preview will be presented.

Pick the **Open** button or double click the file name to start the insertion routine.

The **Scale** and **Rotation Angle** of these schematics are governed by the settings in **CONE PREFERENCES**

## Introduction to Schematic Segments & Layouts

CONE Schematics are diagrammatic representations of basic roads, junctions and roundabouts with and without signs and channelling devices. The actual sizes of the roads are not real-world sizes

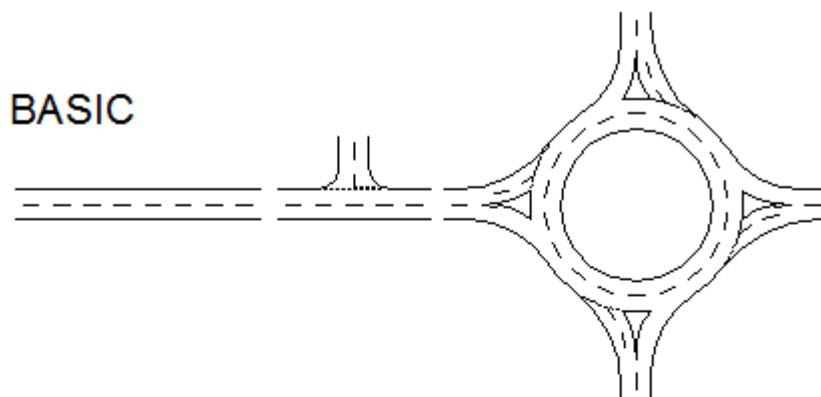
Multi-purpose, the CONE schematics cover all aspects of temporary traffic management and have many uses such as basic reference, indicative drawings, pre-tender proposals and when schemes are required for dual carriageways they represent the quickest and most convenient method of producing a TM plan.

There are three types of schematics diagrams:

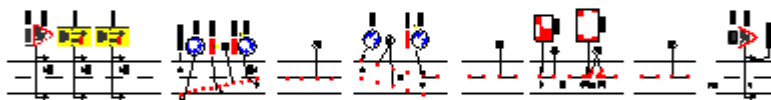
**Basic:** Roads, Junctions, Roundabouts and Bends that have no signs or channelling devices

**Segments:** Parts of a layout (Single & Dual Carriageway: Advance Warning, Tapers, Works Access etc.)

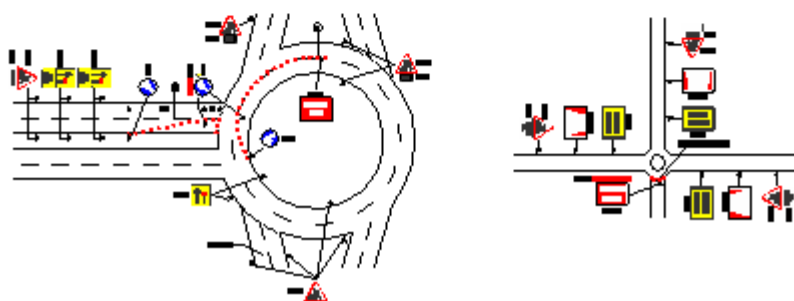
**Layouts:** Complete layouts for a typical scheme (TSAM'S, Road Closures and Emergency TM)



### SEGMENTS

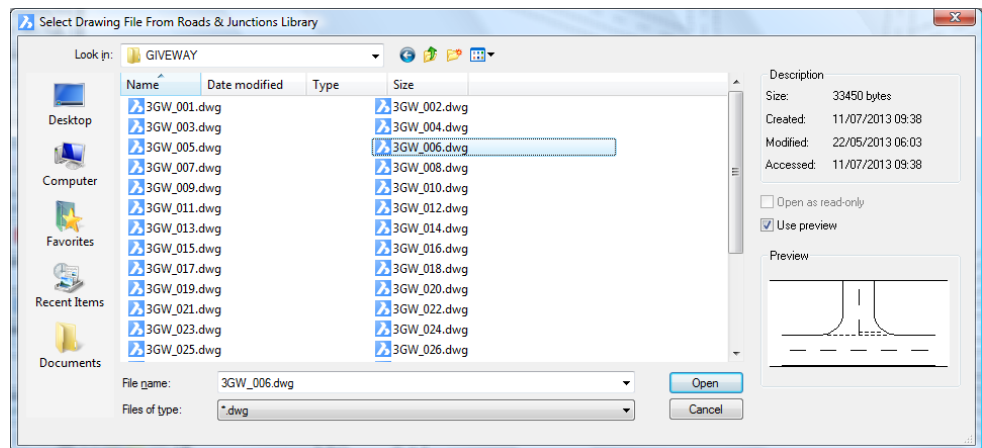
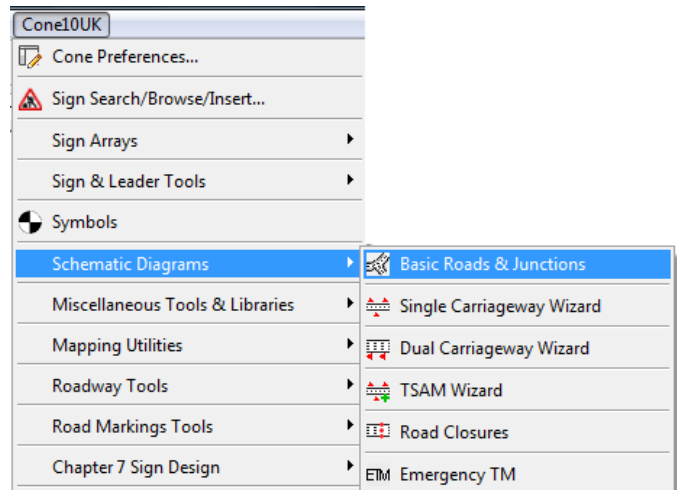
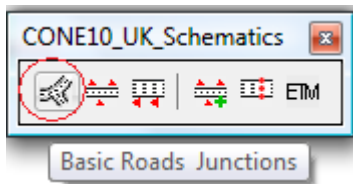


### LAYOUTS



All three types of schematics have a common size and are designed to sit on top of each other and snap together

## Schematic Segments & Layouts: Basic Road & Junctions



This tool enables access to the basic roads and junctions library which is divided into the following sub-folders:

3WAY (Junctions)  
GiveWay  
Roundabouts  
TrafficSignals

4WAY (Junctions)  
GiveWay  
Roundabouts  
TrafficSignals

BENDS  
D2GRADESEPERATED  
D3GRADESEPERATED  
D4GRADESEPERATED  
SLIPROADS  
LEVELCROSSINGS  
MISCELLANEOUS  
S3GRADESEPERATED  
SLIPROADS  
STRAIGHTS  
TRANSITIONS

In the example above the selection was:

CONE10UK > Schematic Diagrams > Basic Roads & Junctions > 3WAY > GIVE WAY

Select each drawing name and the preview will be presented.

Pick the **Open** button or double click the file name to start the insertion routine.

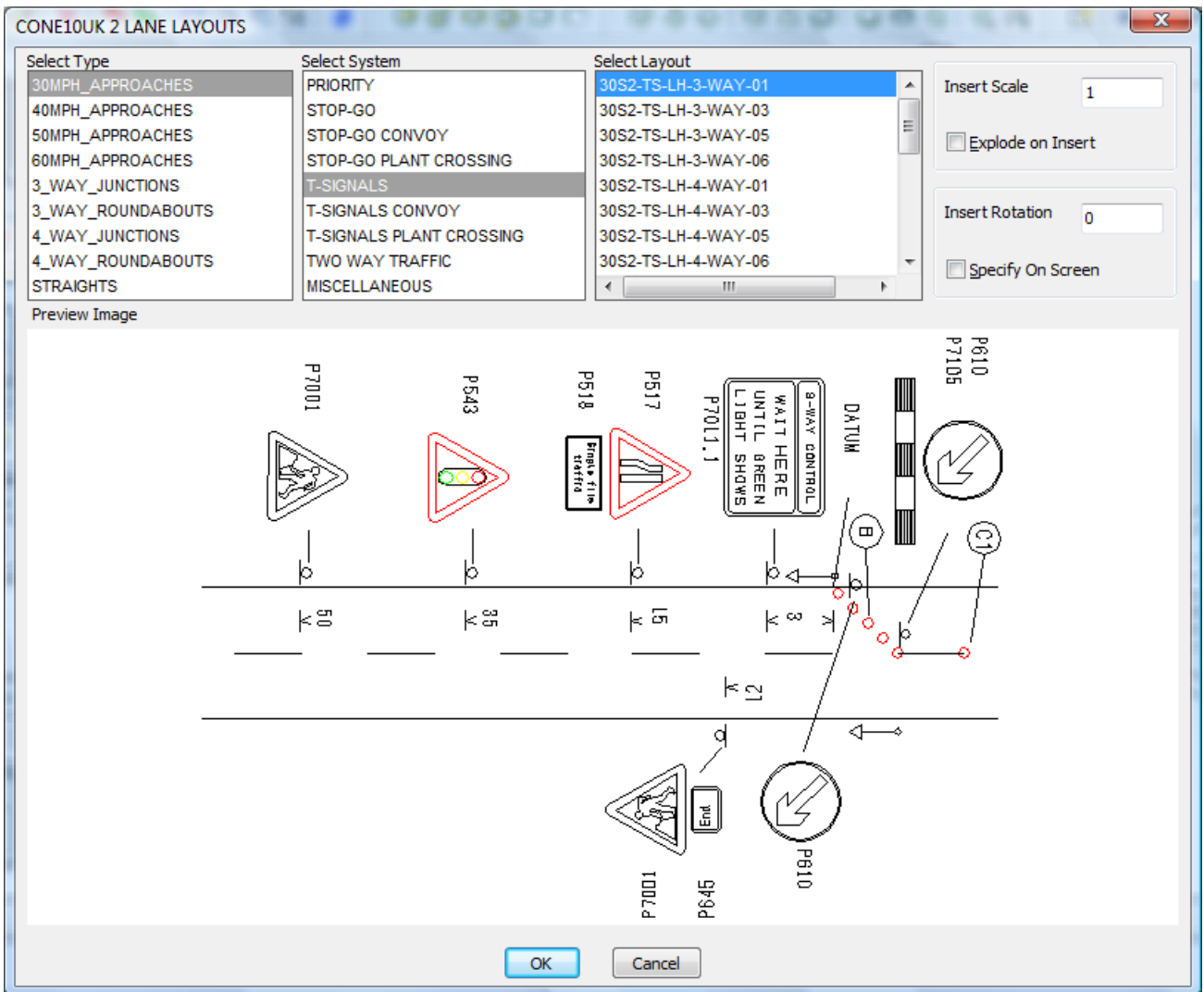
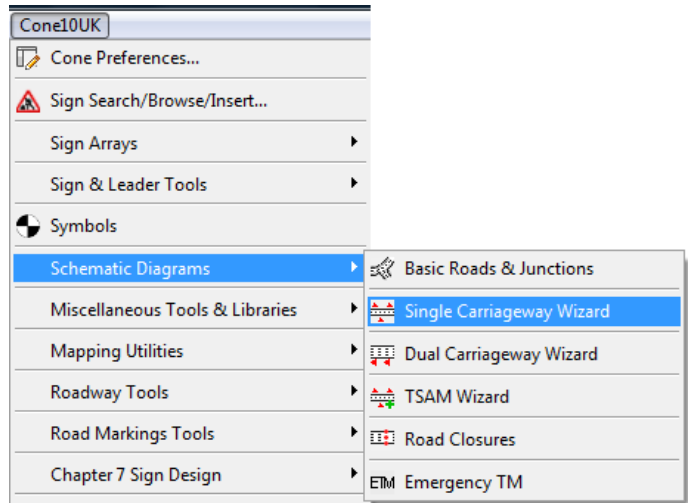
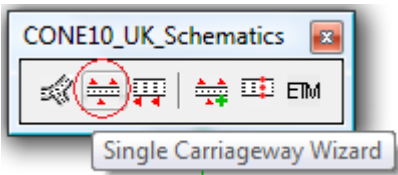
Command: UKROADS

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*

The **Scale** and **Rotation Angle** of these schematics are governed by the settings in **Cone Preferences**

## Schematic Segments & Layouts: Single Carriageway Wizard



## CONE 10 UK – User Guide

Working from Left to Right make your selection from the three lists:

**Select Type:** 30mph Approaches, 40mph Approaches, 50mph Approaches, 60mph Approaches, 3-Way Junctions, 3-Way Roundabouts, 4-Way Junctions, 4-Way Roundabouts, Straights

**Select System:** Priority, STOP-GO, STOP-GO Convoy, STOP-GO Plant Crossing, T-Signals, T-Signals Convoy, T-Signals Plant Crossing, 2-Way Traffic, Miscellaneous  
(NOTE not all options are available dependant on previous **Select Type** list option)

**Select Layout:** once selection from the previous lists is made, this list will display the matching details along with a slide image of the layout drawing

Select the layout required from the **Select Layout** list and pick the **OK** button to have the drawing inserted using the insert settings as defined in the Insert Settings area of the dialog

**Insert Scale:** normally left at 1, changing this will make the detail smaller or larger

**Explode on Insert:** the detail will be inserted as a block to enable you to move all items together, checking this box will break it into its individual elements (NOTE individual signs are not exploded)

**Insert Rotation:** specify a rotation angle for the detail

**Specify on Screen:** check this box to rotate the detail dynamically after picking the insertion point

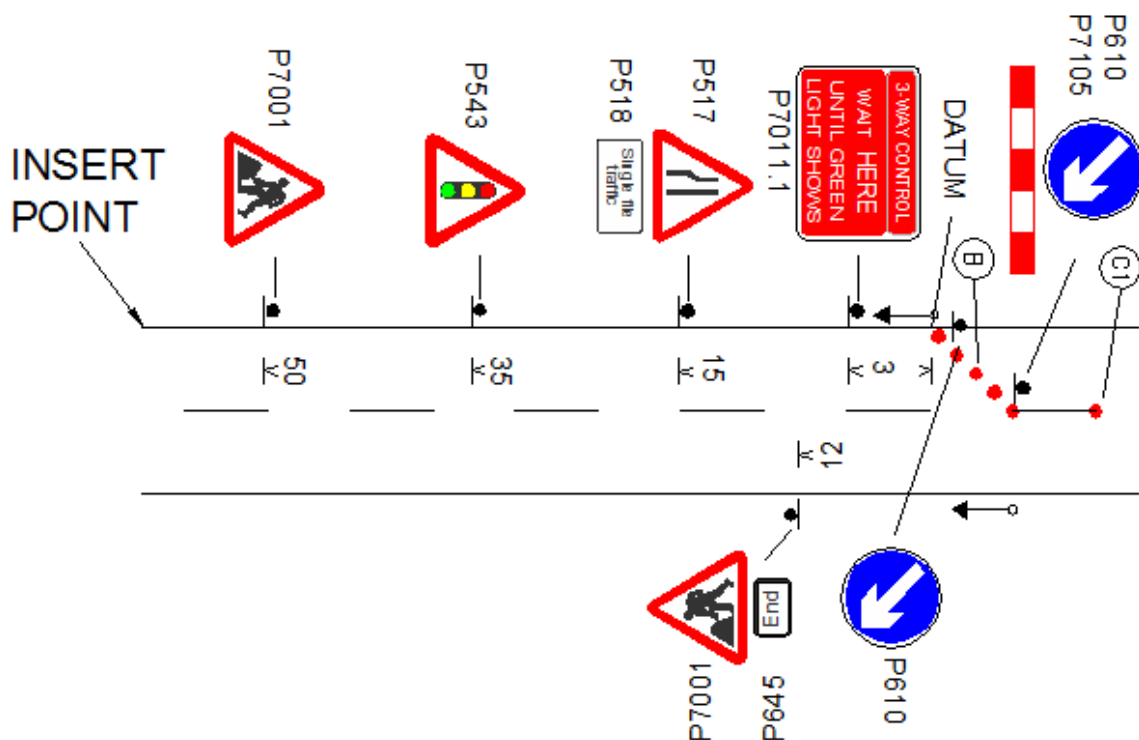
Pick the **OK** button to start the insert routine

Command: C2LANEWIZARD

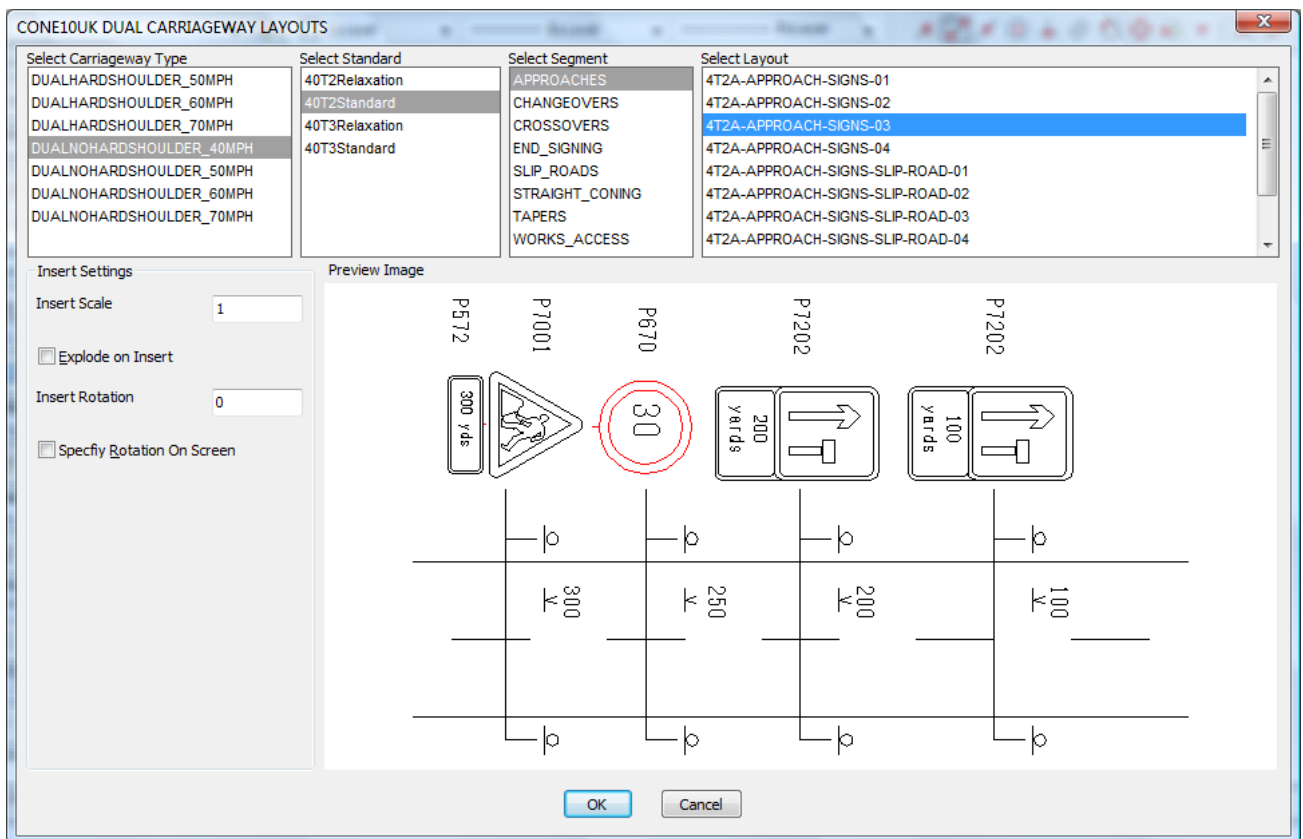
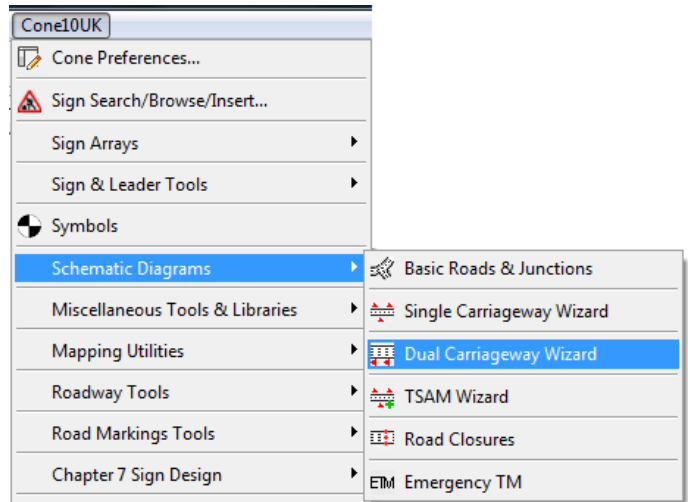
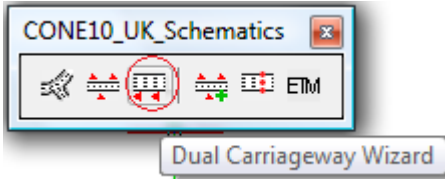
Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter a rotation angle (dependent on Specify on Screen setting)*

Note: The insert point is always the left hand edge of the nearside carriageway



## Schematic Segments & Layouts: Dual Carriageway Wizard





Working from left to right you make selections from the four lists:

**Select Carriageway Type:** Dual Hardshoulder 50mph, Dual Hardshoulder 60mph, Dual Hardshoulder 70mph, Dual No Hardshoulder 40mph, Dual No Hardshoulder 50mph, Dual No Hardshoulder 60mph, Dual No Hardshoulder 70mph (Note: not all segments are available at higher speeds)

**Select Standard:** Varies

**Select Segment:** Approaches, Changeovers, Crossovers, End signing, Slip roads, Straight coning, Tapers, Works Access (NOTE: not all options are available depending on standard selected).

**Select Layout:** This is the list of matching details

Having made your selection a list of available segment drawings are presented in the **Select Layout** list along with a slide image of the segment drawing

Select the drawing segment required and pick the **OK** button to have the drawing inserted using the insert settings as defined in the **Insert Settings** area of the dialog

**Insert Scale:** normally left at 1, changing this will make the detail smaller or larger

**Explode on Insert:** the detail will be inserted as a block to enable you to move all items together, checking this box will break it into its individual elements (NOTE individual signs are not exploded)

**Insert Rotation:** specify a rotation angle for the detail

**Specify on Screen:** check this box to rotate the detail dynamically after picking the insertion point

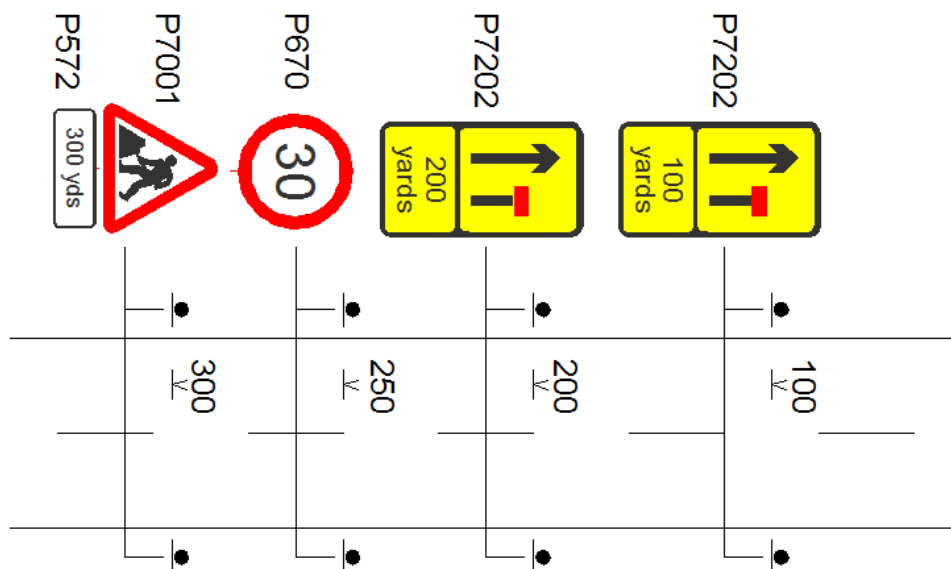
Pick the **OK** button to start the insert routine

Command: CDUALWIZARD

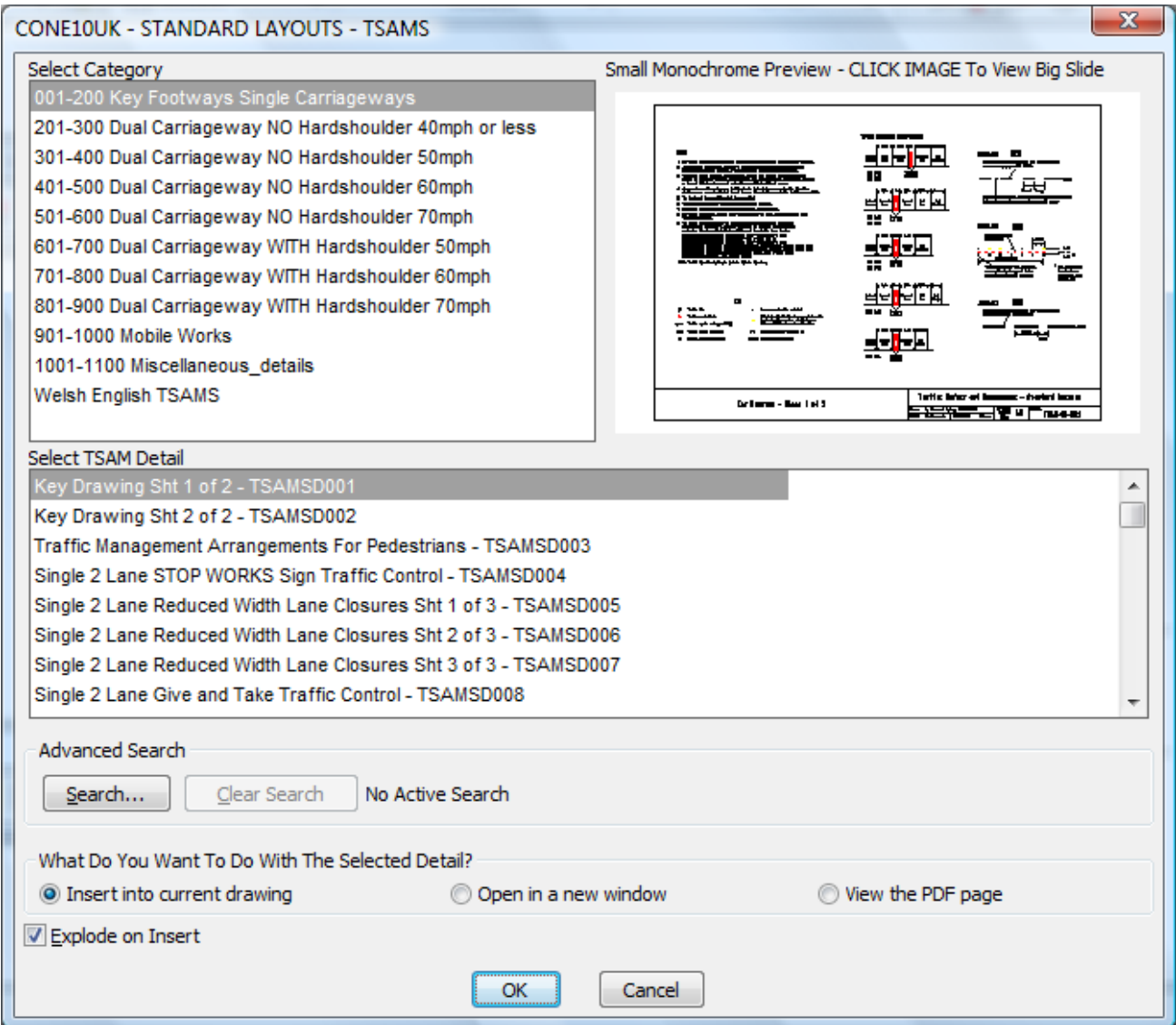
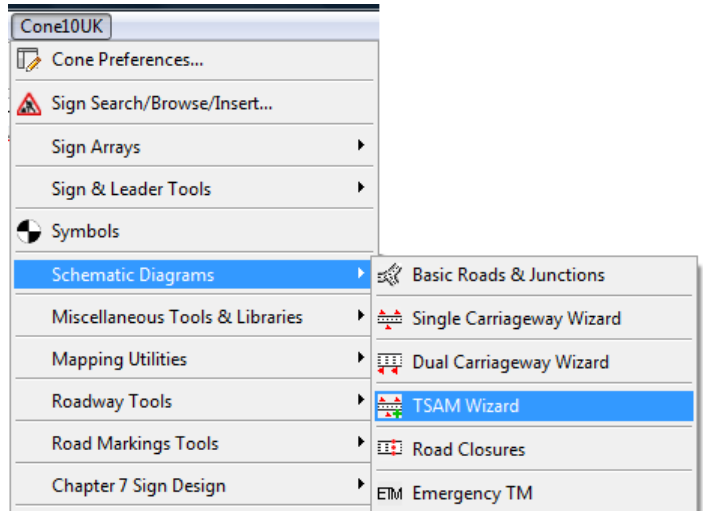
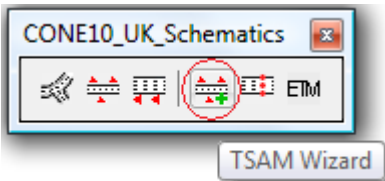
Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter a rotation angle (dependent on Specify on Screen setting)*

Note: The insert point is always the left hand edge of the nearside carriageway (except for Approach Segments which have an insert point at the right hand edge of the nearside carriageway)



Schematic Segments & Layouts:  
TSAM Wizard



There are over 400 individual drawing files in the TSAM library each containing multiple details within 11 categories. To enable you select the pre-drawn detail you want, first choose from the lists of options

**Select Category:** Select from the list of categories

Single Carriageways, Dual Carriageways, Mobile Works, Miscellaneous Details and Welsh/English TSAM's

**Select TSAM Detail:** TSAMS that match the previous selection are shown in this list, selecting one will show you a preview at the top right of the dialog.

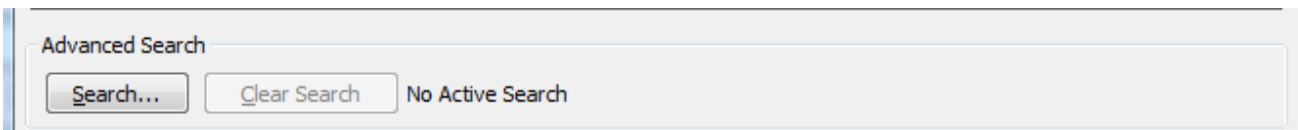
### What do you want to do with the detail?

**Insert into Current Drawing:** The detail will be inserted into your currently open drawing, including the TSAM title block

**Open in a new window:** The detail will be inserted into a new drawing, allowing you to copy/paste into your own drawing

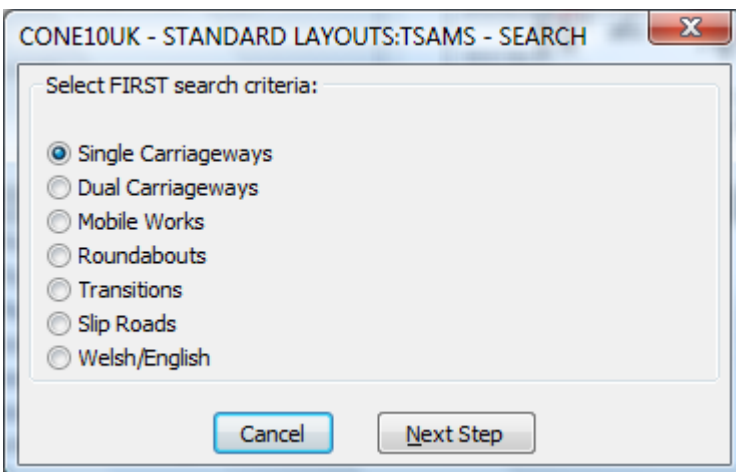
**View the PDF:** The detail will be opened from a PDF file (NOTE: you must have a copy of Adobe Reader, or other program able to open/display PDF format files for this option to work).

**Explode on Insert:** If using either of the drawing options above, the TSAM will be inserted as a single block unless this box is checked, if checked the TSAM will be exploded into its individual CAD elements though all signs and CONE devices remain unexploded.



## Advanced Search

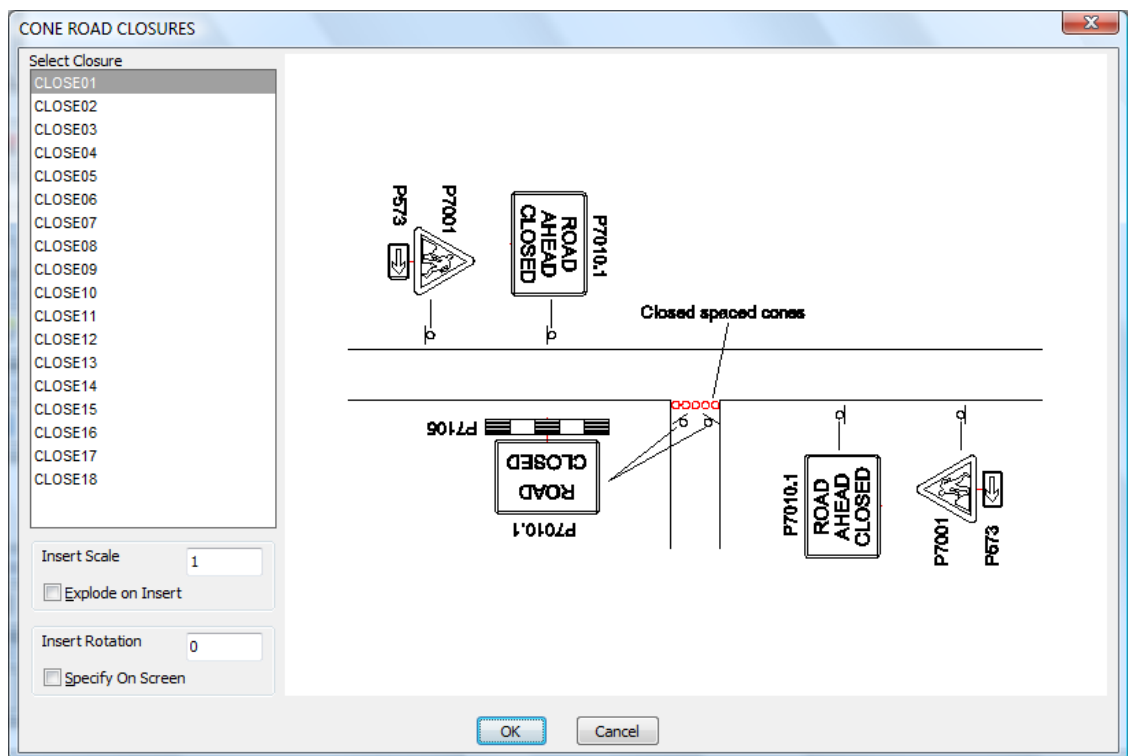
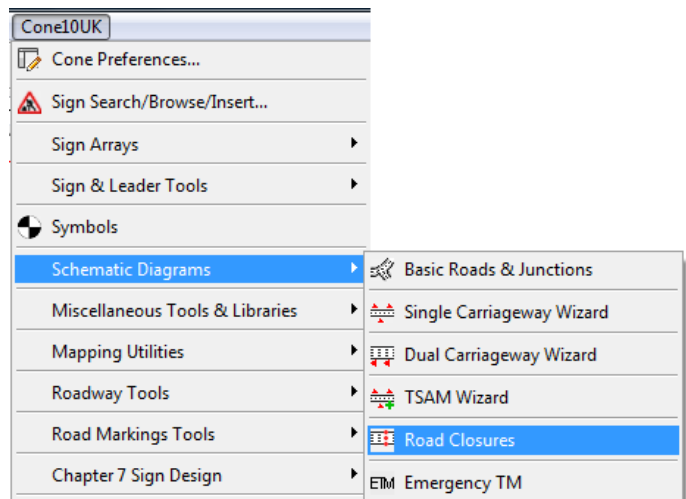
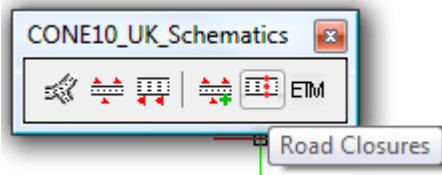
To enable you to select a detail more easily, we have included a search tool, where you simply make a series of choices from the radio buttons in the dialogs you will be presented.



Dependant on your selections, there are up to four levels of search dialog, some options may be unavailable as there are no matching TSAM details.

Once you have made your selections, CONE10 will display the number of matching details, and return you to the TSAM selection dialog. The Select Category list will be locked, as the search tool will list only the matching TSAM details. Select the detail as you would above. The search is stored during your current drawing session, to clear it, or start another search, press the **Clear Search** or **Search...** button.

## Schematic Segments & Layouts: Road Closures



Select the detail required from the **Select Closure** list, a preview image of the details appears to the right of the dialog.

**Insert Scale:** normally left at 1, changing this will make the detail smaller or larger

**Explode on Insert:** the detail will be inserted as a block to enable you to move all items together, checking this box will break it into its individual elements (NOTE individual signs are not exploded)

**Insert Rotation:** specify a rotation for the detail

**Specify on Screen:** check this box to rotate the detail dynamically after picking the insertion point

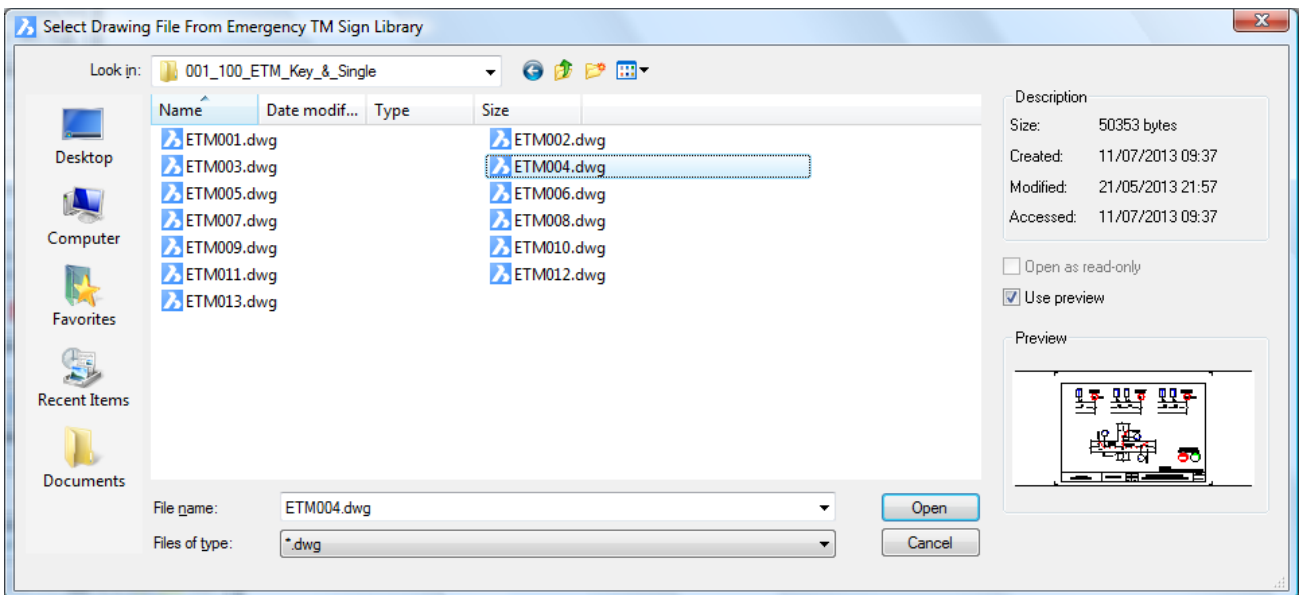
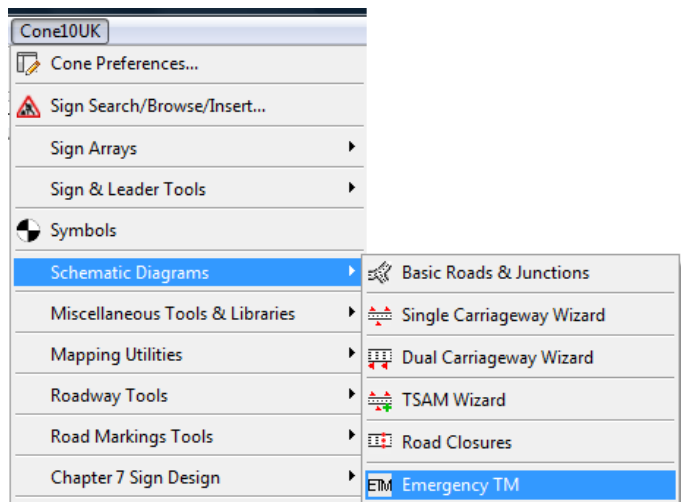
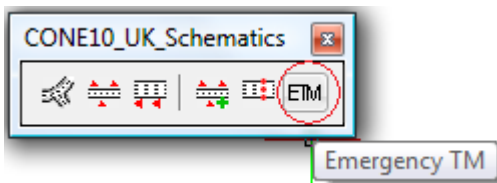
Pick the **OK** button to start the insert routine

Command: CROADCLOSURES

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*

## Schematic Segments & Layouts: Emergency TM



The Emergency Traffic Management Library has 280 drawings showing lane and road closures available when instructed by Police or Highway Officers.

The library is split into three main categories:

ISU\_EMERGENCY\_TRAFFIC\_MANAGEMENT  
 POLICE\_EMERGENCY\_TRAFFIC\_MANAGEMENT  
 WELSH\_POLICE\_EMERGENCY\_TRAFFIC\_MANAGEMENT

Each category is further divided into folders:

KEY & Single Carriageways  
 Dual Carriageway 30mph  
 Dual Carriageway 40mph  
 Dual Carriageway 50mph+  
 Dual Carriageway 50mph+ with Hardshoulder

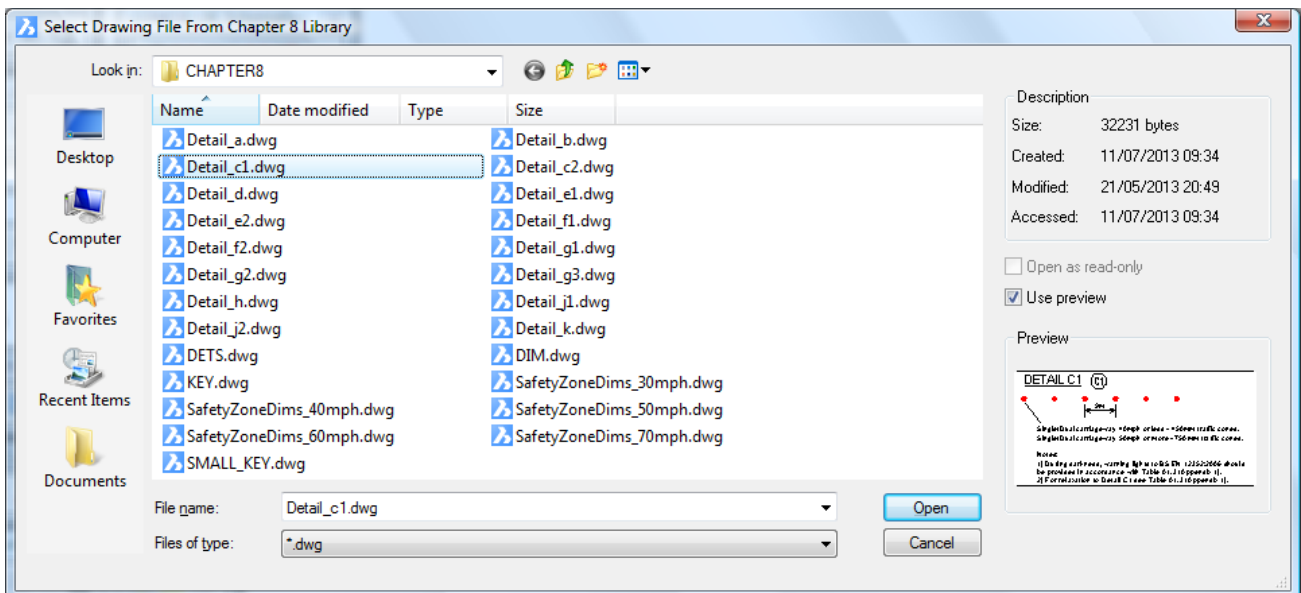
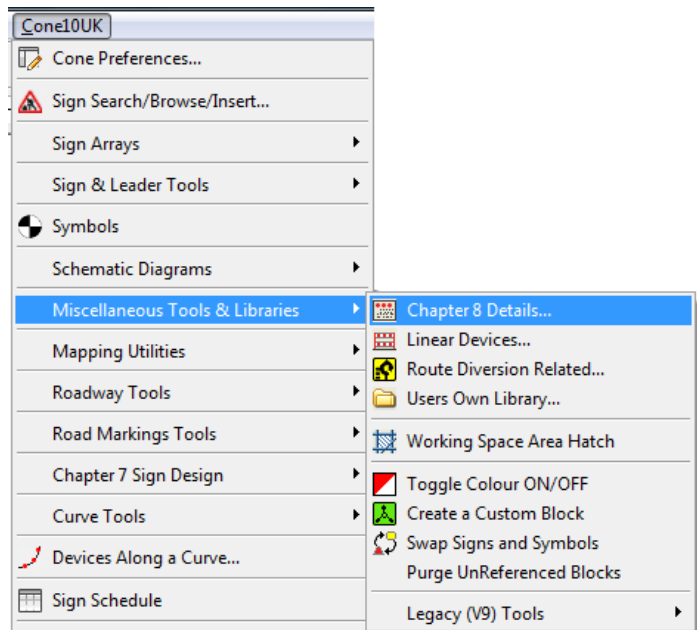
Select the drawing layout required and pick the **OK** button to have the drawing inserted using the insert settings specified in the **Cone Preferences** dialog.

Command: CETM

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*

## Miscellaneous Tools & Libraries: Chapter 8 Details



These are a series of smaller notes or legends that can be inserted onto your drawing to give additional information (for example coning size and spacing) - for more details see the **CONE Signs Symbols & Layouts Manual**

As each drawing file is selected, a preview is shown at the right of the dialog.

Click **Open** to insert the detail on your drawing, you will be prompted for a location.

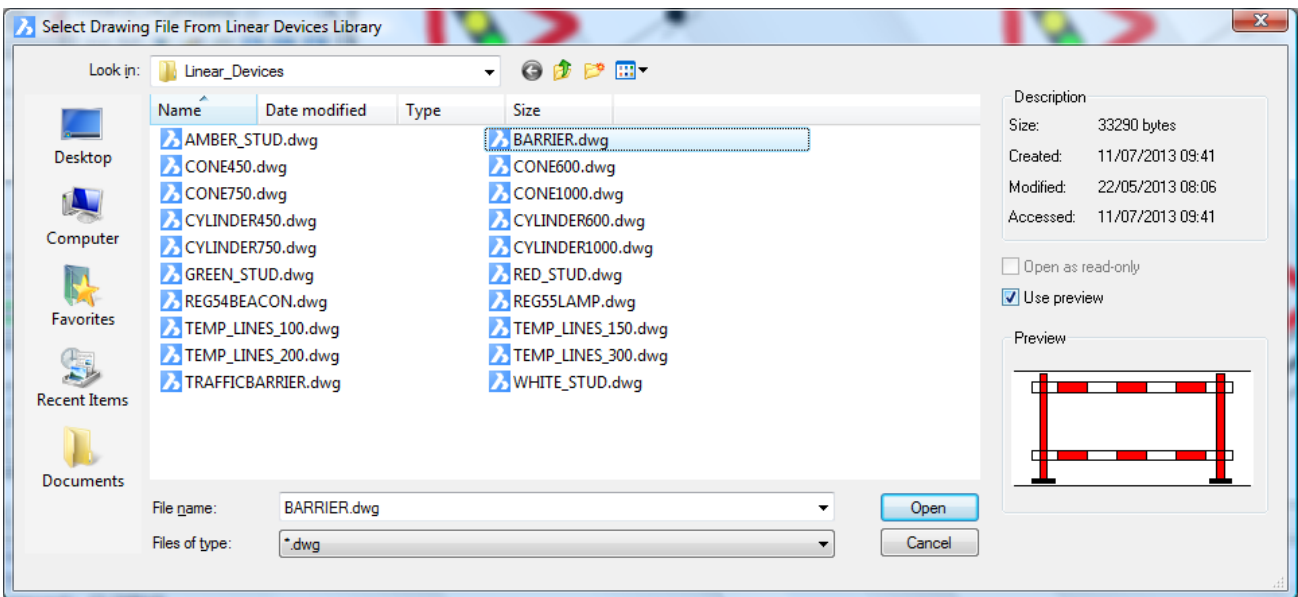
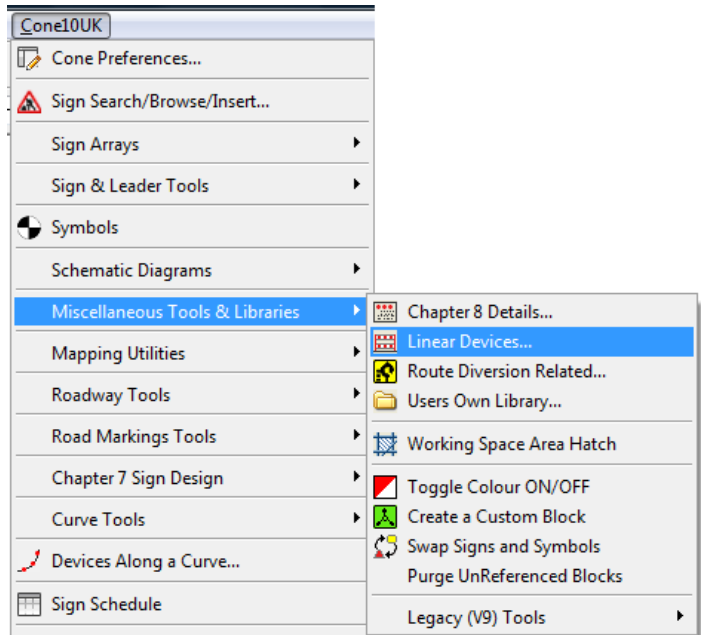
The **Scale** and **Rotation Angle** of these details are governed by the settings in **Cone Preferences**

Command: CCHAPTER8

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*

## Miscellaneous Tools & Libraries: Linear Devices



The library contains icons of various traffic management devices to insert on your drawing.

As a drawing file is selected, a preview is shown at the right of the dialog.

Click **Open** to insert the detail on your drawing, you will be prompted for a location.

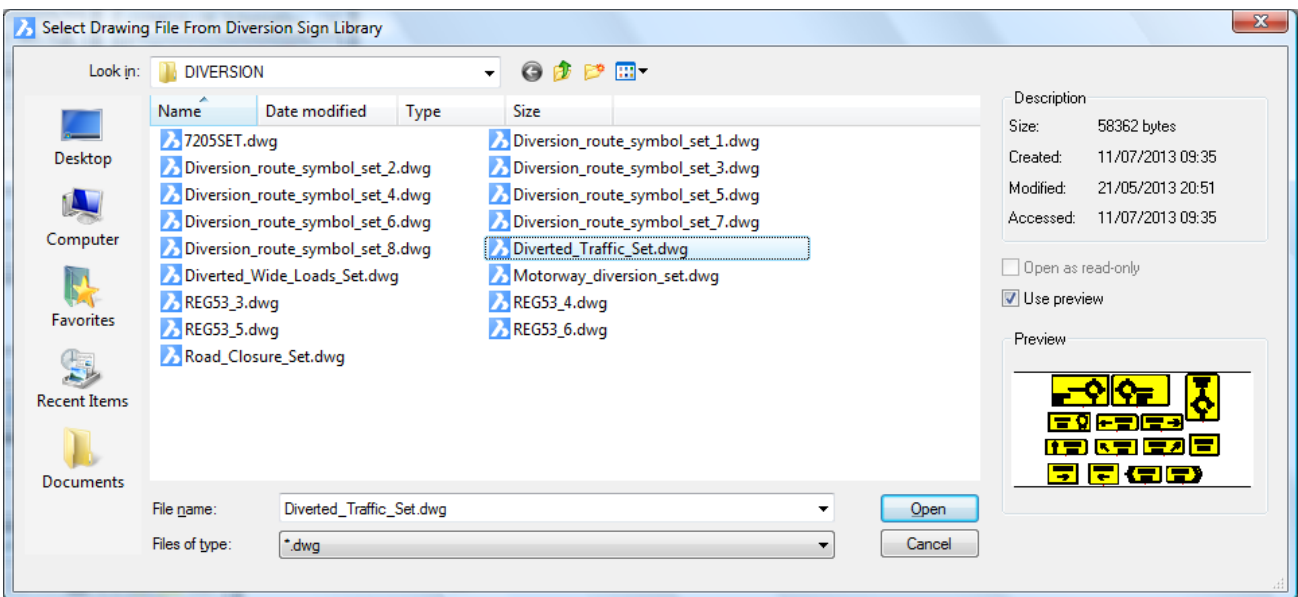
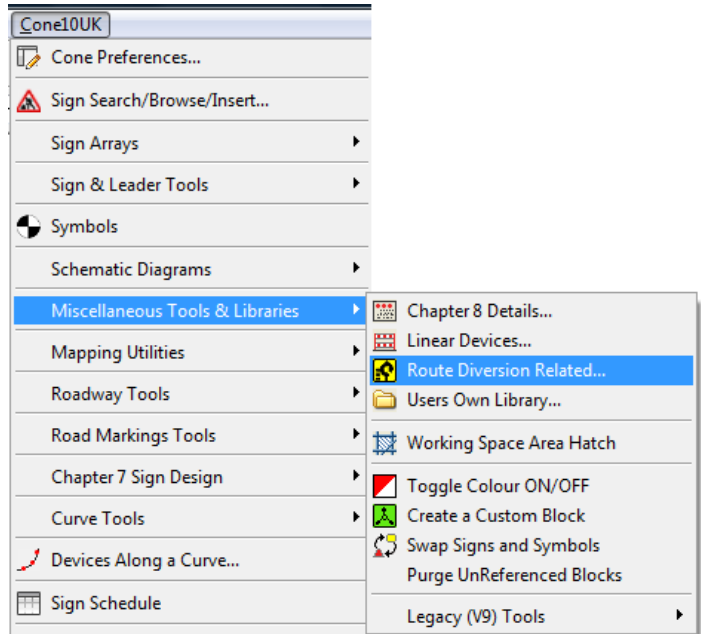
The **Scale** and **Rotation Angle** of these details are governed by the settings in **Cone Preferences**

Command: CLINEAR

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*

## Miscellaneous Tools & Libraries: Route Diversion Related



This library contains icons of various sets of diversion signs to insert on your drawing.

As each drawing file is selected, a preview is shown at the right of the dialog.

Click **Open** to insert the detail on your drawing, you will be prompted for a location.

The **Scale** and **Rotation Angle** of these details are governed by the settings in **Cone Preferences**

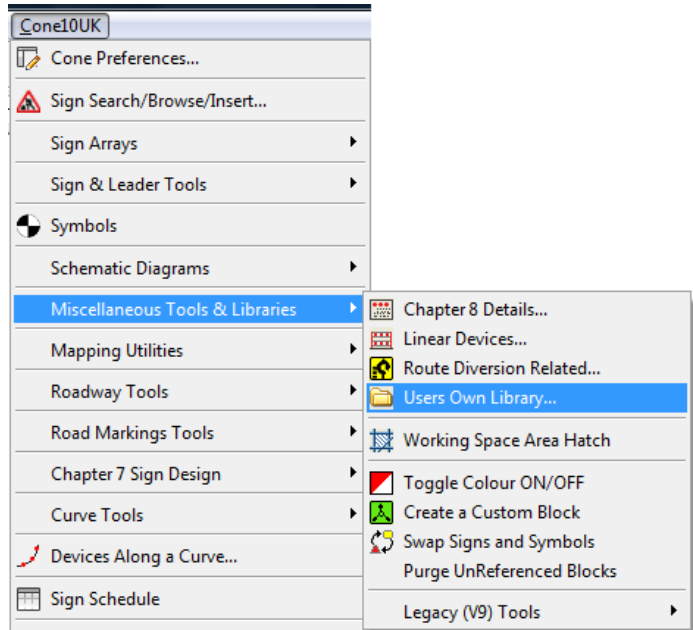
Command: CDIVERSION

Pick Insert Point *pick insert point*

Rotation angle for block <0>: *show or enter rotation angle*



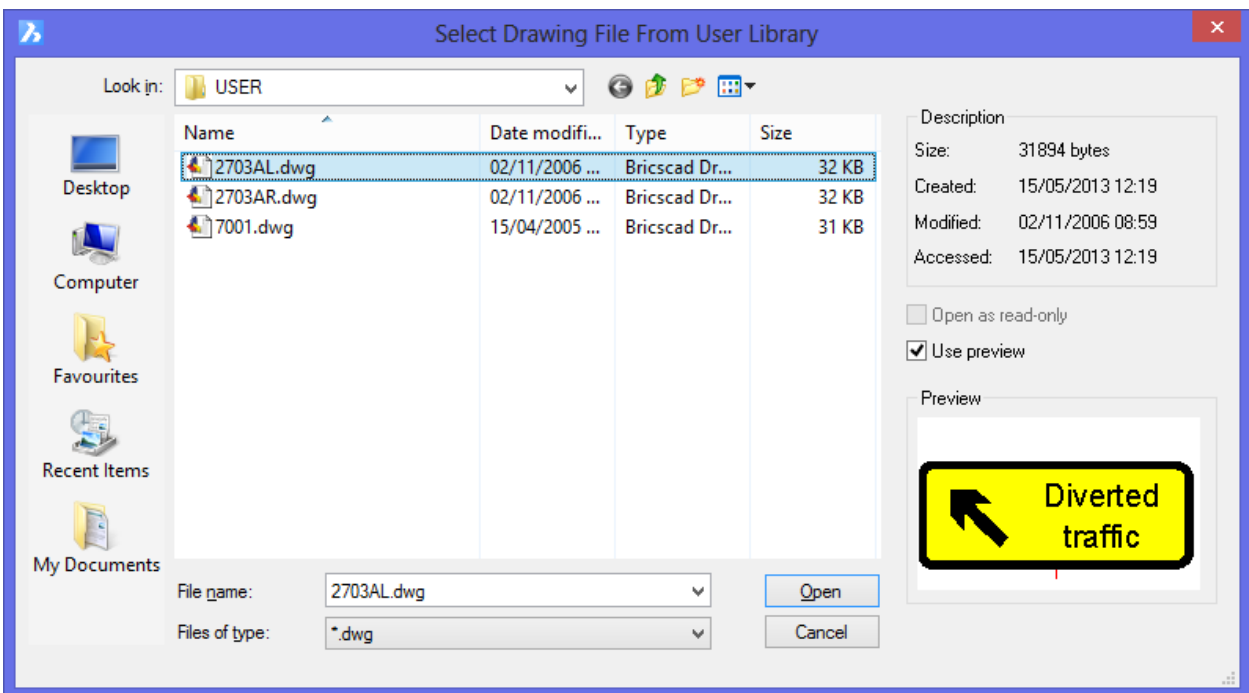
## Miscellaneous Tools & Libraries: Users Own Library



This tool enables you to access the **Users Own Library**.

This folder is originally empty, but can be populated with any drawings you wish, examples may include plan details of your operating vehicles.

Selecting the menu option displays the following dialog box, where you select the desired drawing file.

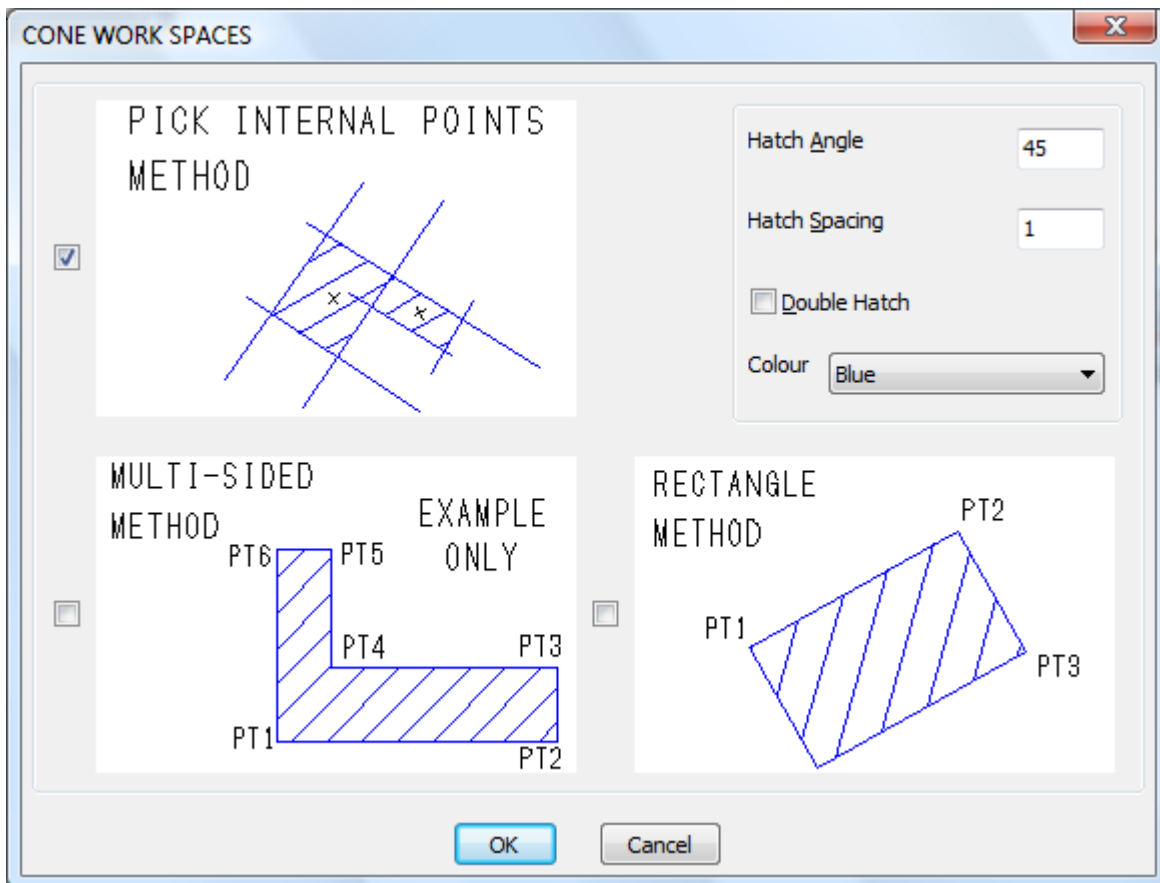
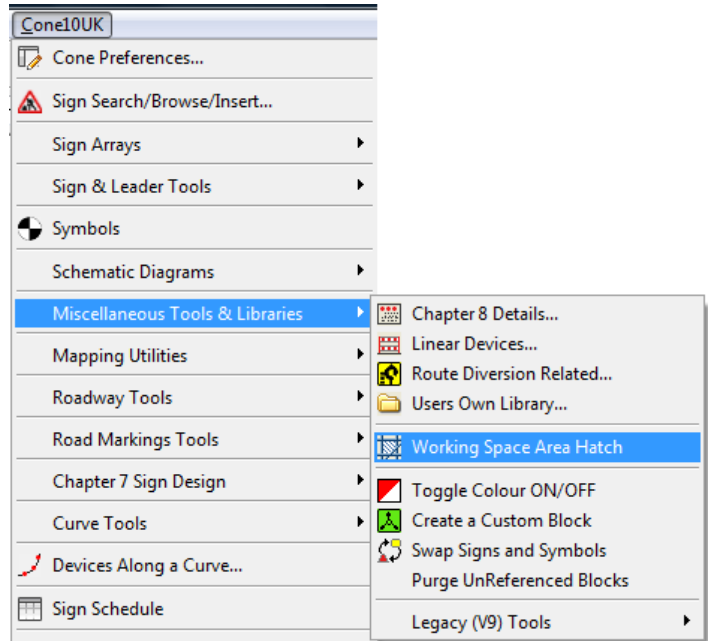
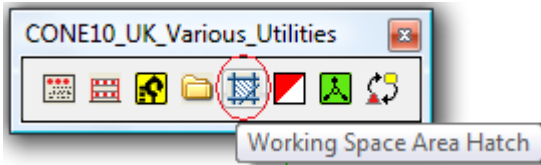


As each drawing file is selected, a preview is shown at the right of the dialog.

Click **Open** to insert the detail on your drawing, you will be prompted for a location.

The **Scale** and **Rotation Angle** of these details are governed by the settings in **Cone Preferences**

Miscellaneous Tools & Libraries:  
Working Space Area Hatch



This tool hatches working area in a variety of ways using a simple hatch pattern at variable spacing, angle and colour.

**Pick Internal Points Method:** If you have previously drawn construction lines on the drawing, you can simply click INSIDE the areas to be hatched. NOTE: these must be CLOSED areas, otherwise the cross-hatching may flood out unexpectedly.

**Multi-Sided Method:** indicate a string of points sequentially around the work area boundary, the tool will automatically close from the last point to the starting point for you. Press return to complete the hatching.

**Rectangle Method:** Dynamically indicate two points along the length of the work area, then drag the width to suit.

NOTE: after the hatching has been drawn, if you modify the boundary lines, the hatching will redraw to suit.

**Hatch Angle:** the angle the hatching lines are drawn, relative to the horizontal axis, not the boundary of the work area.

**Hatch spacing:** distance between the parallel lines (in drawing units)

**Double Hatch:** this check box will make the tool use a squared hatching pattern if checked.

**Colour:** Select from the list of available standard colours.

Command line prompts for each method

### Pick Internal Points Method

Command: -BHATCH

Current hatch pattern: \_USER

Specify internal point or: Properties/Select/Remove islands/Advanced/Draw order/Origin :

*Pick a point(s) within the areas to be hatched*

### Multi-Sided Method

Command: CWORKSPACE Draw outline of Works Space:

Command: \_PLINE

ENTER to use last point/Follow/<Start of polyline>:

Arc/Distance/Follow/Halfwidth/Width/<Next point>:

Arc/Distance/Follow/Halfwidth/Width/Undo/<Next point>:

Arc/Close/Distance/Follow/Halfwidth/Width/Undo/<Next point>:

Arc/Close/Distance/Follow/Halfwidth/Width/Undo/<Next point>:

Arc/Close/Distance/Follow/Halfwidth/Width/Undo/<Next point>:

Arc/Close/Distance/Follow/Halfwidth/Width/Undo/<Next point>:

*Pick points to define the boundary of the workspace, press enter when finished*

### Rectangle Method

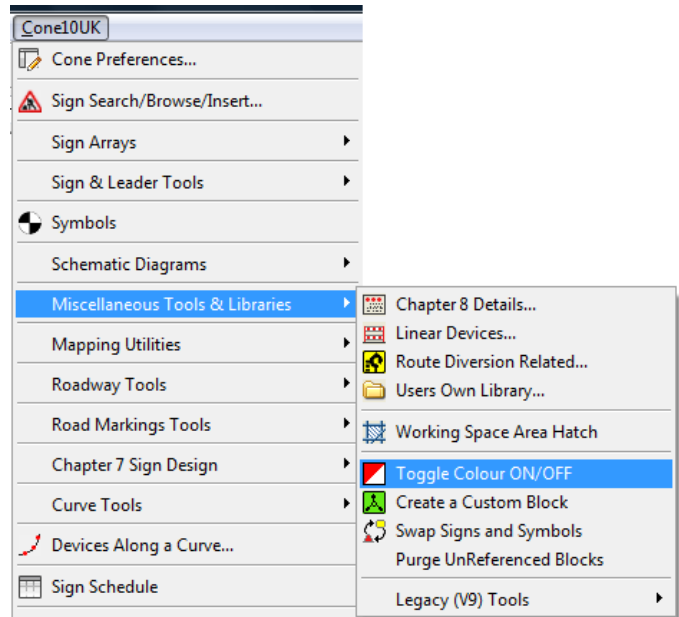
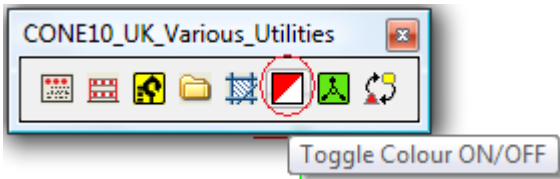
Command: CWORKSPACE

Pick first point of rectangle:

Pick second point:

*Pick two points to define the length of the rectangle, then pick a third point to define the width*

## Miscellaneous Tools & Libraries: Turn Colour ON/OFF

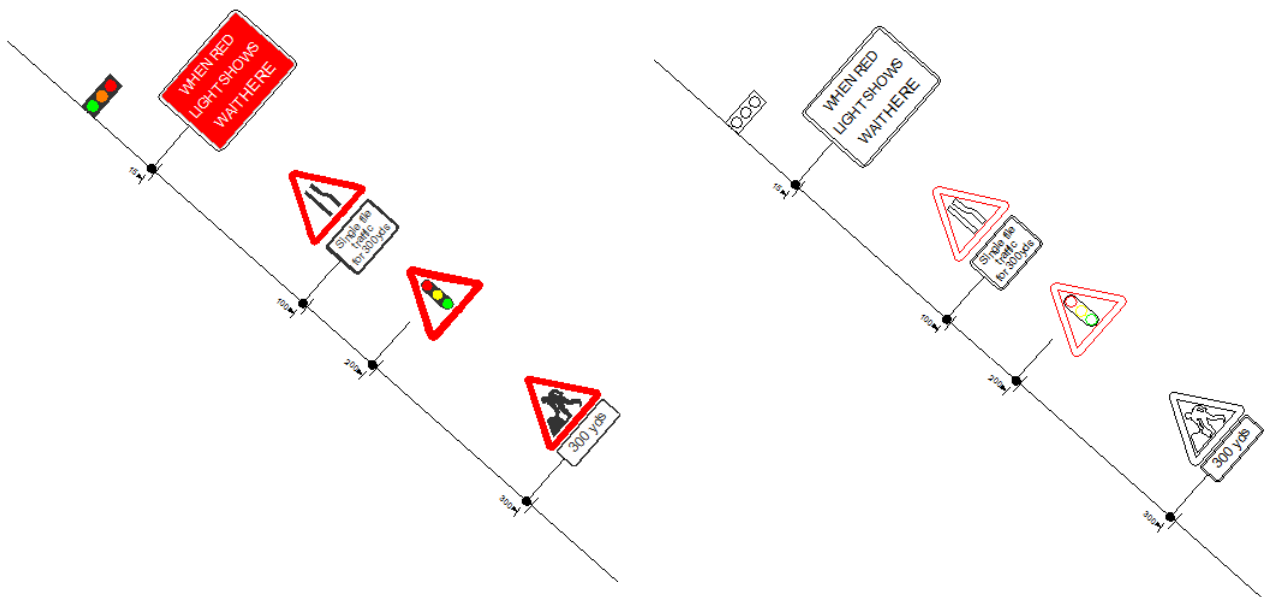


This tool enables you to toggle the fill between colour and black and white. There is no command line prompt

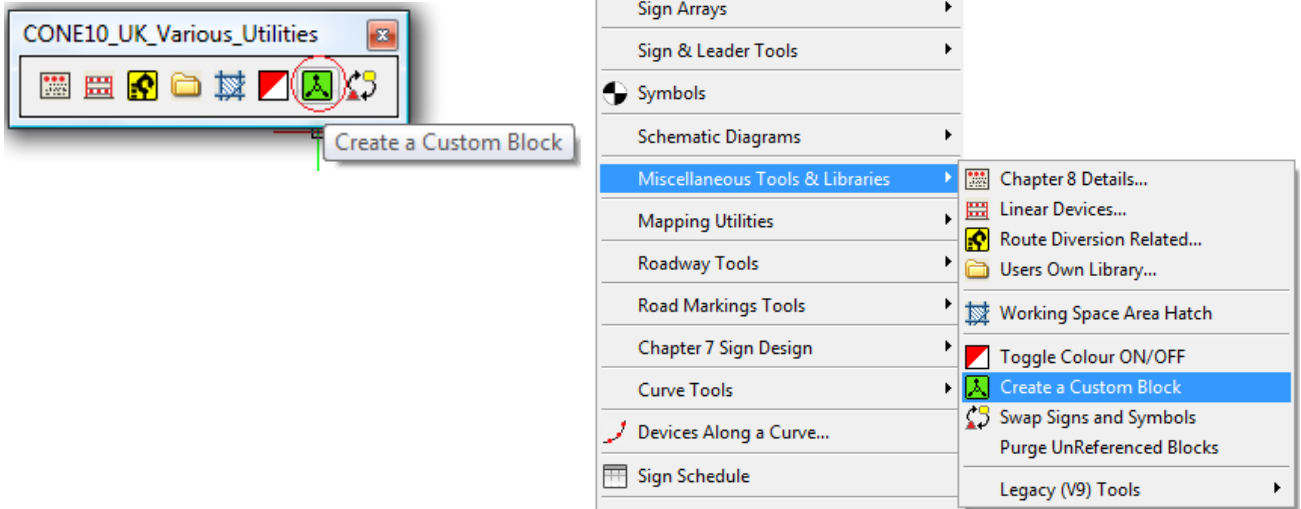
Useful for technical drawings or if you only have a monochrome printer or you want to photocopy the resulting plans in B&W.

This tool changes the layer status of the CONESIMPLE and CONEFILLED layers. They are designed to be mutually exclusive, and this tool handles them. DO NOT manually freeze/thaw the layers as you could end up with unexpected results.

Selecting the tool toggles the display as shown below



## Miscellaneous Tools & Libraries: Create a Custom Block



The Create a Custom Block tool provides a method of adding information to an existing set of none CONE objects (User signs etc.) in order that the objects will be subsequently recognised by the following CONE tools:-

LABEL SINGLE SIGN,  
 AUTO LABEL SIGNS  
 MODIFY TEXT OR DATA ON SIGNS  
 SIGN SCHEDULE

The **Create a Custom Block** creates a block of the objects selected.

It assigns an unique name prefixed by the text CP\$8USER - DO NOT CHANGE THIS PART OF THE NAME

The **Create a Custom Block** also adds attribute data as follows:-

ITEM, QTY , LABEL, DESC PN, SIZE, MAT, USER1, USER2, WID, HGT

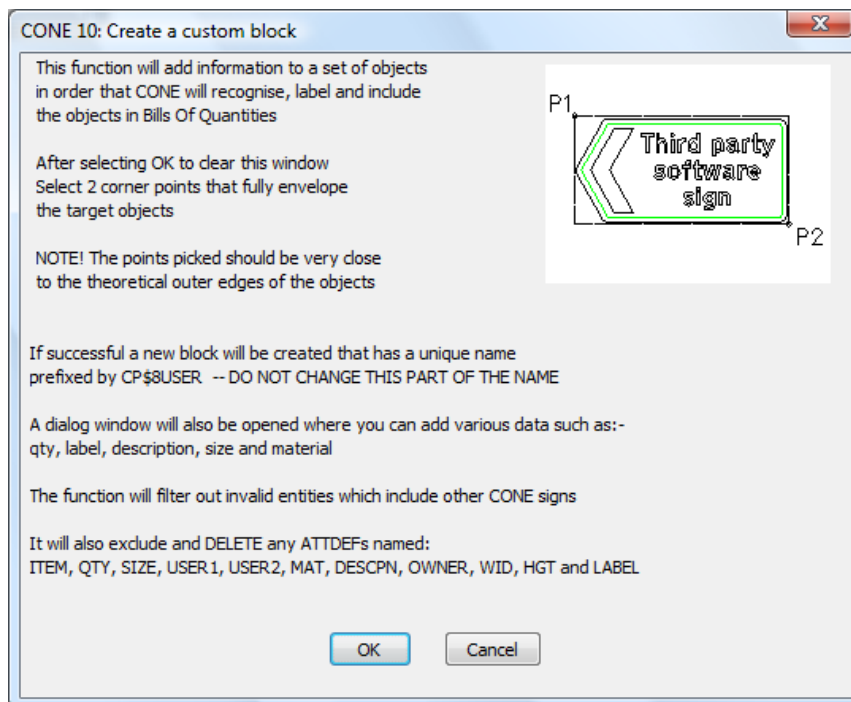
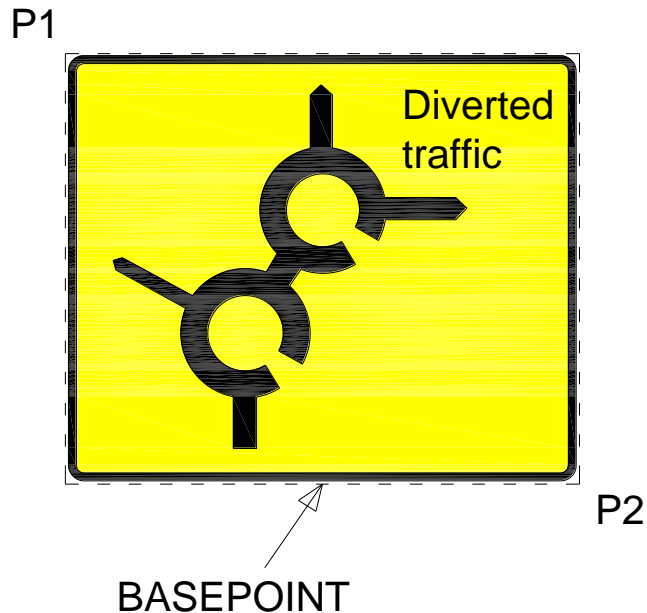
The WID (sign width) and HGT (Sign height) attributes are derived from the object selection rectangle so it is important that the 2 points picked should be very close to the theoretical outer edges of the objects - see example below

The insertion base point is midway between the lower left and lower right corners of the selection rectangle

Example:

Let's say you have created a special roundabout diversion sign for a particular scheme and you would like the sign to be included in a Sign Schedule and you would also like to be able to quickly re-use the sign in future schemes.

The diagram below represents your starting point for creating a CONE CUSTOM BLOCK



Select **Miscellaneous Tools & Libraries > Create a Custom Block** from the Cone 10 UK pull down menu.

Familiarise yourself of the steps required and select the **OK** button

You will be prompted to pick First Corner Point and Second Corner Point

Pick 2 points as shown by P1 and P2 in the above diagram

At this point the custom block will be created and the following dialog will be displayed

**CONE 9: Modify Custom Block Data**

Basic Block Data

CP\$8USER\_121806\_083559AM - Created By A 3rd Party

Qty

Label

Descpn

Material

Size

User 1

User 2

Instructions

This object was created with the CONE Custom Block Tool

You have 2 options:

1. Modify the Basic Block Data above and select the OK button
2. Select the Cancel button

OK Cancel

Entering information in this dialog is optional but highly recommended, you can later change the information through the **Modify Text or Data** on Signs tool

If you would like to be able to use the signs in subsequent future schemes then we recommend that you WBLOCK the sign to the CONE user folder

Enter WBLOCK at the command line

The CAD systems WRITE BLOCK dialog will appear

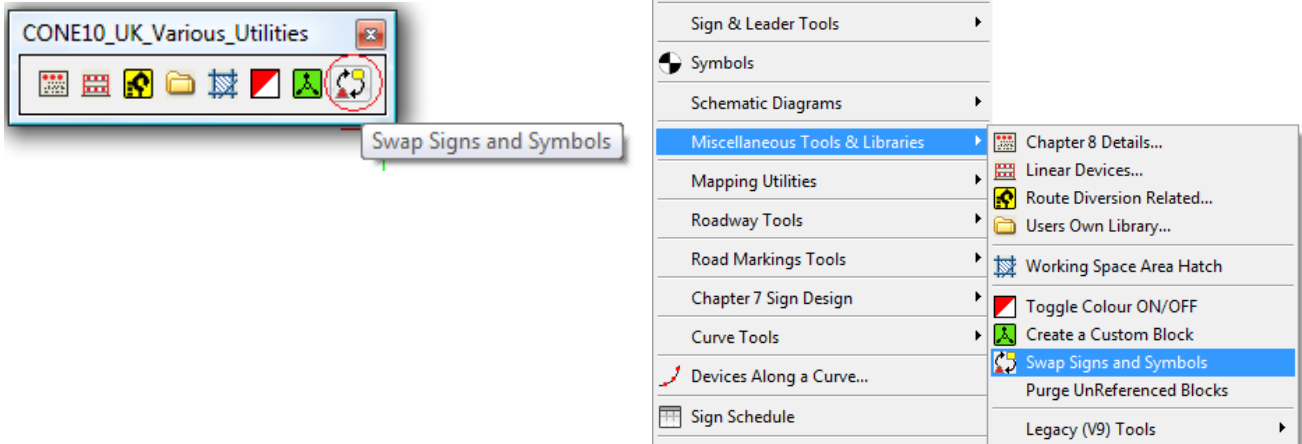
you need to supply 3 pieces of information

Select objects – select the sign

Pick Point – pick the base point as shown on the above diagram

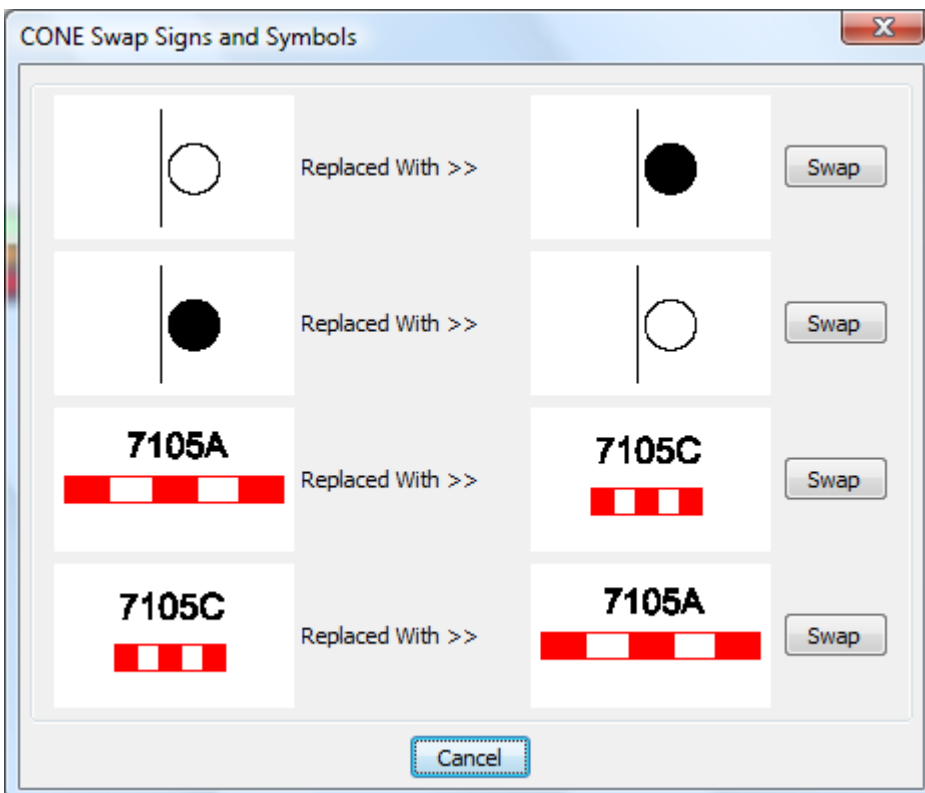
Destination and file name – suggest the destination be the USER folder located in the CONE installation folder – the file name can be anything you like

## Miscellaneous Tools & Libraries: Swap Signs and Symbols



The Swap Signs and Symbols tool will change all instances of one of four pre-programmed blocks on the drawing for an alternative block.

Selecting the option displays the dialog below.

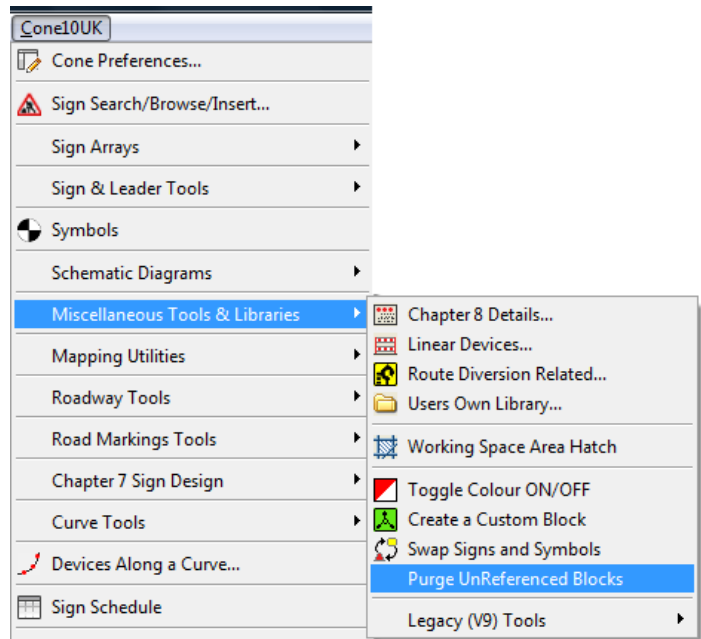


There are four pre-programmed blocks to swap, as an example, clicking on the top **Swap** button will search the drawing for all instances of the unfilled sign reference, and change it to the solid filled version.

Note: **See Sign & Leader Tools > Block Swap** for a more versatile option



### Miscellaneous Tools & Libraries: Purge Unreferenced Blocks



The **Purge Unreferenced Blocks** tool is simply an automated call to the standard CAD purge command. It performs a purge of all blocks without verification  
You may need to repeat usage several times until the CAD system responds with

#### **Command: No un-referenced blocks**

Unreferenced Blocks are blocks that are stored within the drawing database but have no actual reference on the drawing surface, periodically purging blocks can significantly reduce the drawing file size footprint

### Legacy (V9) Tools

These three CONE Version 9 tools have now been superseded but are included in this version of CONE at the request of some of our customers

**Coning Along A line or Polyline** has been superseded by **Devices Along a Curve**

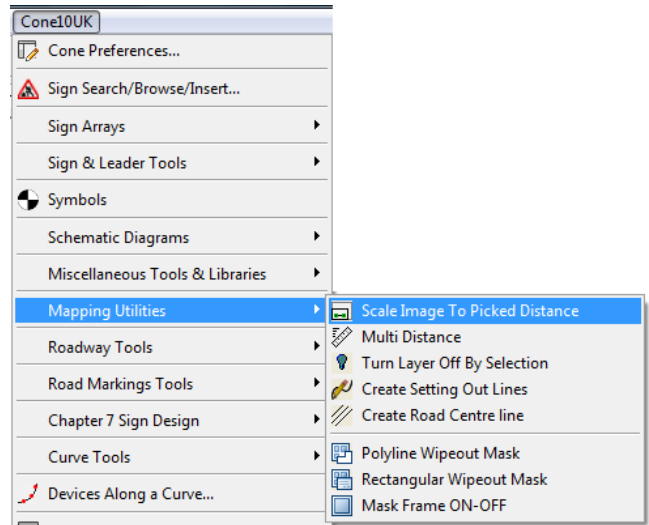
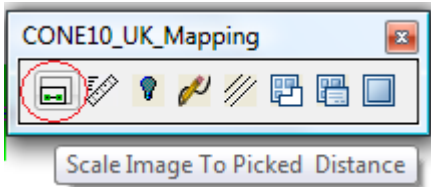
**Create a Bill of Quantities** has been superseded by **Sign Schedule**

**2 Lane Approaches** has been superseded by **Single Carriageway Sign Arrays**

## Mapping Utilities:

The Mapping Utilities section contains a series of tools that make working with CAD or RASTER overlay files a little easier.

### Scale Image to Picked Distance



This tool scales a raster image to its real world size and optionally places it on the MAPIMAGE layer

This assumes that you have either used your CAD System's: **Attach Raster Image** tool to already insert an image or have **pasted** an image directly. It also assumes that you have known distance reference points on the image similar to the scale bar on the image show below

Change the view (zoom) to maximise the legend on screen



Select the **Scale Image To Picked Distance** tool and follow the prompts shown below:



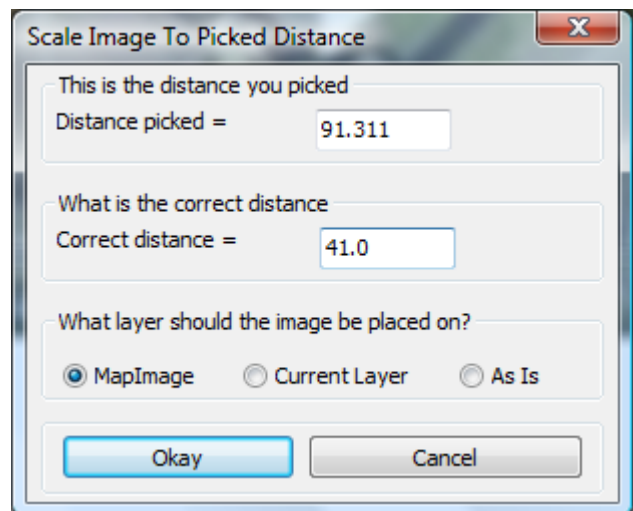
Select image to scale: *pick the EDGE of the raster image*

Pick 2 points at each end of known distance on the image, First point: *Pick 2 points at each end of known distance on the image as shown below*



After picking the second point the following dialog will appear showing the current measured distance between the two indicated points.

Enter the correct distance into the middle edit box  
In our example it would be 41.0  
(the length of the scale bar)



There are three options for manipulating the layer the image is drawn on:

**Mapimage:** the tool will create a layer named MAPIMAGE and move the raster image to this layer

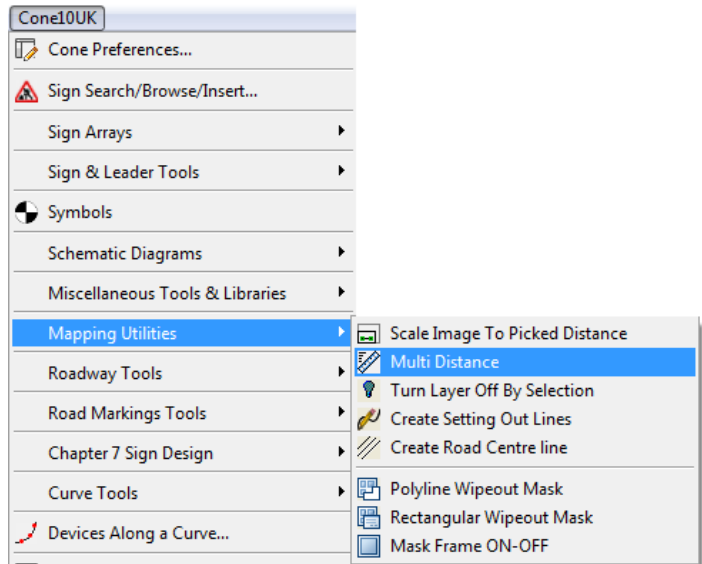
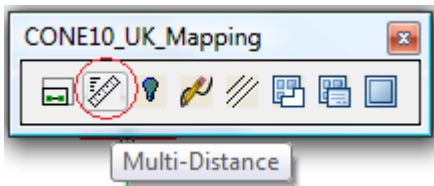
**Current Layer:** the tool will move the map to the currently active layer

**As Is:** No layer change is made, the raster image remains on the layer it was originally inserted onto.

Finally, the image is rescaled and the tool confirms the scaling factor and if relevant, the layer to which the image has been moved.

The bottom left position of the image remains fixed, so you may have ZOOM EXTENTS to see the whole map at its new size.

## Mapping Utilities: Multi Distance



This tool is useful for quickly measuring distances on a map and allows you to pick a series of points, and receive information on the distance between the last pair of points, as well as a running total.



### CONE Multi-Distance

Pick start point > *Indicate point on drawing to start*

Pick next point <hit Enter to Exit> *Indicate next point along measured path*

Last Distance = 28.2833 Accumulative Distance = 28.2833

Pick next point <hit Enter to Exit> *Indicate next point along measured path*

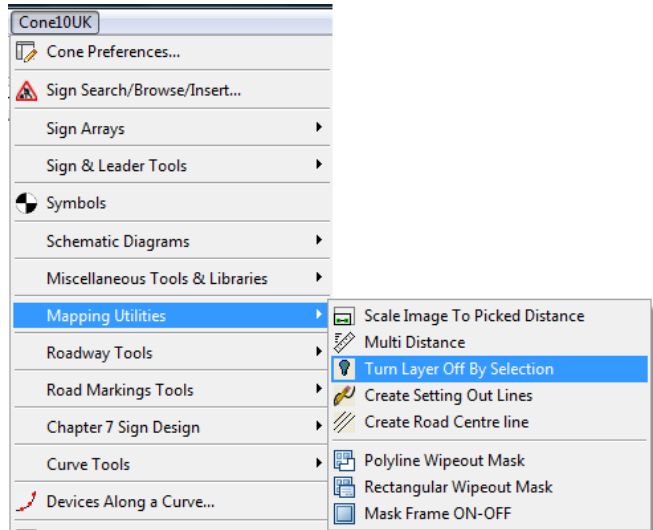
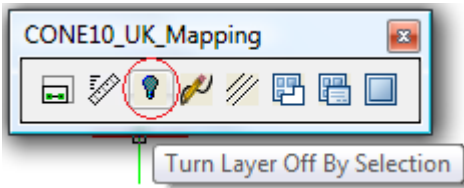
Last Distance = 22.16 Accumulative Distance = 50.4433

Pick next point <hit Enter to Exit> *Indicate next point along measured path*

Last Distance = 46.6121 Accumulative Distance = 97.0554

Pick next point <hit Enter to Exit> *Press [ENTER] key when finished*

## Mapping Utilities: Turn Layer Off By Selection



Command: CLO

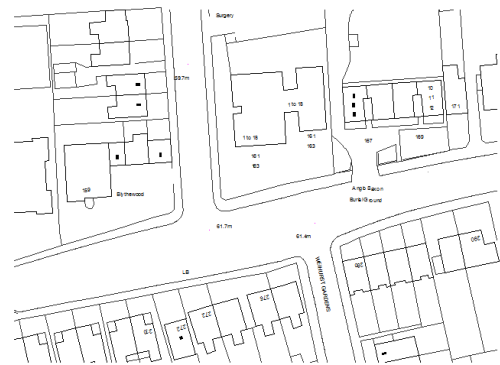
Select entities who's layer is to be turned OFF, press ENTER when done

When importing CAD map data such as Ordnance Survey plans, you may find there is too much information which may start to confuse or you simply prefer to produce plans without the colour filled areas (see below)

Usually, the different types of information are on separate layers, and by freezing a layer you can hide that set of visual information. This tool allows you to simply select a single entity and have all information on it's layer turned off or hidden – NOTE, it is not deleted, and can be made visible at any later time using the parent CAD "layer" command.



**BEFORE**



**AFTER**

The tool prompts:

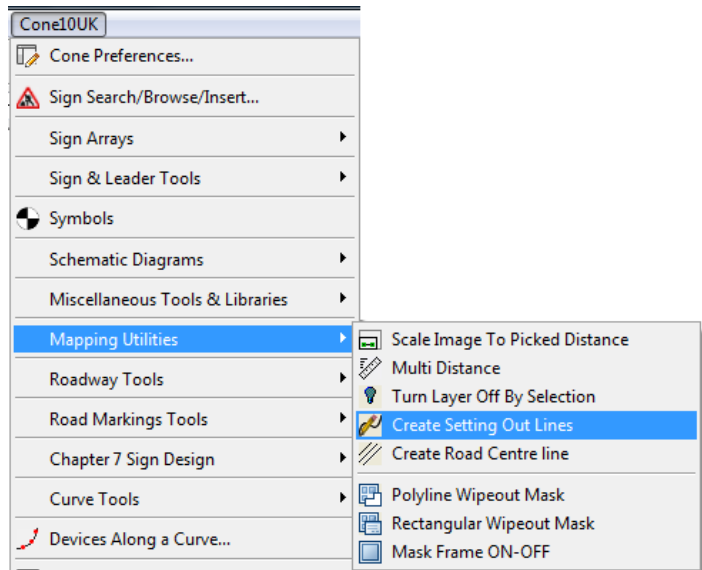
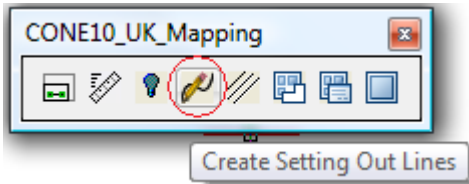
Command: CLO

Select entities who's layer is to be turned OFF, press ENTER when done *select a single entity*

Select entities who's layer is to be turned OFF, press ENTER when done *press [ENTER]*

NOTE: if the map has been inserted as a block, it may ALL disappear, in this case UNDO the last command, then EXPLODE the single background map into its individual entities.

## Mapping Utilities: Create Setting Out Lines



Command: CSOL

Command: `_.PLINE`

ENTER to use last point/Follow/<Start of polyline>:

When working with either CAD or raster maps, you may need to create additional "setting out" lines; for example to place a line of cones or other device along or to create a continuous edge line to aid placement of traffic signs, or to facilitate the creation of road centre lines or simply to aid accurate measurements.

The CAD systems POLYLINE tool can be used but the **Create Setting Out Lines** tool automates the process a little and adds other functionality

The tool creates a layer named: **CONE\_SETTING\_OUT\_LINES** and draws the POLYLINE with a colour of Magenta. And after indicating the last point offers the additional options: Smooth / Drape / None

Select the tool, and you will be prompted for a series of points exactly as when drawing a standard CAD Polyline.

The tool creates a layer named: **CONE\_SETTING\_OUT\_LINES** a draws with a colour of Magenta.

After indicating the last point, press ENTER and an additional prompt appears:

Polyline Fit Options: Smooth / Drape / None: <None>:

**Smooth:** convert the straight line segments into a smooth splined curve .

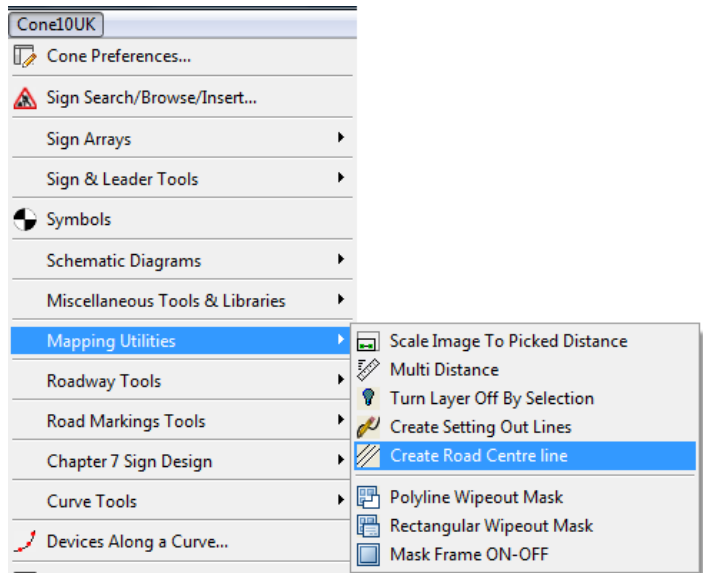
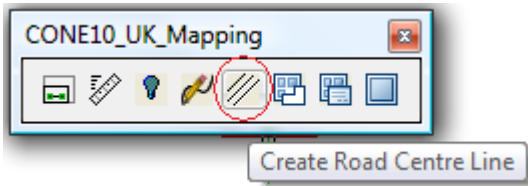
**Drape:** attempt to match the polyline to any adjacent CAD lines whilst splitting it into 2m segments

**None:** leave the setting out line as straight segments

In the example below two continuous setting out lines have been added along the both sides of the carriageway in readiness for creating a **Road Centre Line** between (see next page)



## Mapping Utilities: Create Road Centre Line

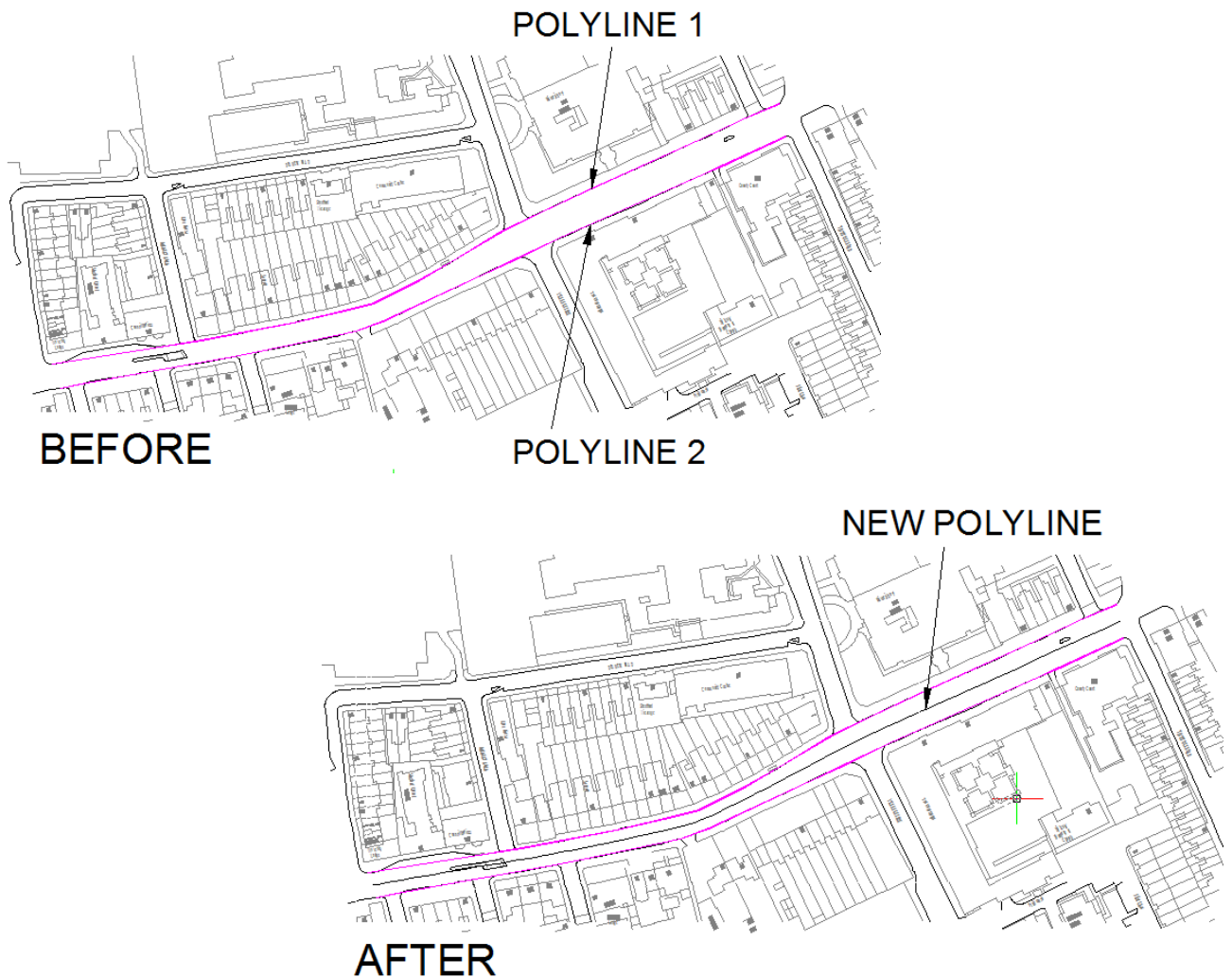


This tool creates the theoretical centre line between two separate Polylines

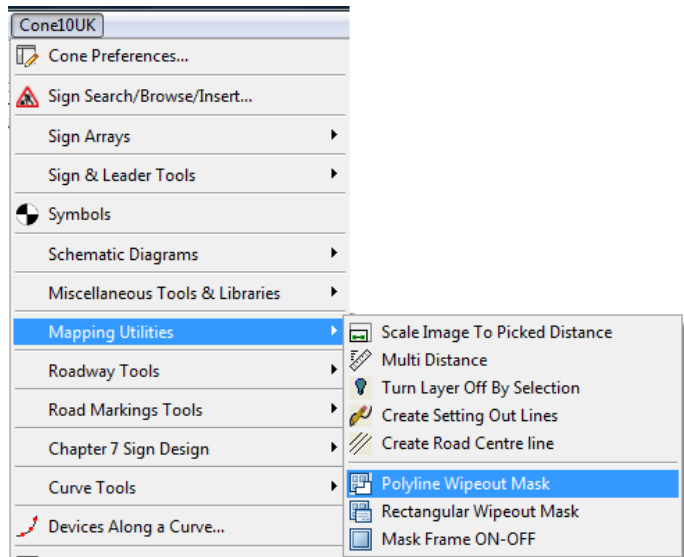
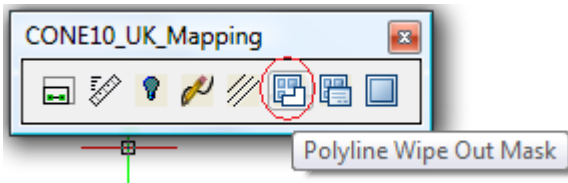
After selecting the tool you are prompted:

Command: CREATECENTRELINE  
 Select First Polyline: *pick the first polyline*  
 Select Second Polyline: *pick the second polyline*

The centre line is drawn as long as possible by interpolating between the two Polylines.



## Mapping Utilities: Polyline Wipeout Mask



Command: CPOLYMASK

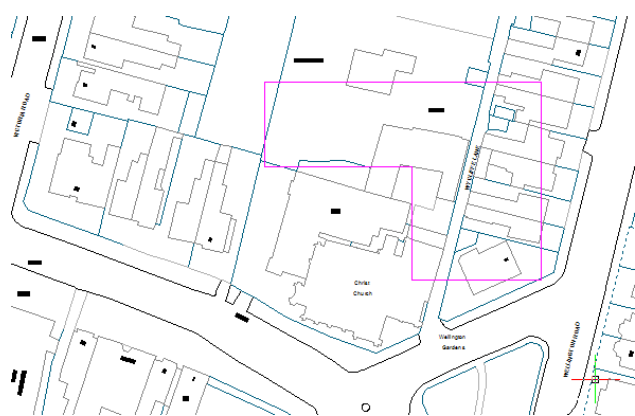
Select Closed Polyline to use as wipeout mask: *select a closed polyline*

Wipeout masks are useful when hiding extra detail on maps and as a plain base area to add your text without having to delete and trim lots lines from the drawing.

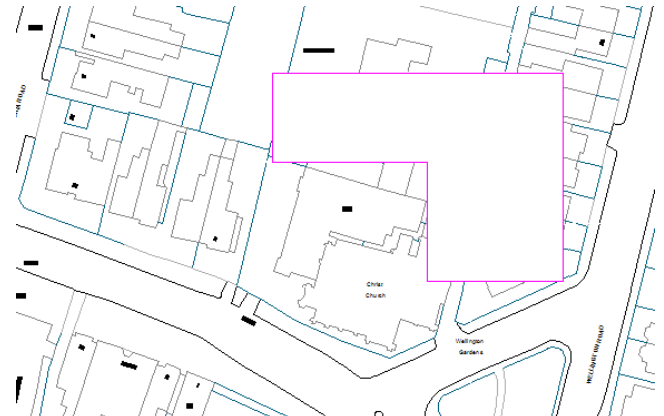
Using the **Polyline Wipeout Mask** tool, requires you to select a CLOSED polyline to show the boundary to mask..

The polyline Wipeout Mask tool, prompts you to indicate the polyline, then applies the mask to that shape, see the example screen grabs below

NOTE: The Wipeout mask is drawn on the same layer as the original Polyline



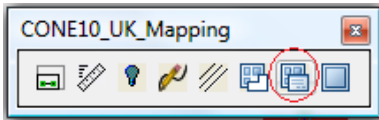
BEFORE



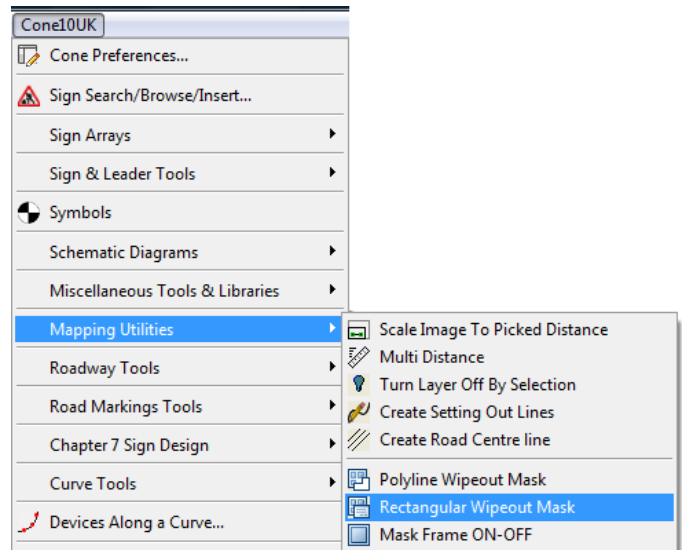
AFTER



## Mapping Utilities: Rectangular Wipeout Mask



Rectangular Wipe Out Mask



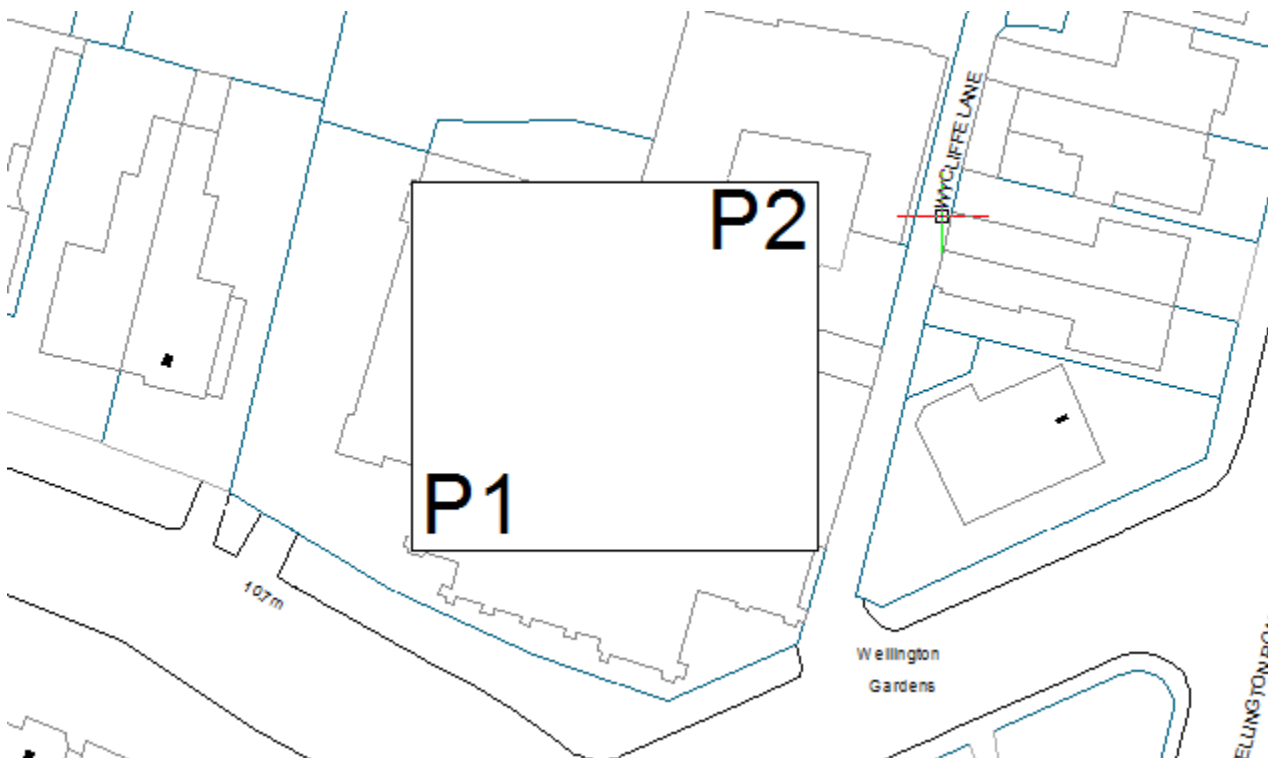
Command: CRECTMASK

First point of wipeout rectangle: *pick first point*

Other corner of wipeout rectangle: *pick another point*

Similar to the Polyline Wipeout Mask on the previous page, the Rectangular Wipeout Mask tool simply prompts for two points to draw a rectangle mask

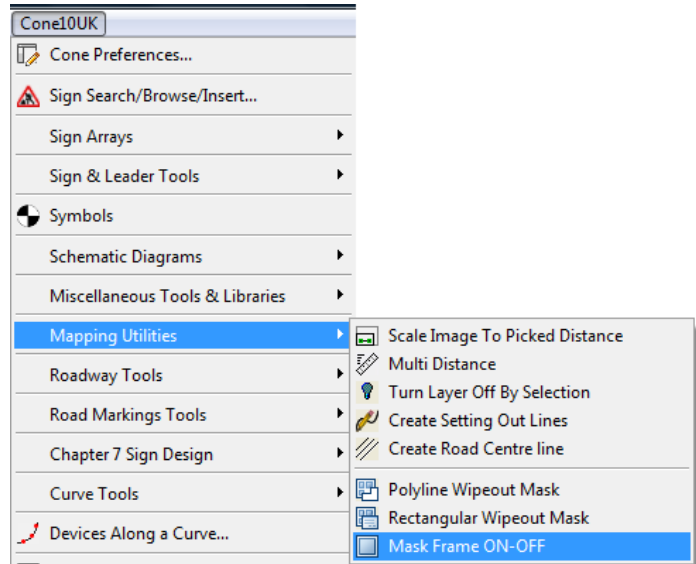
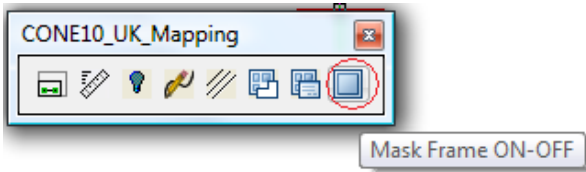
NOTE: the rectangular wipeout mask will be drawn on the layer "CONE\_WIPEOUT\_MASKS"



In the example above, the first point indicated at P1, then second point at P2.

NOTE how the text is clearer to read against the plain white wipeout background.

## Mapping Utilities: Mask Frame ON-OFF



All WIPEOUTS have a external boundary frame which enable selection of the WIPEOUT (for the purposes of MOVE, COPY, DELETE etc.)

It is possible to hide the boundary frame to make them a little more discrete.

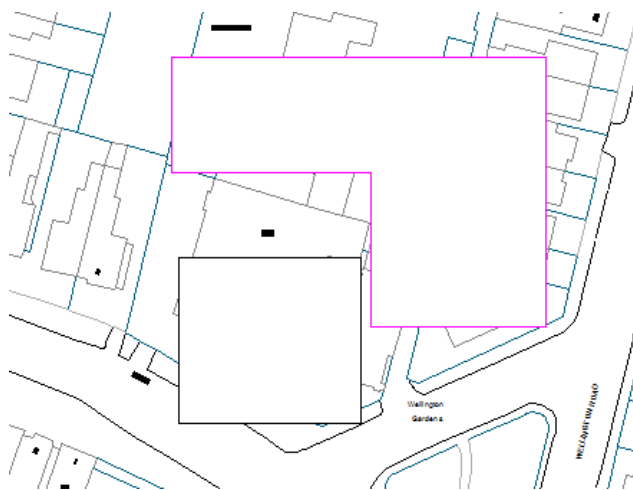
Selecting the Mask Frame ON-OFF tool will give the options:

CMASKFRAME

Enter display mode: <ON>/OFF:

See the example below to see difference between the two modes.

Mask Frame ON

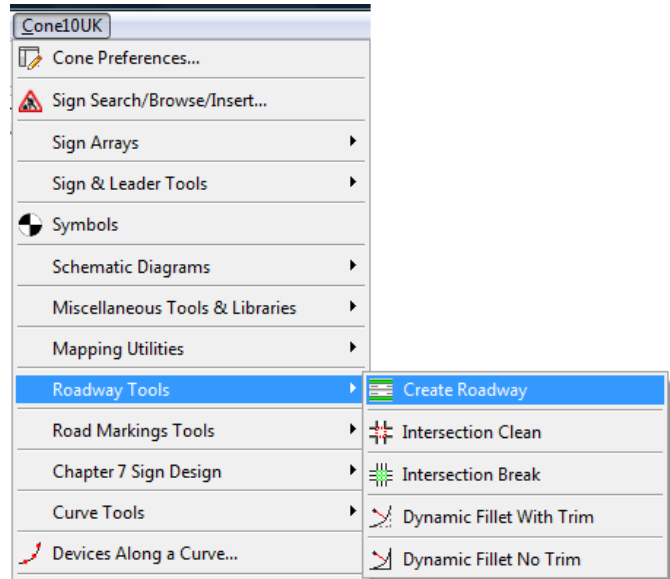


Mask Frame OFF



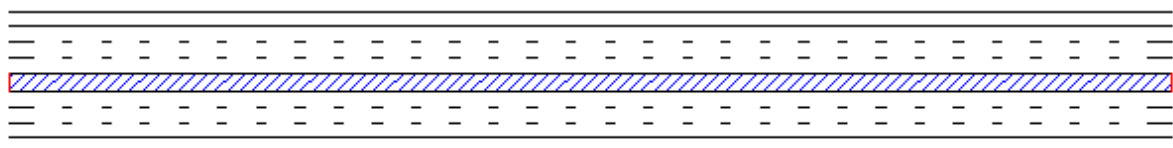
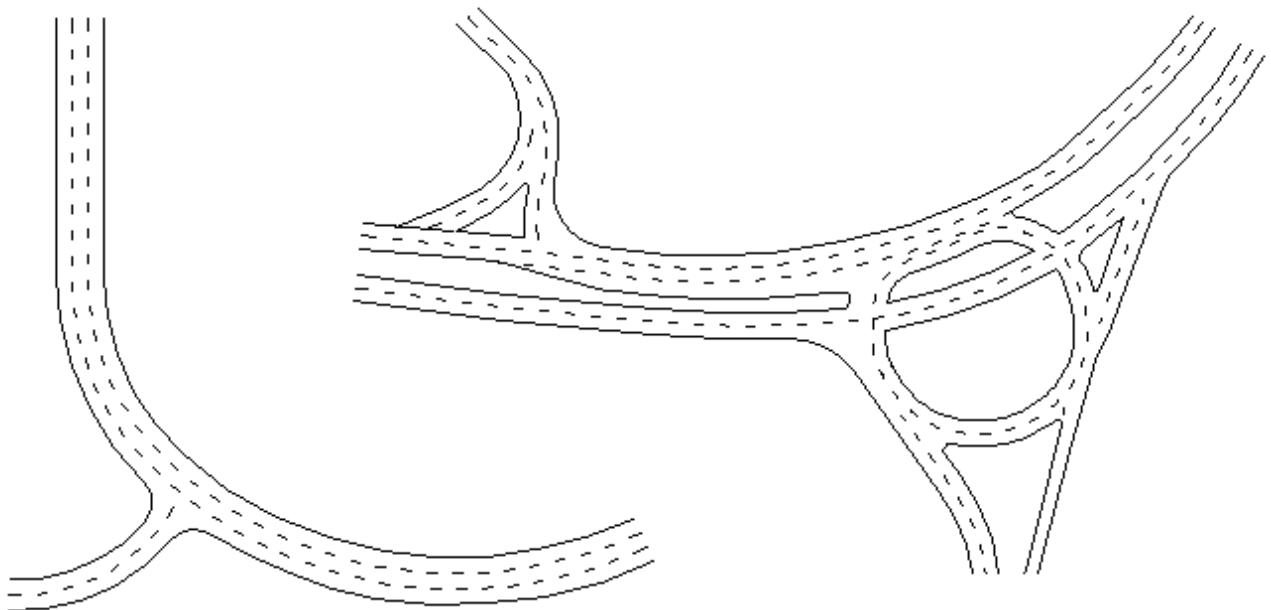
THIS PAGE INTENTIONALLY  
LEFT BLANK

## Roadway Tools: Create Roadway



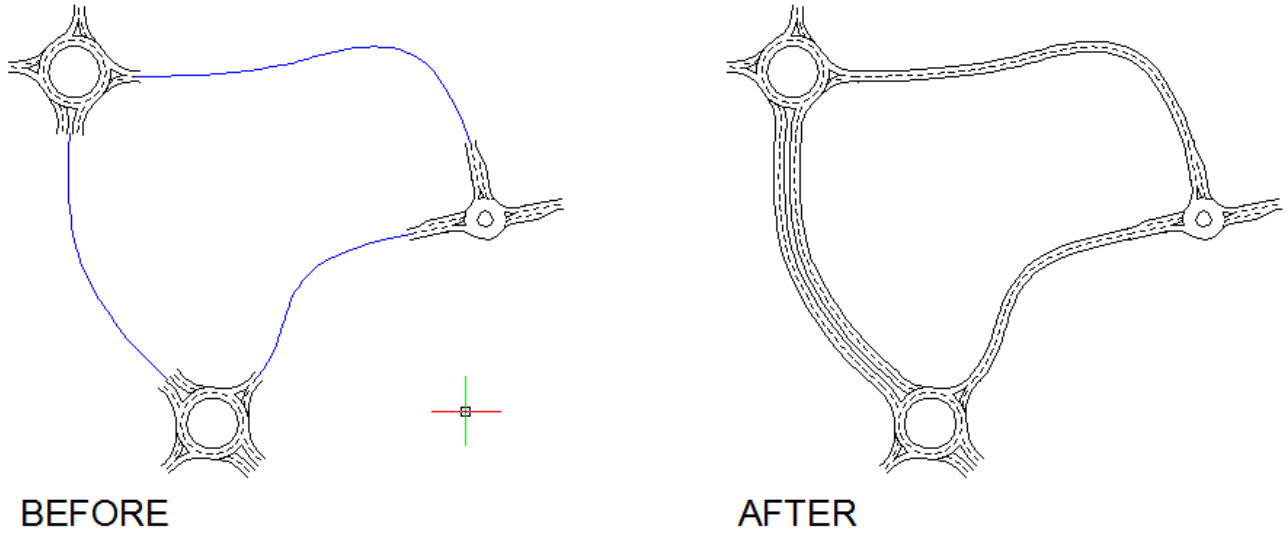
The Roadway tool provides an alternative method of creating a road network prior to adding traffic management or diversion schemes.

The tool supports both real world and schematic roadway sizes and can be used dynamically (similar to drawing a multi-offset Polyline or Multiline, but with many more options) or existing curves can be converted to roadways with a single click.



## Example 1: Schematic

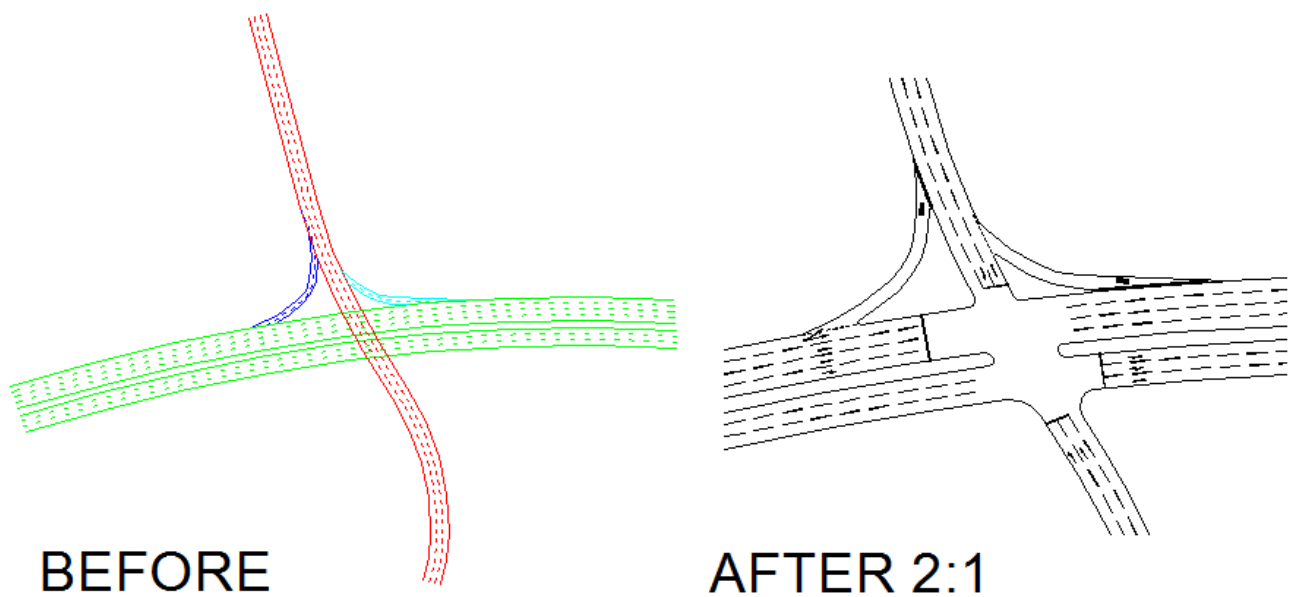
In the example below the roundabouts were inserted using the **Schematics > Basic Roads and Junctions** tool, then Polylines were drawn to connect the roundabouts and finally the carriageways created using the **Select Pre-Drawn Curve** method of the roadway tool



## Example 2: Real World Size

In this example the four roadways (colour coded for clarity) were added directly using the **Draw On Screen** method of the roadway tool

The junction was then edited using the Cone - **Dynamic Fillet** and standard CAD trim tools and the road markings added using the Cone **Road Marking** tools



## CONE 10 UK – User Guide

Roadways are configured with optional variable parameters thus:

Number of Left hand Lanes + lane width + lane markings + edge markings  
Number of Right Hand Lanes + lane width + lane markings + edge markings  
Left shoulder + shoulder width  
Right shoulder + shoulder width  
Left footpath or verge + footpath or verge width  
Right footpath or verge + footpath or verge width  
Centre reserve + width + markings

CONE 10 UK: Draw a Roadway

<< Left Hand Lanes <<

Standard Configurations

- Single Track
- Single Carriageway - 2 Lane
- Single Carriageway - 3 Lane
- Single Carriageway - 4 Lane
- Dual Carriageway - 2/2 No Shoulder
- Dual Carriageway - 3/2 No Shoulder

Mode (Lane Widths)

Actual Size  Schematic

>> Right Hand Lanes >>

Left Hand Lanes

Footpath or Verge

Width 2  Include?

Hard Shoulder

Width 3.2  Include?

Traveled way

Lanes 2 Width 3.65

Lane Markings...

1005.1 : Mark=2 Gap=7

Edge Markings...

NONE

None

Centre of Carriageway

Not Specified

Simple

Width 4.2

Hatched

Width 4.2

Centre Line Marking

1013-A : Double

Right Hand Lanes

Footpath or Verge

Width 2  Include?

Hard Shoulder

Width 3.2  Include?

Traveled way

Lanes 2 Width 3.65

Lane Markings...

1005.1 : Mark=2 Gap=7

Edge Markings...

NONE

None

Road Creation Method

Select pre-drawn curve (Polyline, Line, Circle, Arc or Spline)

Draw on screen - (Straight and Curved segments)

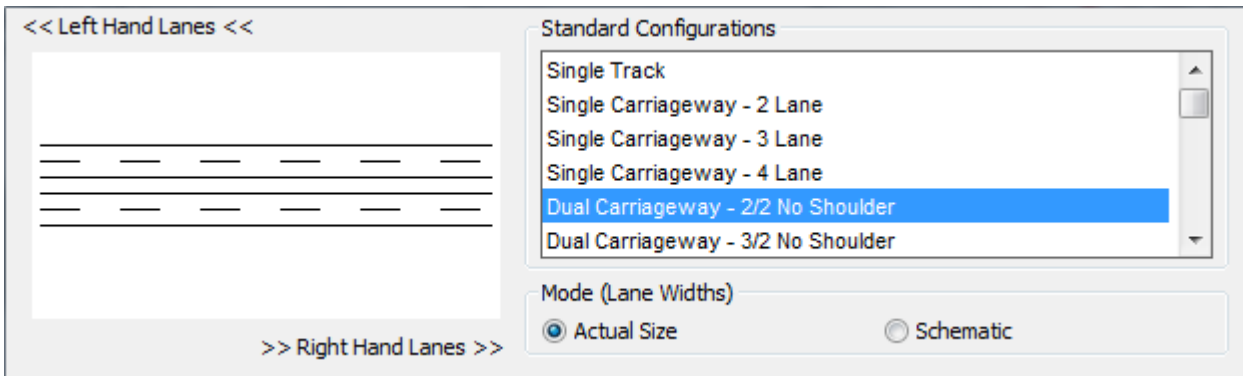
Carriageway Edge Alignment

Left  Centre  Right

Create Group?  Add End Caps?

OK Cancel

## Standard Configuration



The list on the top right of the dialog allows you to select from a wide range of common carriageway layouts. The number of lanes, lane widths and markings are all configurable or you can accept the defaults shown.

### Mode (Lane Widths) *Default value is Actual Size*

The two options “**Actual Size**” and “**Schematic**” allow you to draw the lanes at the specified sizes, or alternatively, just the number of lanes in a standard schematic layout.

### Left Hand Lanes

These options are duplicated for the **Right Hand Lanes**

#### Footpath or Verge Width: *Width in metres*

**Include?** To draw a footpath or verge, check the **Include** check-box, you can then change the default width if using Actual Size mode.

#### Hard Shoulder Width: *Hard Shoulder Width in metres*

**Include?** To draw a Hard Shoulder, check the **Include** check-box, you can then change the default width if using Actual Size mode

#### Traveled Way

**Lanes:** *Number of Lanes*

**Width:** *Lane Width in metres*

**Lane Markings:** *Select icon*

The number of lanes will be preset when choosing a **Standard Configuration**, but you can change the lanes, their widths (they will all be drawn the same width) and edit the lane markings – either Continuous lines, or select from the dashed patterns available.

#### Edge Markings: *Select icon*

As with the lane markings, you can select NONE, Continuous or a variety of dash patterns. These will be drawn on the nearside of the inside lane and offside of the outside lane.



## Centre of Carriageway

**Not Specified** – check the box, and NO centre of carriageway will be drawn

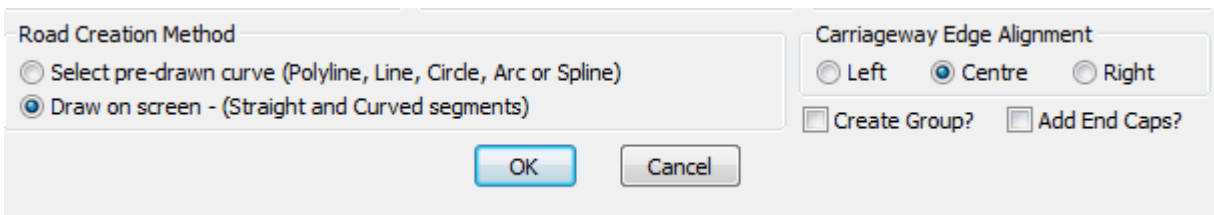
**Simple** – Two continuous lines will be drawn, a specified width apart.

**Hatched** – As above, two lines drawn a specified width apart, but the area between will also be diagonally hatched. Click the hatch icon for various hatching options

**Centre Line Marking** – The final option, allows you to choose from a list of available line marking patterns. Click the icon to choose the line marking type



## Road Creation Method



**Carriageway Edge Alignment** *Default value is Centre*

As you draw the carriage way you can align the new road to the **Left**, **Centre** or **Right** of the points that you indicate on screen.

**Create Group** *Default value is OFF*

The carriageway is drawn as individual lines. Checking this box will group them together to allow you to move/copy or erase them as a single entity.

**Add End Caps** *Default value is OFF*

Carriageway lines are drawn parallel to each other, the ends of the carriageway can be closed by checking this option box.



**Road Creation Method** *Default mode is Draw on screen*

## Select pre-drawn curve

Check this option to draw you specified carriageway along an existing path on the drawing.

## Draw on screen

Check this option and you can draw individual segments of roadway that will be linked together into continuous polyline entities. Whilst drawing the roadway, there are various keyword options:

Command: UKROADWAY

Pick start point for new roadway or enter Merge to merge to an existing object <Merge>: *pick start point*  
Mode=Line: Curve/Radius : Distance/Angle/Undo/Ortho/Esnap/Settings/Merge - enter a keyword or Pick next point:

## Line Mode

The default mode will drawn straight line segment, pressing **L** whilst drawing returns you to this mode.

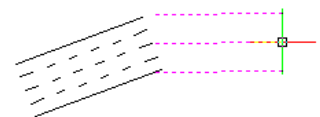
### Line Option Keywords

Distance: Key D or d (enter a fixed length for the next segment)

Angle: Key A or a (enter the angle for the next segment to be drawn)

Undo: Key U or u (remove the previous segment)

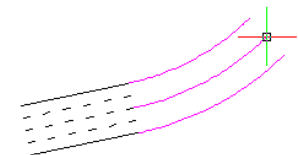
Ortho: Key O or o (lock the segments to vertical or horizontal directions)



**LINE MODE**

## Curve Mode

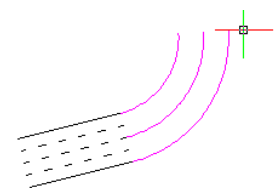
Pressing **C** whilst drawing sets the mode to Curve Mode, where the road will be drawn tangentially to the previous segment and through the mouse pointer location using a circular curve.



**CURVE MODE**

## Radius Mode

Pressing **R** whilst drawing sets the mode to Radius Mode, initially you will be asked to enter a radius. Then circular curved sections will be drawn using that value. You can also use the sub-option key **A** for angle where you can enter an angle (in degrees) that you wish to draw at the previously specified radius, your only option then is to indicate with the mouse whether the carriageway is to curve to the left or the right.



**RADIUS MODE**

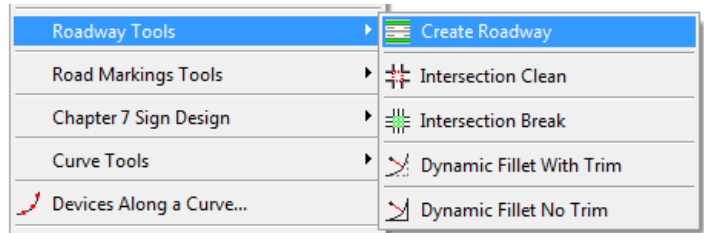
## Other Mode Option Keywords

**Esnap:** Key **E** or **e** (toggles the entity snap mode ON/OFF – usually done using F3, this tool requires a different key)

**Settings:** Key **S** or **s** (to set the current entity snap to allow you to lock to say end of another road)

**Merge:** Key **M** or **m** (to merge the current line with the edge of an existing carriageway – all new carriageway lines will be extended to the edge of the selected entity)

## Roadway Tools: Intersection Clean



Command: CINTCLEAN

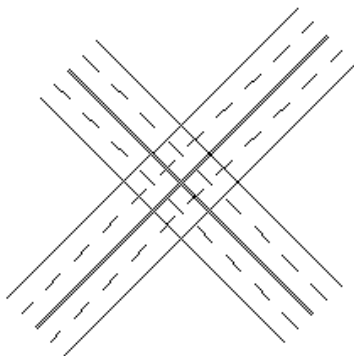
Specify first corner of selection window:

Specify opposite corner of selection window:

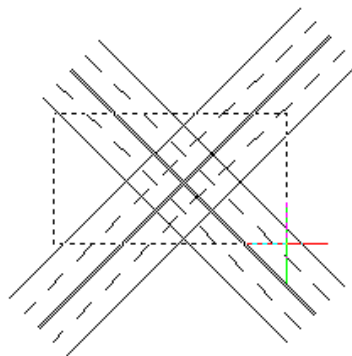
This tool automatically removes the internal crossing lines at road junctions.

By simply selecting a rectangle enclosing the junction area the program will remove the lines within that junction area.

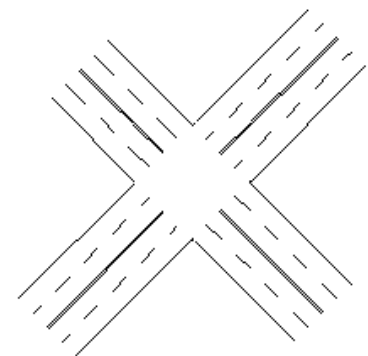
Follow the three screen-grab images below to see the tools function and it's affect.



**BEFORE**

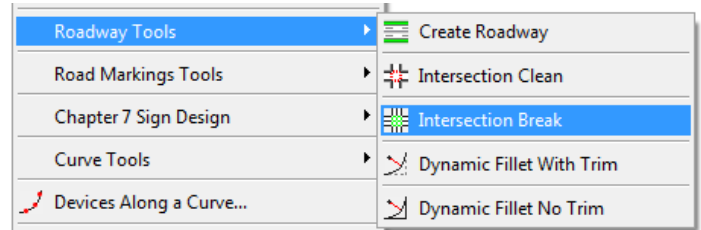
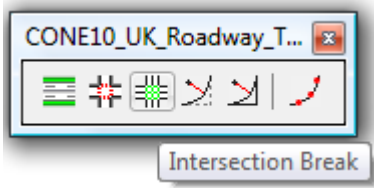


**SELECTION  
WINDOW**



**AFTER**

## Roadway Tools: Intersection Break

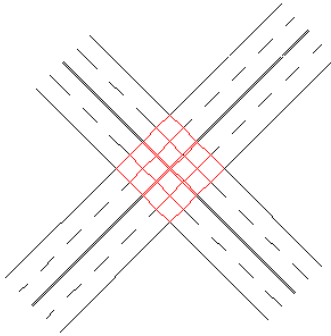


Command: CINTBREAK

Specify first corner of selection window:

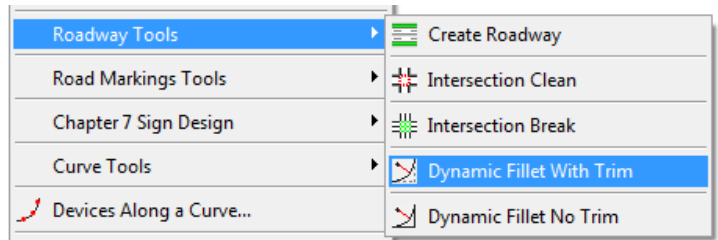
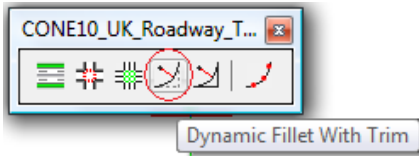
Specify opposite corner of selection window:

This tool is very similar to the previous **Intersection Clean** tool, however, rather than erase all lines within the junction area; this tool creates individual Polyline elements where the carriageway line segments cross.



Note: New Polylines shown in red for clarity

## Roadway Tools: Dynamic Fillet With Trim



Command: CDF

Dynamic Fillet:

Select first object to fillet

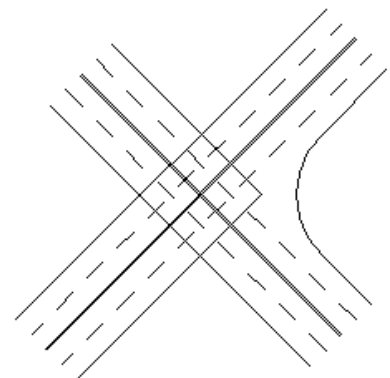
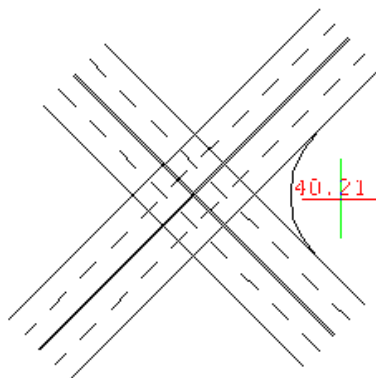
Select second object to fillet

Move pointer to show radius then pick a point or press enter to finish, or enter the radius here >:

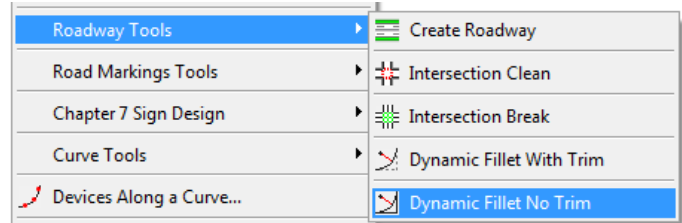
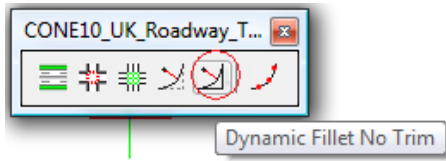
This tool improves upon the standard CAD Fillet command

The standard fillet command requires you to enter the fillet radius size before selecting two lines to fillet

This CONE tool allows you to select two lines first; then dynamically specify the radius by dragging the mouse cursor, or you can type-in the radius required on the keyboard.



## Roadway Tools: Dynamic Fillet No Trim



Command: CDF

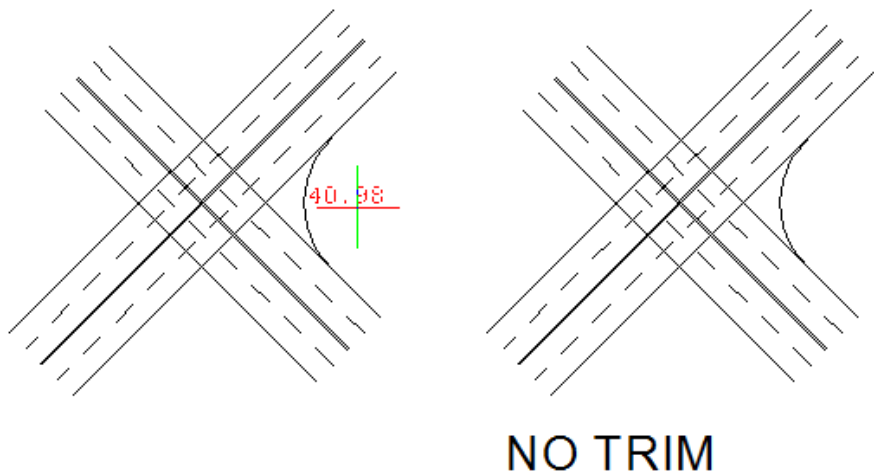
Dynamic Fillet:

Select first object to fillet

Select second object to fillet

Move pointer to show radius then pick a point or press enter to finish, or enter the radius here >:

This tool works exactly as the previous **Dynamic Fillet with Trim**, only here, no trimming of the original lines is performed.

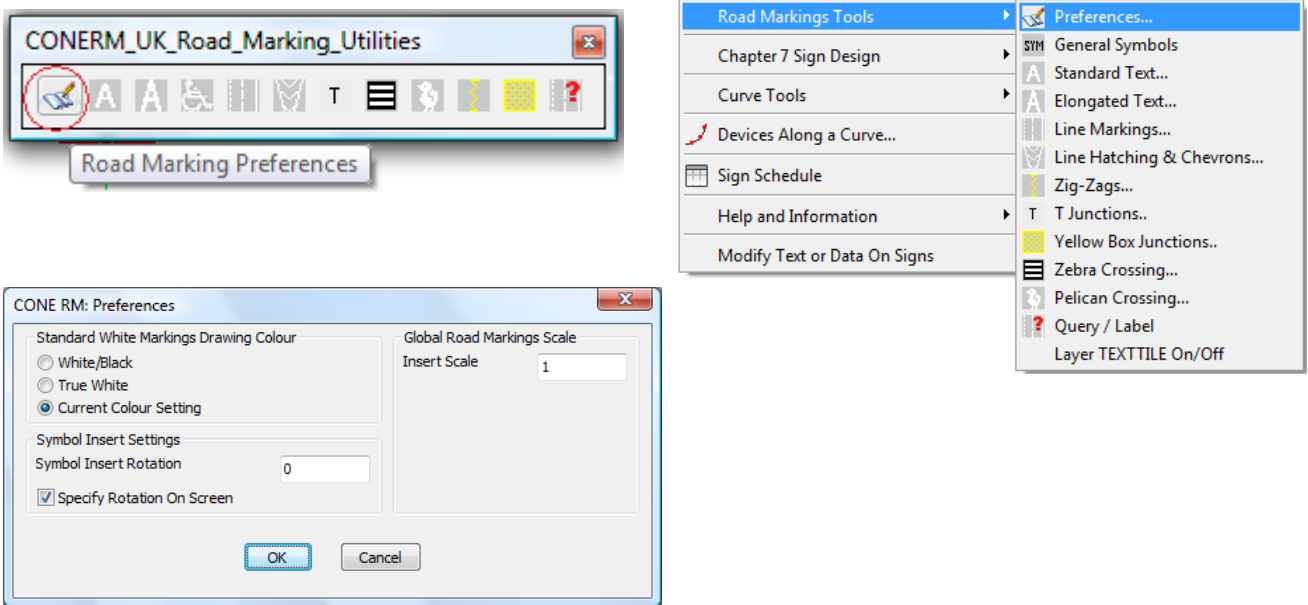


## Road Marking Tools:

The Road Marking Tools allow you to place road markings on your drawings in accordance with The Traffic Sign Regulations and General Directions, 2002 and Chapter 5 of the Traffic Signs Manual.

Each tool is described in detail on the following pages.

## Road Marking Tools: Preferences



The Road Markings Preferences option is a tool for setting your desired choice of **Colour**, **Scale** and **Symbol Insert** settings. (Note: Most of the other road marking tools enable you to overwrite these settings in the dialog for the particular tool)

### Standard White Markings Drawing Colour:

(note red or yellow markings are always drawn in red or yellow)

Choose from:

**White/Black:** (CAD colour number 7) The road markings will appear as black on a white background screen or white on a black background screen.

**True White:** (CAD colour 255,255,255) The road markings will be drawn as true white irrespective of the background colour of the screen.

**Current Colour Setting:** The road markings will be drawn in the current colour setting.

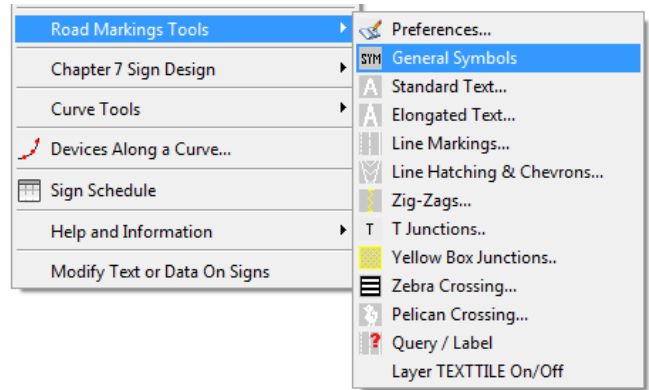
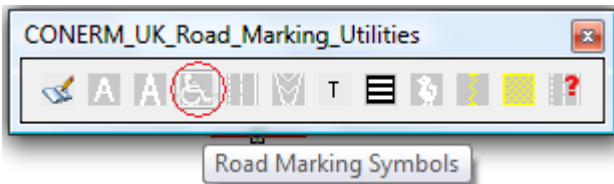
**Insert Scale:** Normally this is real world size; i.e. 1 but can be changed to any value.

**Symbol Insert Settings:** When inserting various road marking symbols from the **General Symbols** tool these settings govern how the symbols are rotated.

If the **Specify Rotation On Screen** checkbox is ticked then you will be prompted for a symbol rotation after picking the symbol insert point.

If the **Specify Rotation On Screen** checkbox is not ticked then the symbol will be inserted at the rotation specified in the **Symbol Insert Rotation** box.

## Road Marking Tools: General Symbols

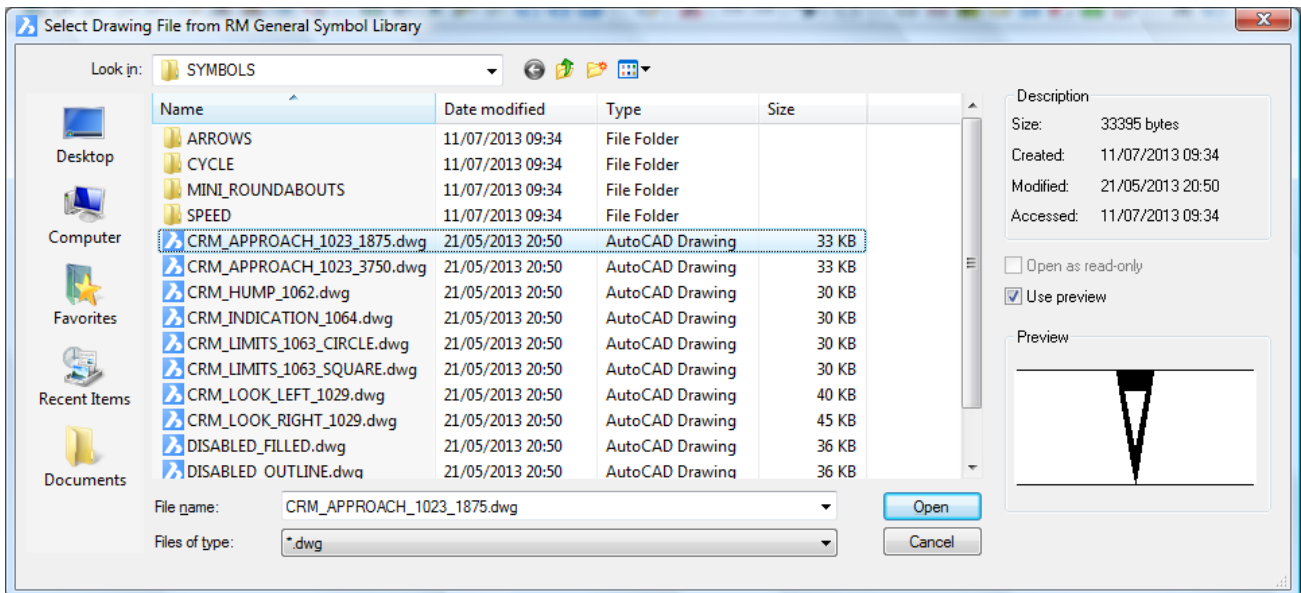


The Road Markings General Symbols library

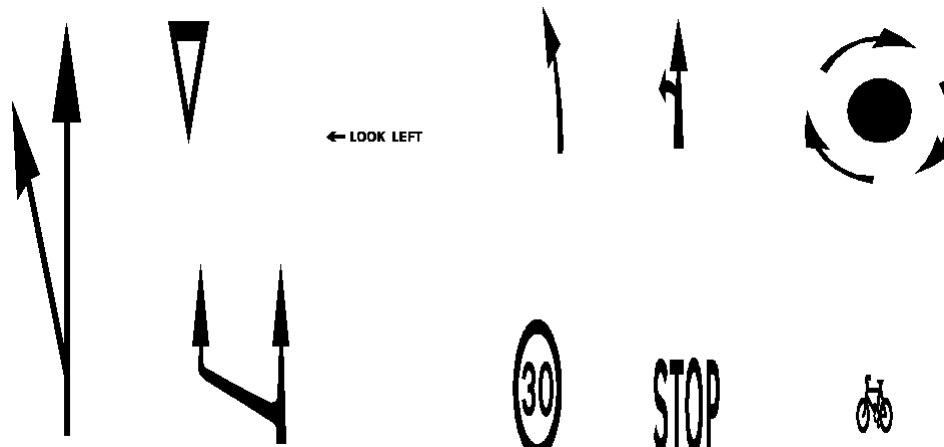
There are a number symbols in the root of the SYMBOLS folder and four sub-libraries

- ARROWS
- CYCLE
- MINI\_ROUNDABOUTS
- SPEED

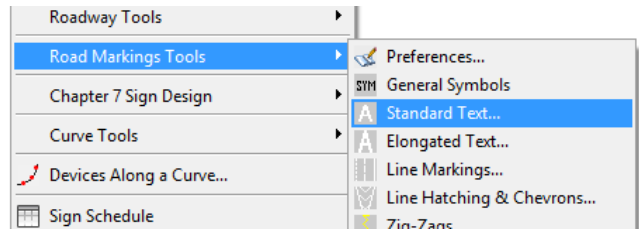
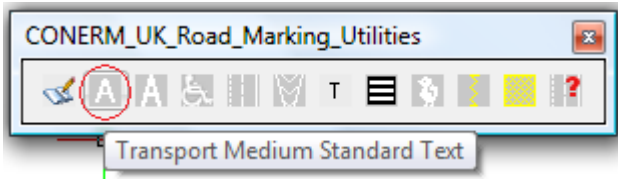
Selecting from the list of drawings displays a preview at the right of the dialog.



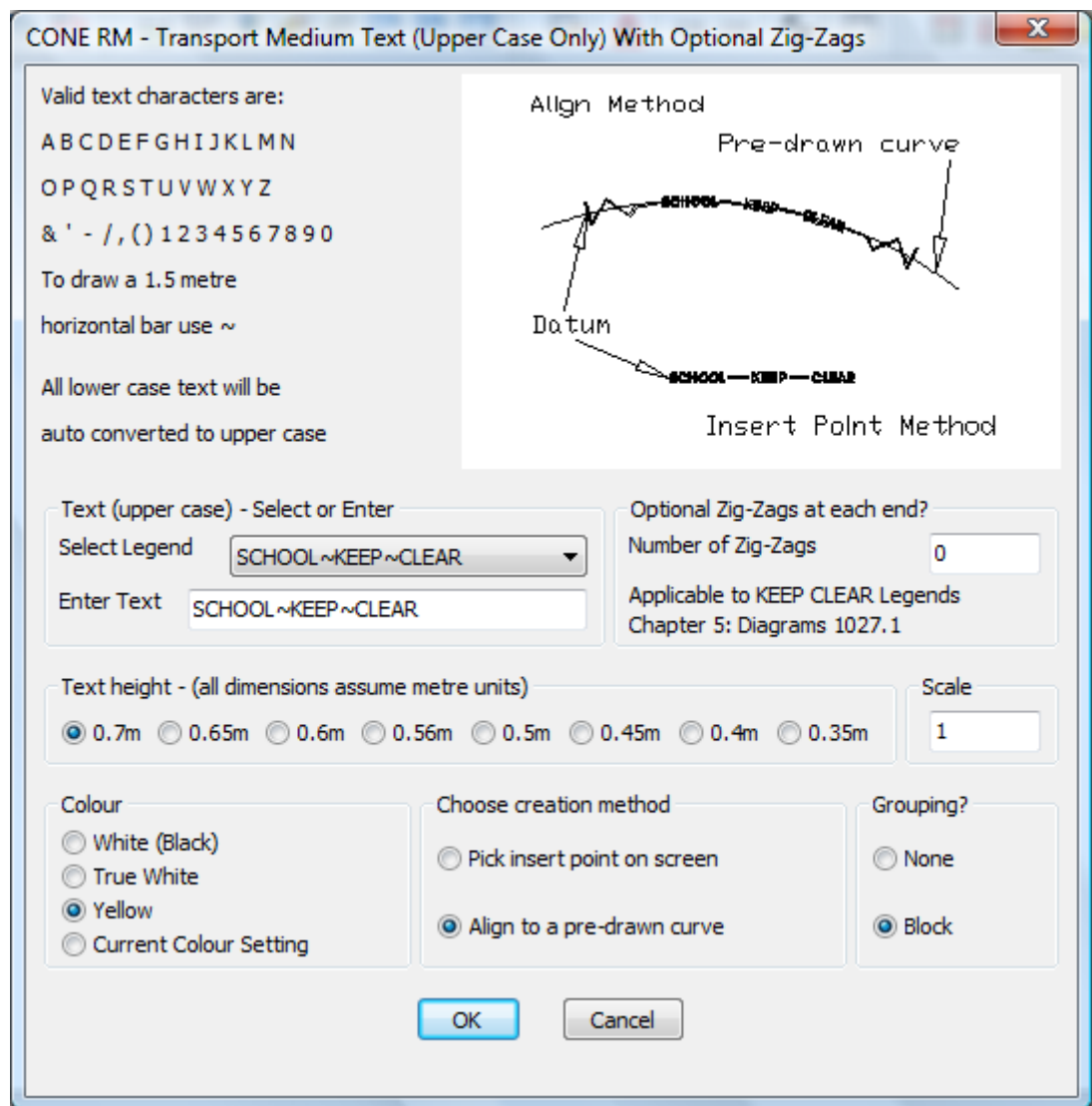
Click the **Open** button to position the symbol on your drawing, depending on your preference settings you may also be prompted for a symbol rotation.



Road Marking Tools:  
Standard Text



Standard text refers to the non-elongated legends usually used at the edge of carriageways and parking bays



**Select Legend:** You may select text from the drop down list of standard legends

**Enter Text:** Enter the desired text. Valid characters are: Upper case A – Z, NUMBERS 0 – 9 AND & ` - / , ( )

**Optional Zig-Zags at each end?**

Some text legends (such as SCHOOL KEEP CLEAR) also have Zig-Zag options, to add Zig-Zags simply enter the number required at each end in the edit box (default is 0 i.e no zig-zags)



**Text height:** Pick the appropriate radio button (0.7, 0.65, 0.6, 0.56, 0.45, 0.4 and 0.35m) and the legend will be inserted at the selected height multiplied by the scale value entered in the **Scale** edit box

**Colour:** Choose from:

**White/Black:** (CAD colour number 7) The road markings will appear as black on a white background screen or white on a black background screen.

**True White:** (CAD colour 255,255,255) The road markings will be drawn as true white irrespective of the background colour of the screen.

**Yellow:** The road markings will be drawn yellow colour.

**Current Colour Setting:** The road markings will be drawn in the current colour setting.

### Choose Creation Method:

**Pick Insert Point On Screen:** You will be prompted to pick a text insert point on the drawing and depending on your preference settings you may also be prompted for a text rotation angle.

After picking the **OK** button the following command line prompts will appear:-

Command: **Insert point:** *pick an insert point*

Command: **Specify Rotation Angle or [Copy/Reference] <0>:** *enter an angle or pick a point on screen*

**Align to a pre-drawn curve:** You will be prompted to select a pre-drawn curve (Arc, Line or Polyline) and also the datum (left hand text start point), the text will then be aligned along the selected line

Note the line you select must be long enough to accommodate the text and optional zigzags, an alert window will appear if the line is too short

After picking the OK button the following command line prompts will appear:-

Command: **Select a Line, Arc, Circle or Polyline:** *pick an object*

Command: **Pick Datum Point:** *pick a point on the curve that is Left Hand justification point*

### Grouping:

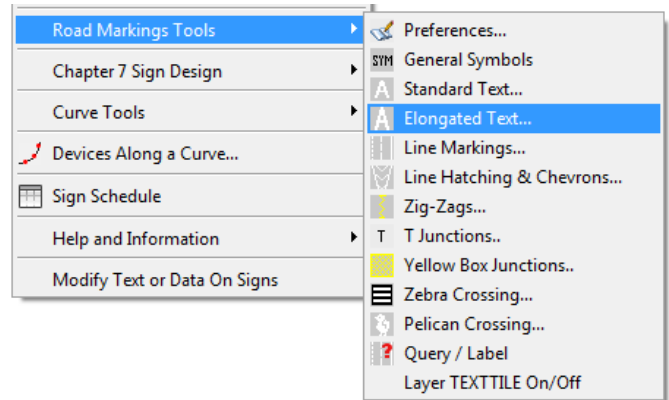
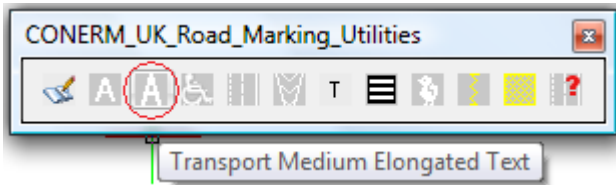
**None:** All text will be inserted as individual blocks of text

**Block:** The text will be inserted grouped together as a BLOCK, this makes it easy to move all the text as one entity

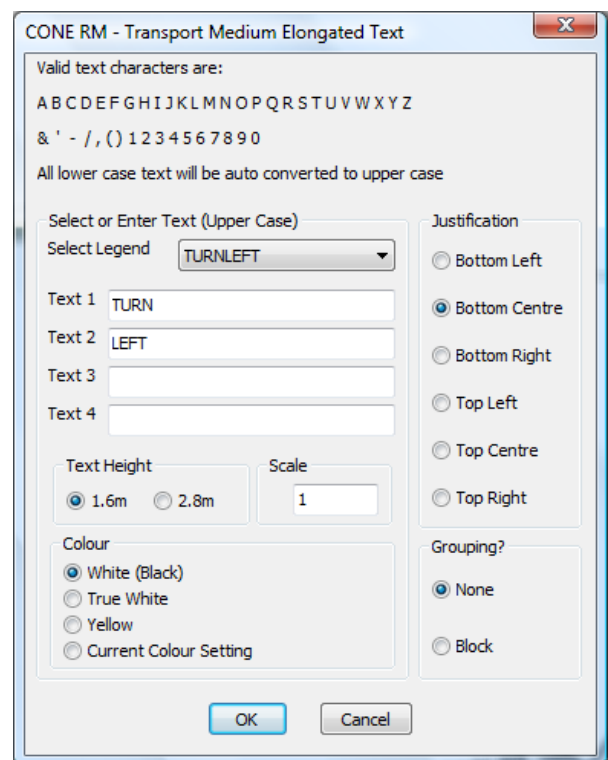
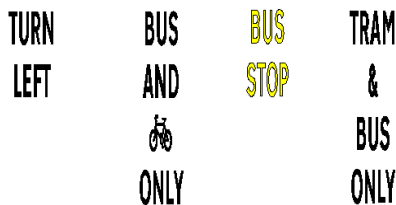
The text is created in Transport Medium Font, these are not system fonts, each character is an individual block of text within a tile. The tile outlines are shown in red and are created on layer TEXTTILE which may be turned OFF or frozen



## Road Marking Tools: Elongated Text



Elongated text refers to the elongated legends usually used along the centre of carriageways



**Text:** You may select text from the drop down list of standard legends or enter any freeform (upper case only) text. Valid characters are: Upper case A – Z, NUMBERS 0 – 9 AND & ` - / , ( )

**Text height:** Pick the appropriate radio button (1.6m or 2.8m)

**Colour:** Choose from:

**White/Black:** (CAD colour number 7) The road markings will appear as black on a white background screen or white on a black background screen.

**True White:** (CAD colour 255,255,255) The road markings will be drawn as true white irrespective of the background colour of the screen.

**Yellow:** The road markings will be drawn yellow colour.

**Current Colour Setting:** The road markings will be drawn in the current colour setting.

**Justification:** This refers to the insert point on the drawing

**Grouping:**

**None:** All text will be inserted as individual blocks of text

**Block:** The text will be inserted grouped together as a BLOCK, this makes it easy to move all the text as one entity

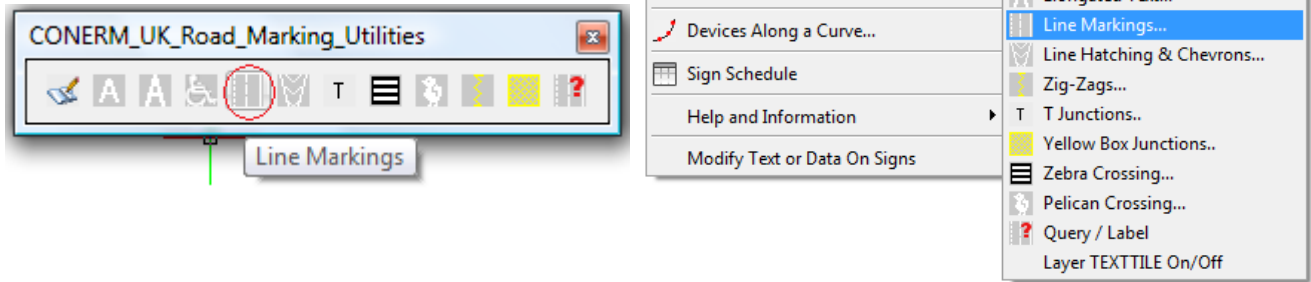
The text is created in Transport Medium Font, these are not system fonts, each character is an individual block of text within a tile. The tile outlines are shown in red and are created on layer TEXTTILE which may be turned OFF or frozen

After picking the **OK** button the following command line prompts will appear:-

Command: **Insert point:** *pick an insert point*

Command: **Specify Rotation Angle or [Copy/Reference] <0>:** *enter an angle or pick a point on screen*

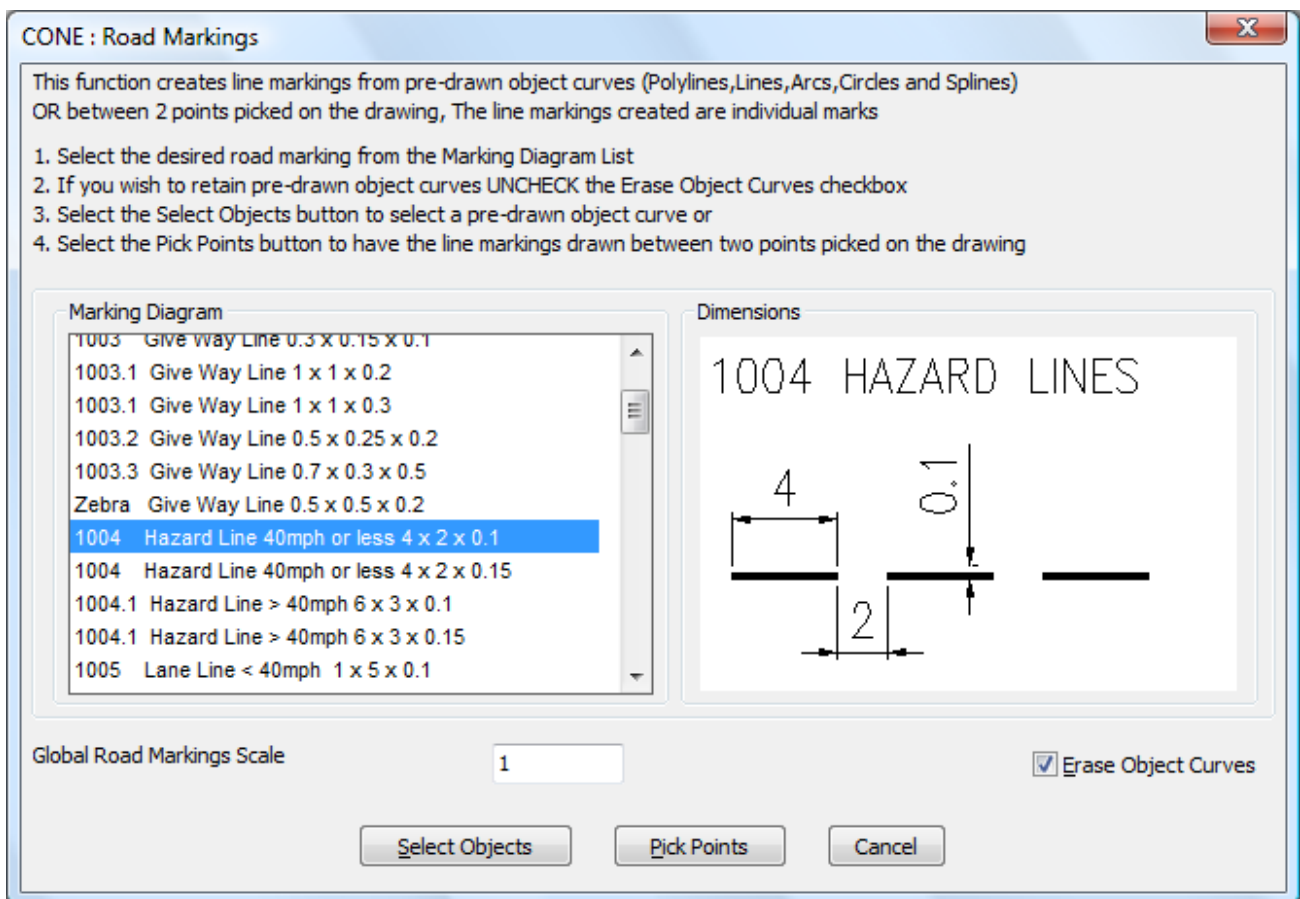
## Road Marking Tools: Line Markings



The **Road Markings – Line Markings** tool creates line markings from pre-drawn object curves (Lines, Polylines, Arcs) or between two points picked on screen

Line markings are created in accordance with the prescribed diagrams detailed in The Traffic Sign Regulations and General Directions, 2002 and Chapter 5 of the Traffic Signs Manual

The line markings are created individually as wide polylines



Select the desired line marking from the left hand list, a corresponding image will appear on the right which shows the length of the up and down marks, line width and colour

**Erase Object Curves:** If this checkbox is ticked then if you pick the **Select Objects** button and select a pre-draw curve, the pre-drawn curve will be erased after conversion

Pick either the **Select Objects** or the **Pick Points** button

### Select Objects

After picking the **Select Objects** button the following command line prompt will appear:-

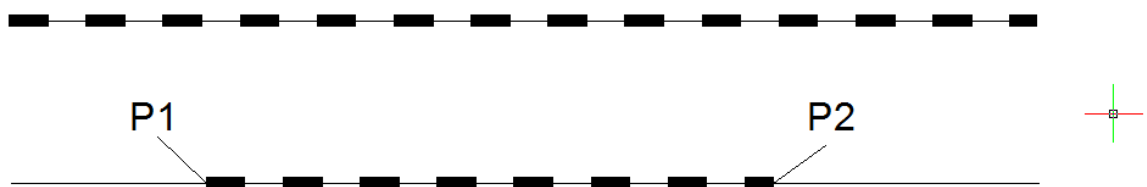
Command: Select Object Curve (Line,Polyline,Arc, Circle or Spline): *pick an object*

Pick first point on curve or key <F>ull to convert the full length: Key F to convert the full length of the curve or pick two points on the curve to convert only between the two picked points

The object will be converted to the chosen line marking, if you keyed in F then you may continue to select other objects to convert or press return to finish

Note! If the **Erase Object Lines** toggle box is **CHECKED** then the original object will be erased, if you wish to keep the original object simply **UNCHECK** the **Erase Object Lines** toggle box

### THIS LINE WAS FULLY CONVERTED



### THIS LINE WAS CONVERTED BETWEEN THE 2 POINTS

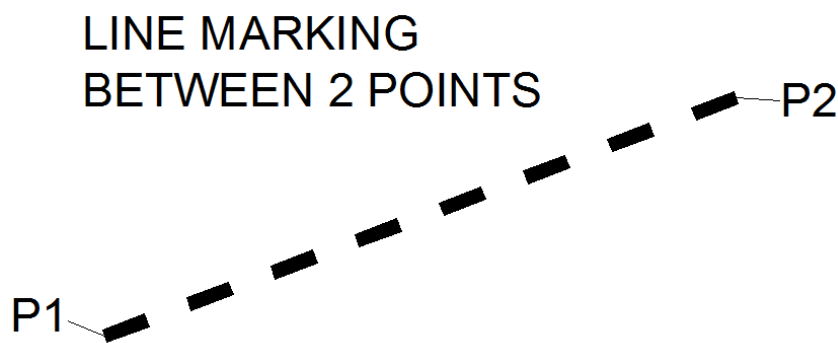
### Pick Points

After picking the **Pick Points** button the following command line prompt will appear:-

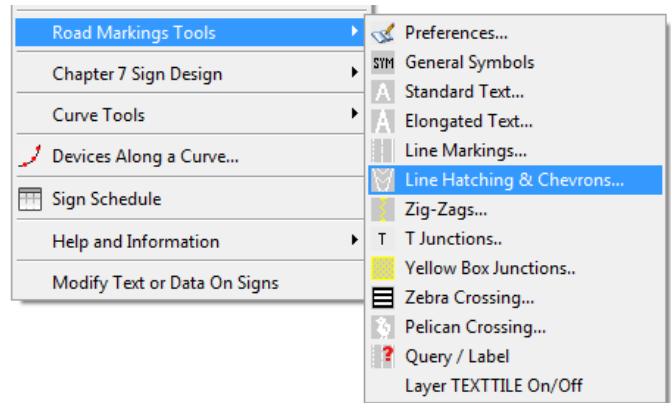
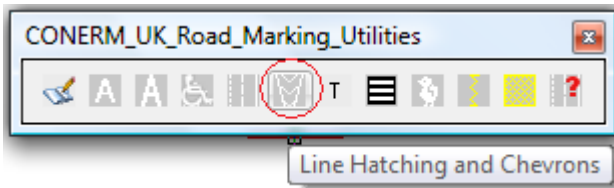
Command: **Pick Line Marking Start Point** *pick a start point on screen*

Command: **Pick Line Marking End Point** *pick a end point on screen*

The desired line marking will now be drawn, continue to pick another set of points or press return to finish

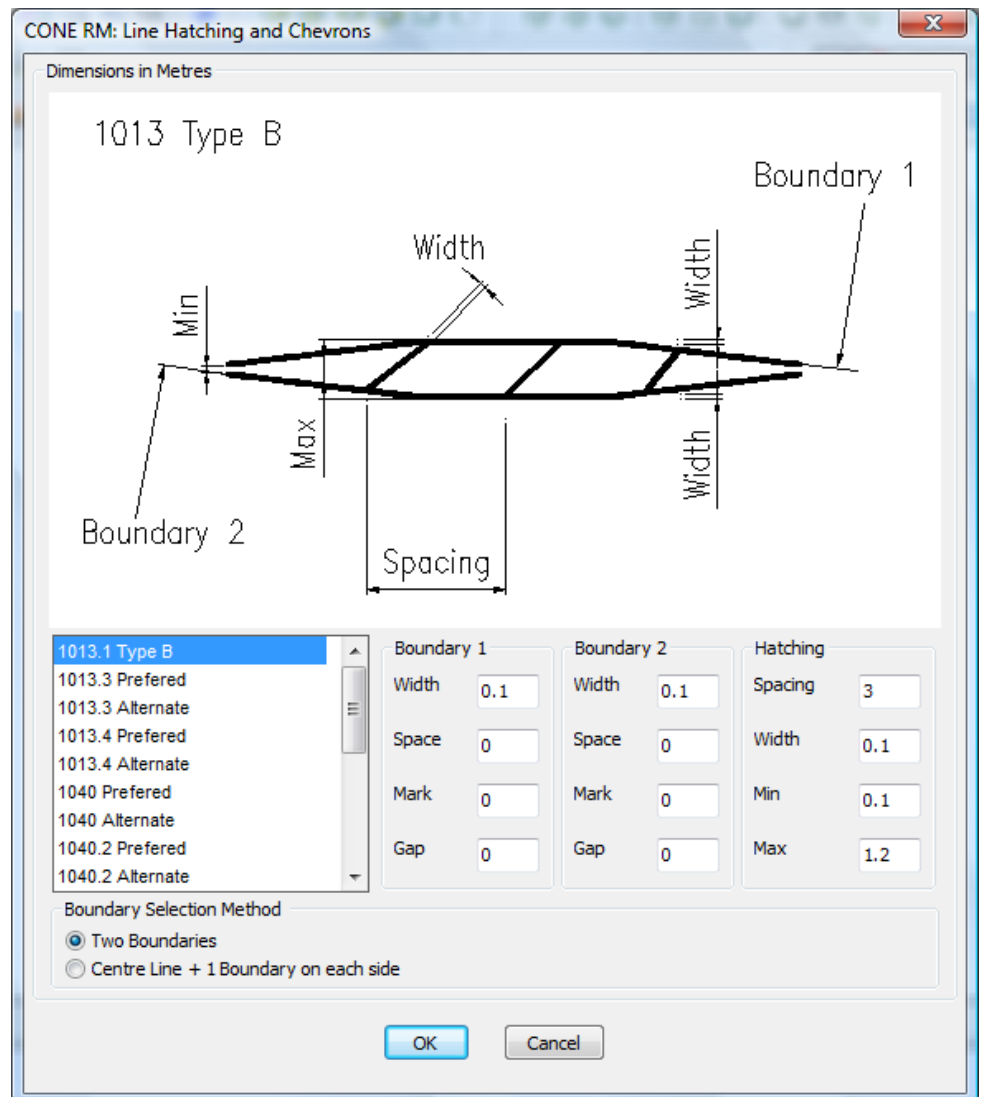


Road Marking Tools:  
Line Hatching & Chevrons...



The **Road Markings – Line Hatching & Chevrons** tool creates line and chevron hatchings from pre-drawn curve objects (Lines, Polylines or Arcs)

The hatchings are created in accordance with the prescribed diagrams detailed in The Traffic Sign Regulations and General Directions, 2002 and Chapter 5 of the Traffic Signs Manual



### The Boundary 1, Boundary 2 and Hatching Edit Boxes

Each hatching diagram consists of a line hatch or chevron hatch plus a set of boundary line markings

The **Boundary 1** and **Boundary 2** edit boxes contain the default values for the boundary line markings thus:

Width : The width of the line marking

Space : the small distance between the end of hatch line and the line marking

Mark : The line marking DOWN distance

Gap : The line marking UP distance

The **Hatching Edit** boxes contain the default values for the hatch lines and chevrons thus:

Spacing : The spacing between each hatch line or chevron

Width : The width of the hatch marking or chevron

Min : The maximum length across the boundaries which will be hatched

Max : The minimum length across the boundaries which will be hatched

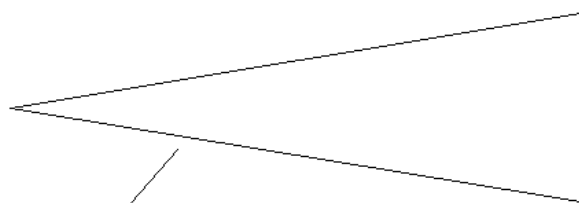
Select the hatching type from the left hand list, a corresponding image will appear above and the default values for the selected diagram will be displayed in the appropriate boundary and hatching edit boxes, you can change the values in the edit boxes if required.

Choose the **Boundary Selection Method** which can either be **Two Boundaries** or a **Centre Line + One Boundary Either Side**

Select the **OK** button to begin selecting the boundaries on screen

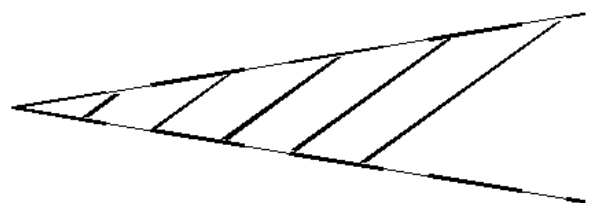
### Two Boundary Method

TWO BOUNDARIES - BEFORE -



CONTROL BOUNDARY

TWO BOUNDARIES - AFTER -



DIAG. 1040

After picking the **OK** button the following command line prompts will appear:-

Command: Two Boundary Method: Select the control boundary: *pick an object*

Command: Two Boundary Method: Select the other boundary: *pick an object*

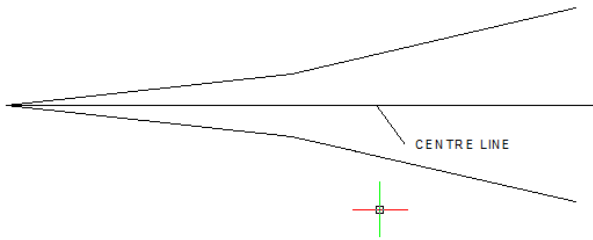
The control boundary object (Line, Polyline or Arc) controls the spacing and the angle from which the hatch lines are created.

Hatch lines are drawn at an angle of 45 degrees away from the direction of the control boundary and between the control boundary and the other boundary

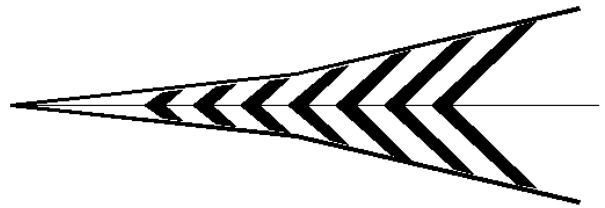
When the tool has finished hatching a dialogue will appear offering the choice of either reversing the hatch angle, discarding the hatch or accepting the hatch

### Centre Line + One Boundary Either Side Method

CENTRE LINE + TWO BOUNDARIES - BEFORE -



CENTRE LINE + TWO BOUNDARIES - AFTER -



The centre line object (Line, Polyline or Arc) controls the spacing and the angle from which the hatch lines are created. This is particularly useful for Chevrons and 1013.1 Type B and 1040 hatching diagrams

After picking the **OK** button the following command line prompts will appear:-

Command: Centre Line + Two Boundary Method: Select the centre line: *pick an object*

Command: Centre Line + Two Boundary Method: Select the first boundary: *pick an object*  
Boundary object (Line, Polyline or Arc) defines the hatch boundary on one side of the centre line

Command: Centre Line + Two Boundary Method: Select the other boundary: *pick an object*  
Boundary object (Line, Polyline or Arc) defines the hatch boundary on the other side of the centre line

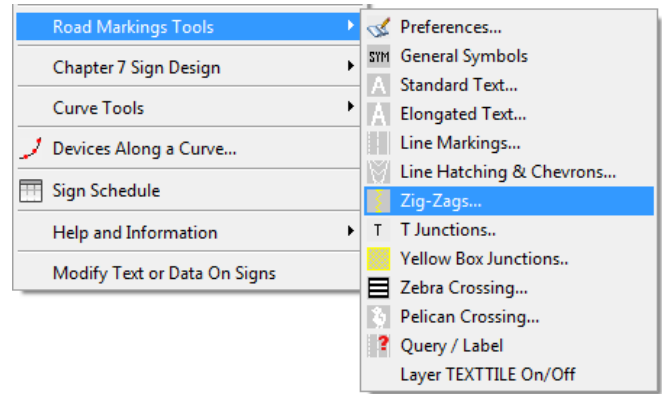
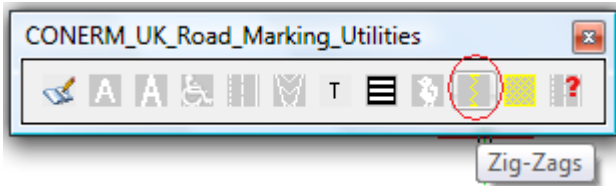
Hatch lines are drawn at an angle of 45 degrees away from the direction of the centre line and between the two outer boundaries

When the tool has finished hatching a dialogue will appear offering the choice of either reversing the hatch angle, discarding the hatch or accepting the hatch

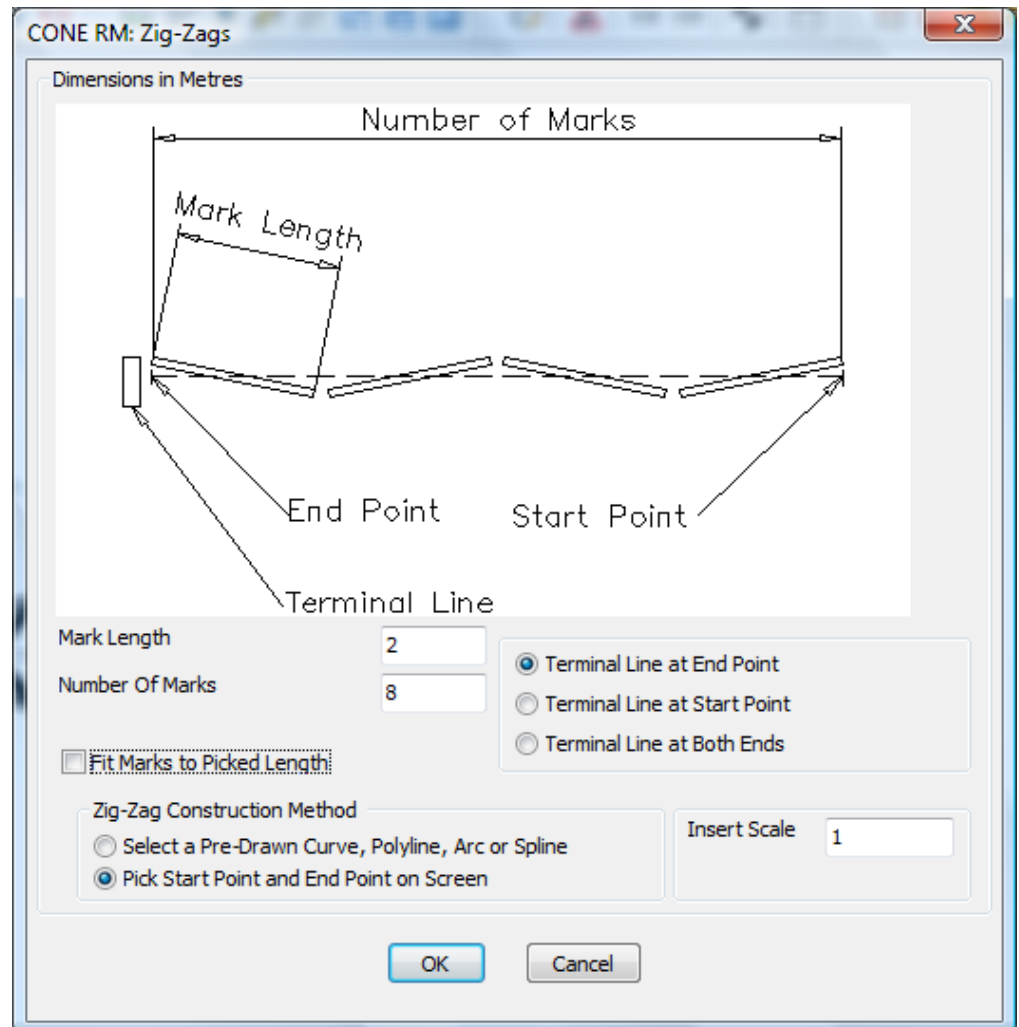


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## Road Marking Tools: Zig Zags



The **Road Markings – Zig-Zags** tool creates Zig-Zag markings as detailed in The Traffic Sign Regulations and General Directions, 2002 and Chapter 5 of the Traffic Signs Manual



**Mark Length:** Enter the Zig-Zag mark length in metres in the **Mark Length** edit box (the default is 2 metres)

**Number of Marks:** Enter the number of marks in the **Number of Marks** edit box (the standard pattern is 8 marks)

**Terminal Lines:** Select the desired **Terminal Line** configuration End, Start or Both Ends

**Fit Marks to Line Length** – Check this toggle box if you wish to fit as many marks of the given mark length to the line (or start and end point) that you will supply

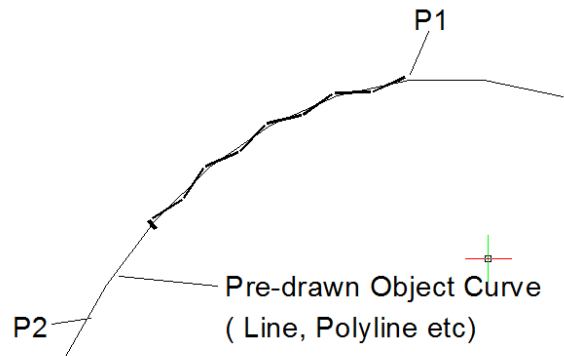
### Zig-Zag Construction Method

#### Select a Pre-drawn Line, Polyline, Arc or Spline

Opting for this method will prompt the tool to ask you to select an Object Curve (Line, Polyline, Arc or Spline) to which the Zig-Zags will be aligned upon.

Then you will be prompted to pick the Zig-Zag start point on the selected object, then a second point along the selected object to show the Zig-Zag direction.

The Zig-Zags will be drawn and finally you will be given the option to mirror the Zig-Zags.



Command: RMUKZIGZAGS

Select Object Curve (Line, Polyline, Arc, or Spline) to align Zig-Zag to:

Pick Zig-Zag start point on selected object:

Pick a second point on selected object to show the Zig-Zag direction:

Mirror Zig-Zag?: Key <Y> or <N> <No>: N

#### Pick Start Point and End point on Screen

Opting for this method will prompt the tool to ask you to pick the Zig-Zag start point and Zig-Zag end point directly on your drawing.

The Zig-Zags will be drawn and finally you will be given the option to mirror the Zig-Zags.

Command: RMUKZIGZAGS

Zig-Zag Start Point:

Zig-Zag End Point:

Mirror Zig-Zag?: Key <Y> or <N> <No>: N

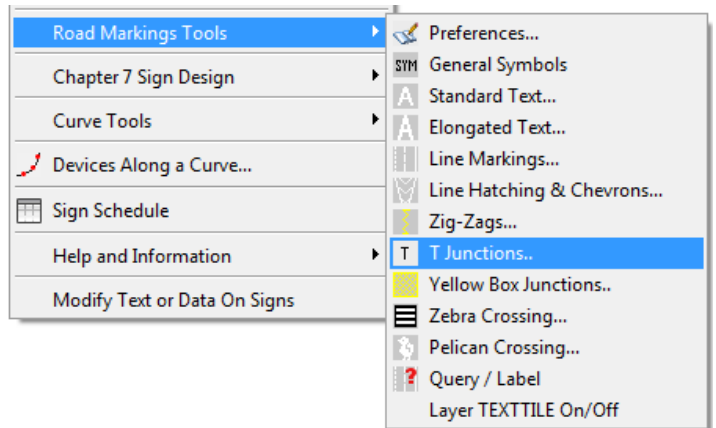
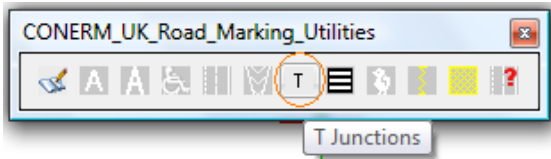
Example 1: No Of Marks Specified = 8  
Fit Marks to Line Length = OFF



Example 2: No Of Marks Specified = 8  
Fit Marks to Line Length = ON

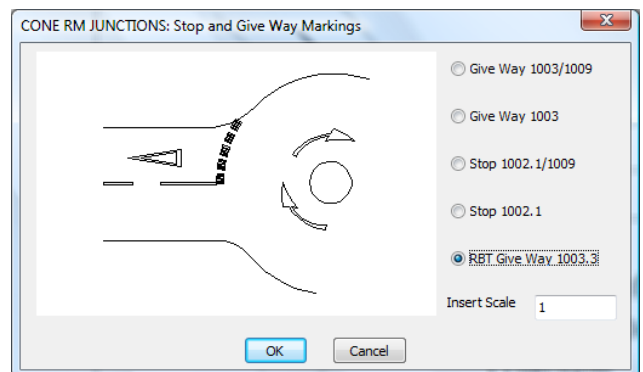
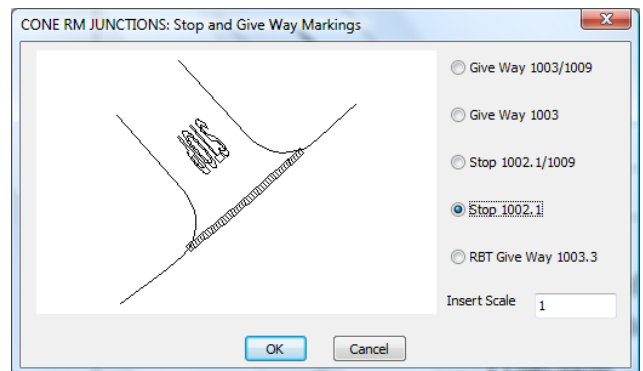
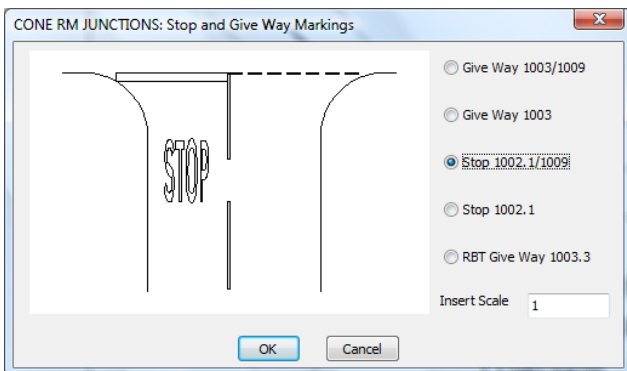
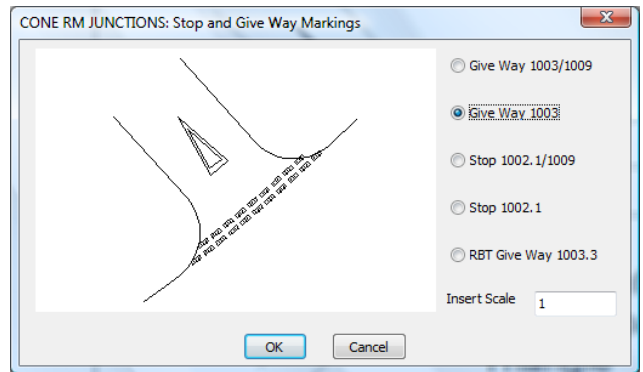
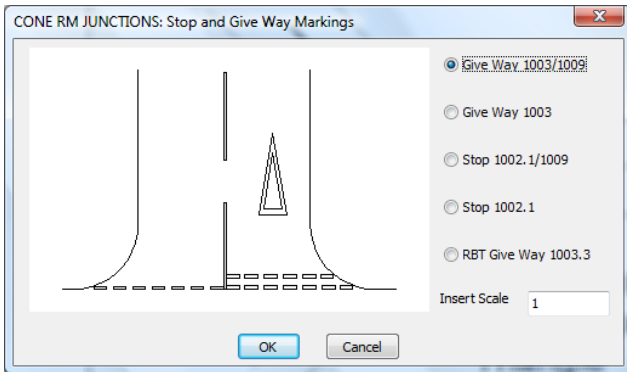


## Road Marking Tools: T Junctions



The T Junctions tool enables creation of five separate Stop and Give Markings for use at T-Junctions

- Give Way 1003/1009
- Give Way 1003
- Stop 1002.1/1009
- Stop 1002.1
- RBT Give Way 1003.3



Select the required tool then the OK button

The operation of each tool is described on the following pages:

**Give Way 1003/1009** (Note: Steps 3 and 4 are optional)

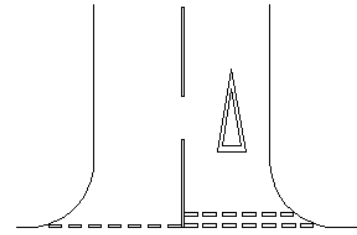
**STEP 1**

Pick start point of transverse line [Double Line End]: *Pick start point*

Pick end point of transverse line [Single Line End]: *Pick end point*

Do you want to draw a curve?: Key <Y> or <N> <No>: y

*Enter Y if you want the transverse line to be curved (Arc) you will be prompted to define the Arc*



**STEP 2**

Pick the Double to Single Line split point along the curve: *Pick a point*

**STEP 3**

Continue to pick points that define the hazard line or press enter to skip :

*Optional: Press the enter key to skip this stage or pick points along the approach carriageway to define the hazard line marker points, press the enter key when done picking*

**STEP 4 (Optional: Enter N if you do not want an approach triangle)**

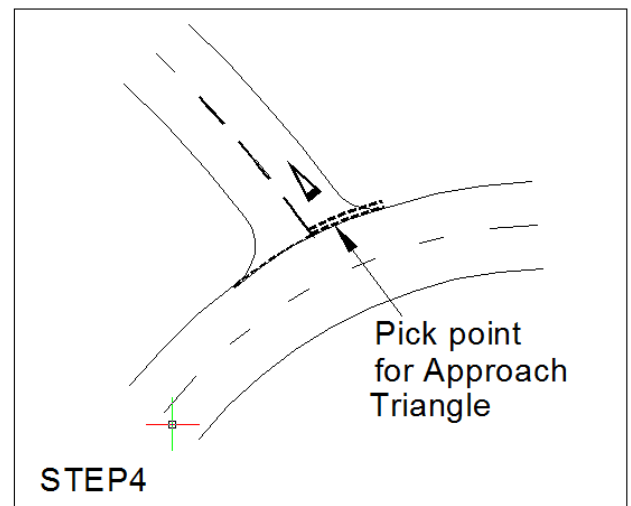
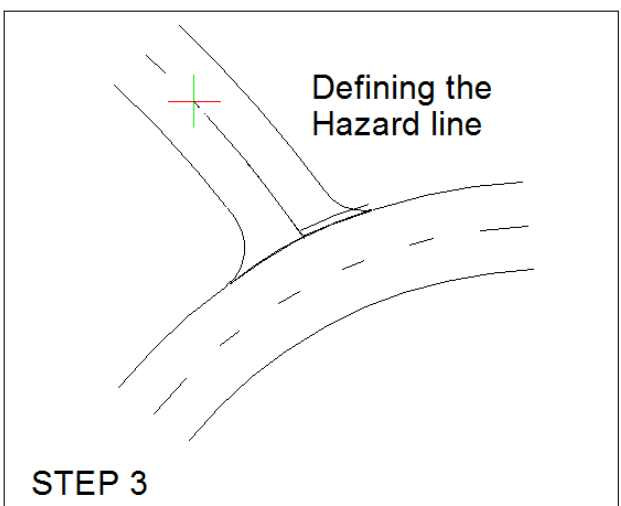
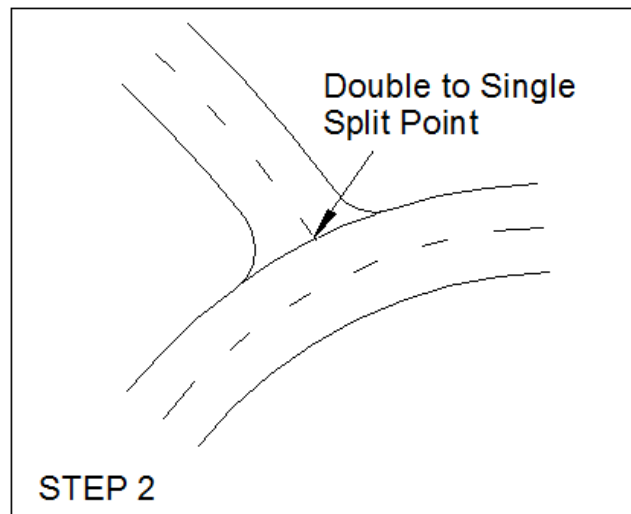
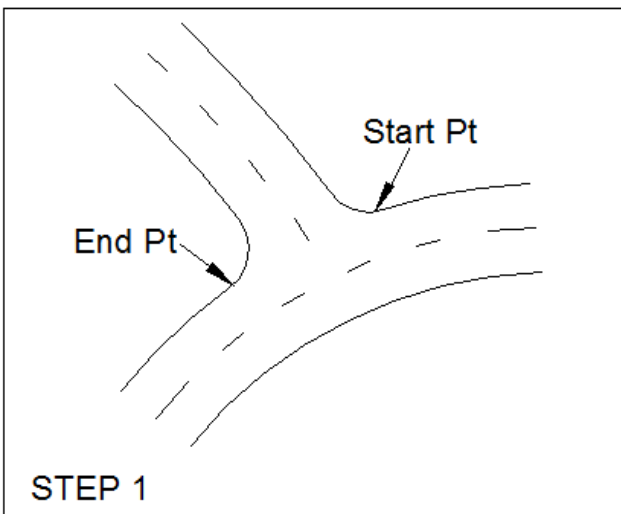
Do you want a Approach Triangle?: Key <Y> or <N> <Yes>:

Distance to leading edge [Range 2.1 to 15.0] <2.75>: *Enter a distance*

Pick point at aprox centre of outer double give way lines: *Pick a point*

Rotation point:

Copy/Base angle/<Rotation angle> <0>: *Show Approach Triangle rotation angle*



## Give Way 1003 (Note: Step 2 is optional)

### STEP 1

Pick start point of transverse line: *Pick start point*

Pick end point of transverse line: *Pick end point*

Do you want to draw a curve?: Key <Y> or <N> <No>: y

*Enter Y if you want the transverse line to be curved (Arc) you will be prompted to define the Arc*

Pick a point to show the approach side: *pick a point*

STEP 2 (Optional: Enter N if you do not want an approach triangle)

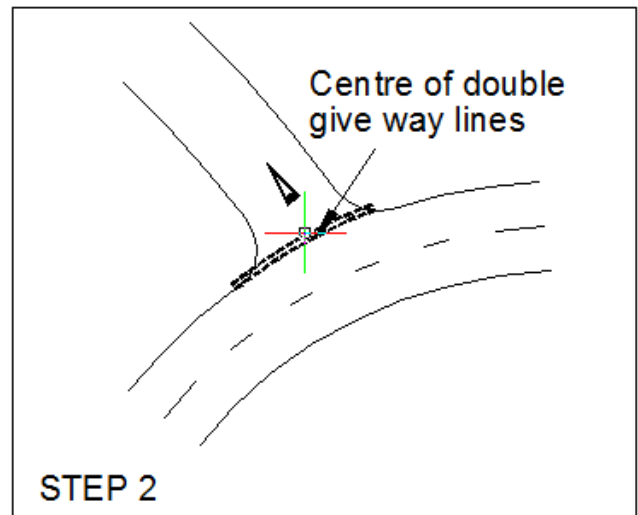
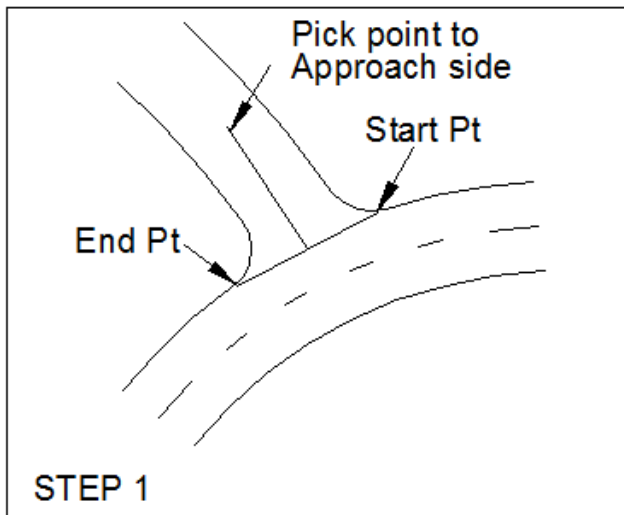
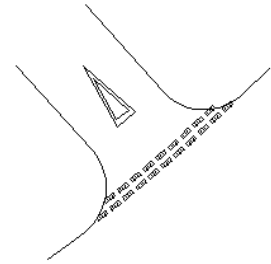
Do you want a Approach Triangle?: Key <Y> or <N> <Yes>:

Distance to leading edge [Range 2.1 to 15.0] <2.75>: *Enter a distance*

Pick point at aprox center of outer double give way lines: *Pick a point*

Rotation point:

Copy/Base angle/<Rotation angle> <0>: *Show Approach Triangle rotation angle*

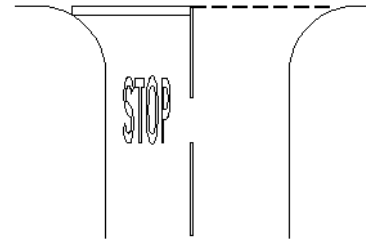


**Stop 1002.1/1009** (Note: Step 3 is optional)

**STEP 1**

Pick start point of transverse line [Stop Line End]: *Pick start point*  
 Pick end point of transverse line [Dashed Line End]: *Pick end point*  
 Do you want to draw a curve?: Key <Y> or <N> <No>: y

*Enter Y if you want the transverse line to be curved (Arc) you will be prompted to define the Arc*



**STEP 2**

Pick the Stop to Dashed Line split point along the curve: *Pick a point*

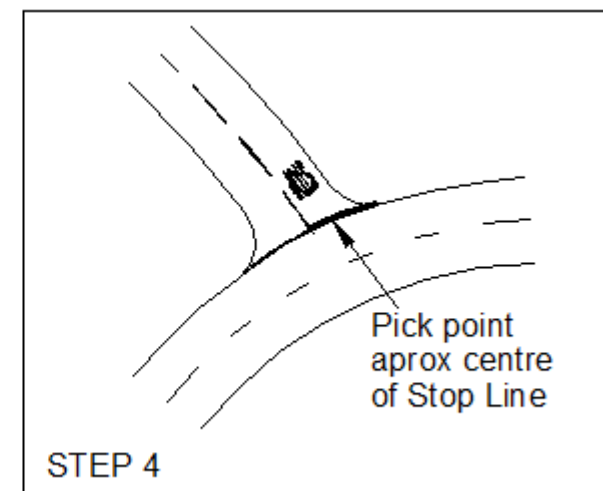
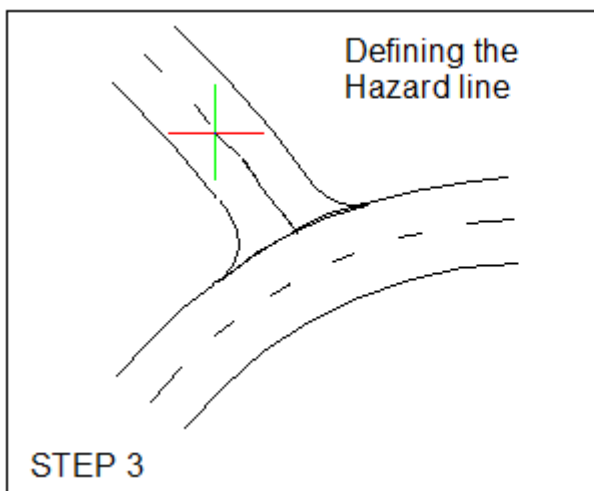
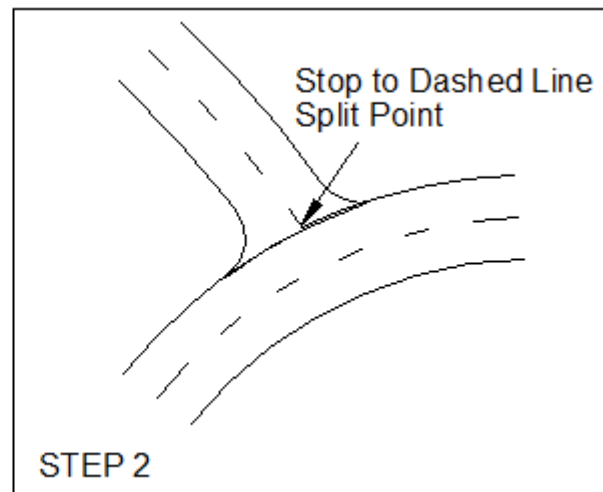
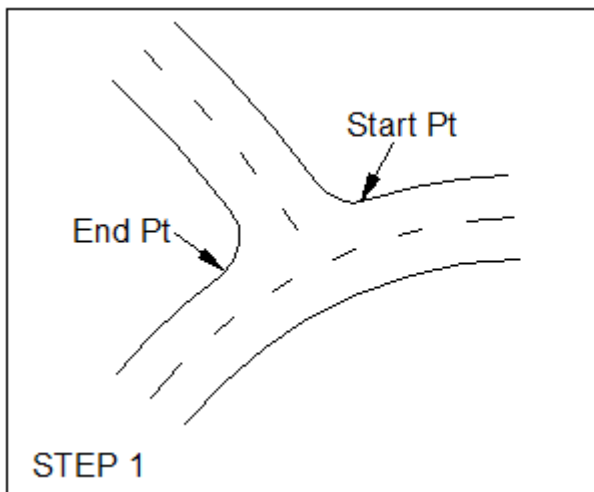
**STEP 3**

Continue to pick points that define the hazard line or press enter to skip :

*Optional: Press the enter key to skip this stage or pick points along the approach carriageway to define the hazard line marker points, press the enter key when done picking*

**STEP 4**

Distance to top of stop legend [Range 2.1 to 15.0] <2.75>: *Enter a distance*  
 Pick point at aprox centre of outer double give way lines: *Pick a point*  
 Rotation point:  
 Copy/Base angle/<Rotation angle> <0>: *Show Stop Symbol rotation angle*



**Stop 1002.1**

STEP 1

Pick start point of transverse line: *Pick start point*

Pick end point of transverse line : *Pick end point*

Do you want to draw a curve?: Key <Y> or <N> <No>: y

*Enter Y if you want the transverse line to be curved (Arc) you will be prompted to define the Arc*

Pick a point to show the approach side: *pick a point*

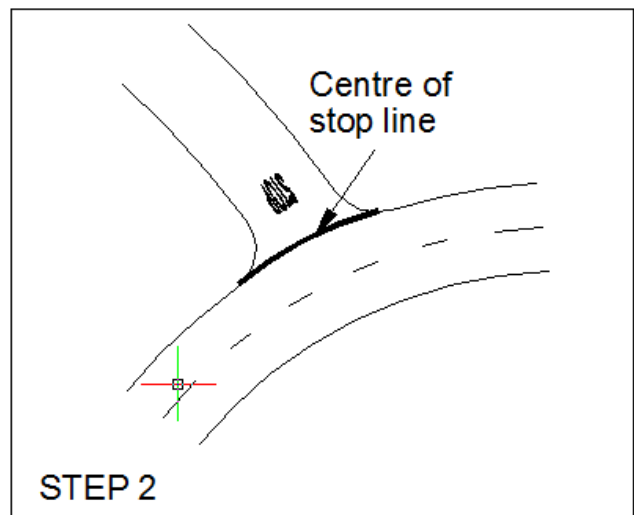
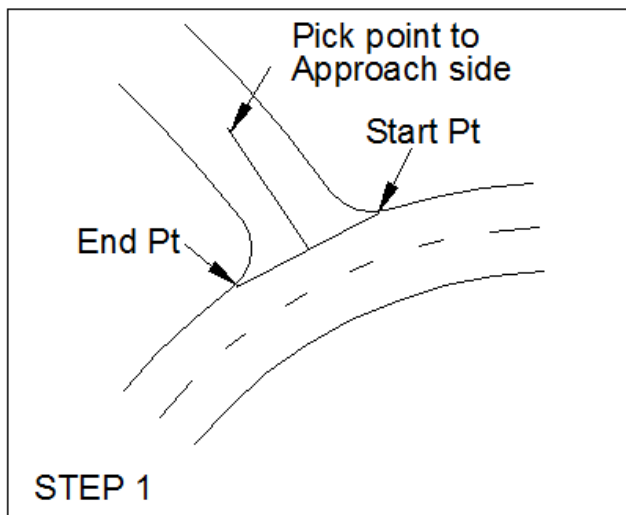
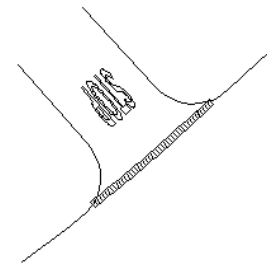
STEP 2

Distance to top of stop legend [Range 2.1 to 15.0] <2.75>: *Enter a distance*

Pick point at aprox center of outer stop lines: *Pick a point*

Rotation point:

Copy/Base angle/<Rotation angle> <0>: *Show Stop symbol rotation angle*





**RBT Give Way 1003.3**

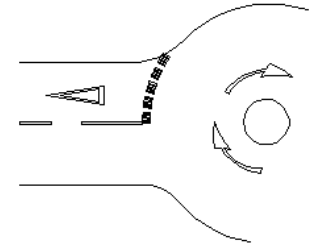
**STEP 1**

Pick start point of transverse line : *Pick start point*

Pick end point of transverse line: *Pick end point*

Do you want to draw a curve?: Key <Y> or <N> <No>: y

*Enter Y if you want the transverse line to be curved (Arc) you will be prompted to define the Arc*



Pick a point to show the approach side: *pick a point*

**STEP 2** (Optional: Enter N if you do not want an approach triangle)

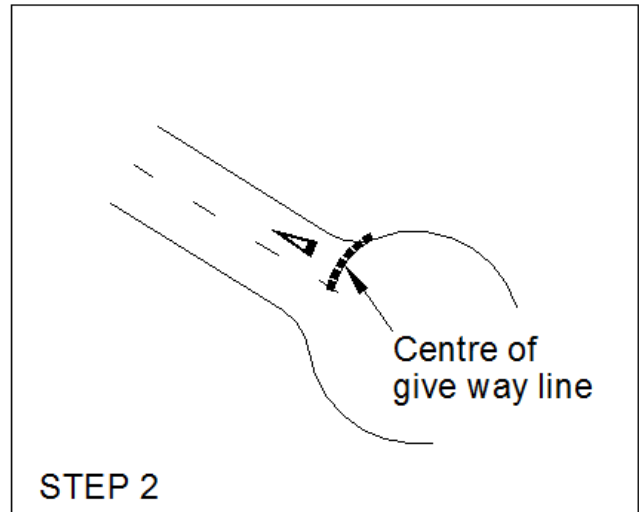
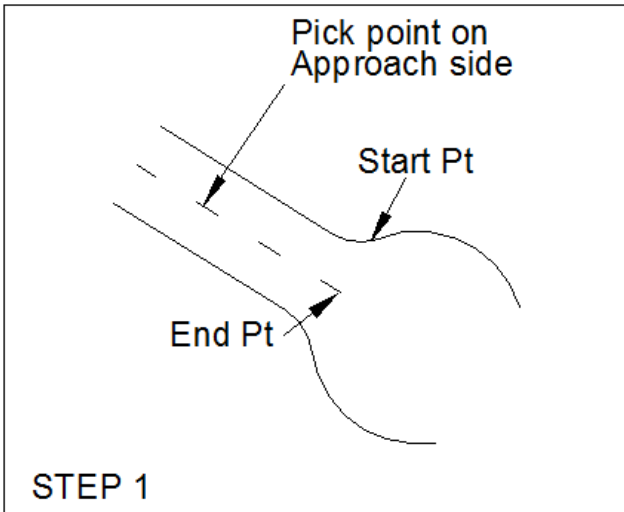
Do you want a Approach Triangle?: Key <Y> or <N> <Yes>:

Distance to leading edge [Range 2.1 to 15.0] <2.75>: *Enter a distance*

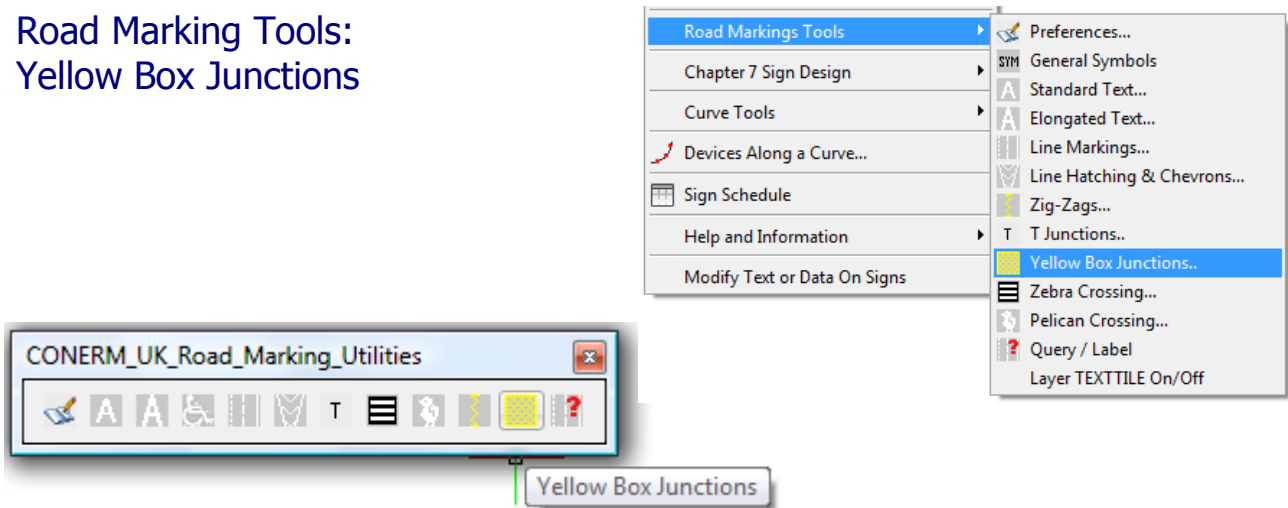
Pick point at aprox centre of outer double give way lines: *Pick a point*

Rotation point:

Copy/Base angle/<Rotation angle> <0>: *Show Approach Triangle rotation angle*



## Road Marking Tools: Yellow Box Junctions



The Yellow Box Junctions tool requires two pre-drawn elements

1. A closed POLYLINE around the area to be cross hatched
2. A LINE to use as a baseline for the hatching angle.

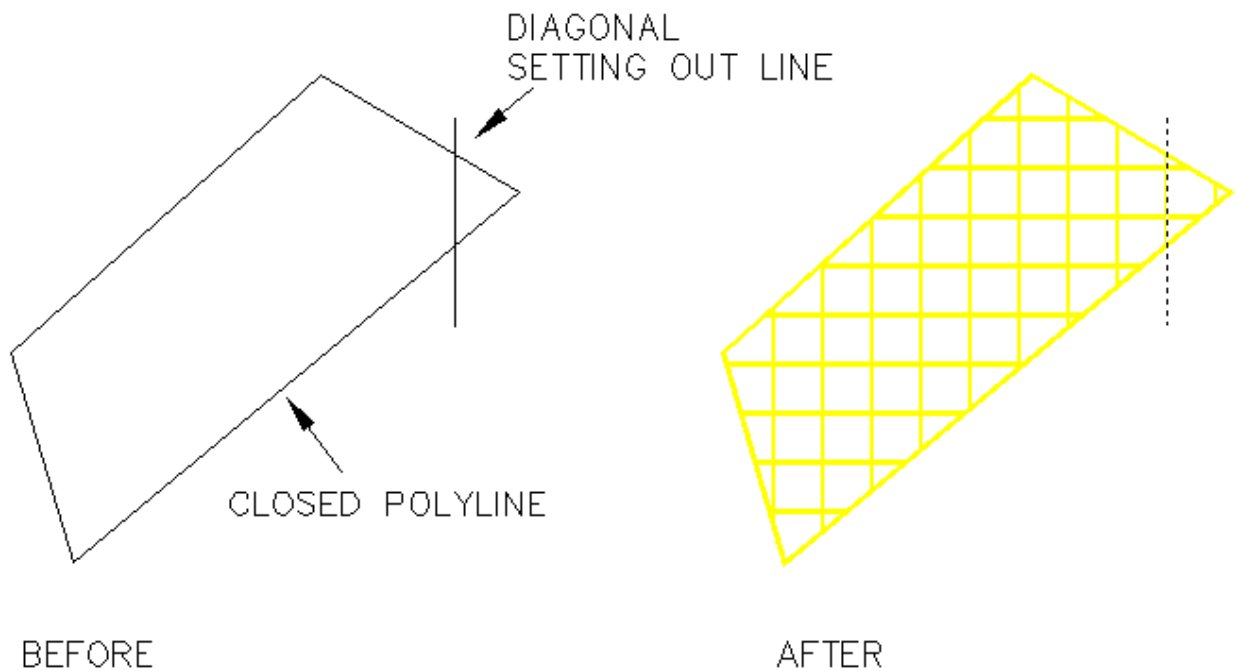
The tool prompts

Select the Box Junction Closed Polyline: *pick the boundary polyline*

Select Diagonal Setting Out Line: *pick the line to use as a reference (shown at top right in example below)*

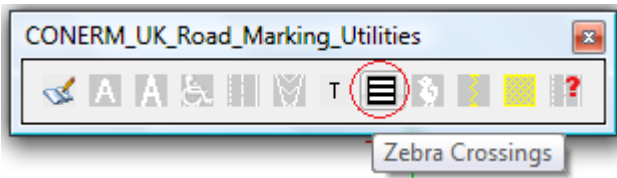
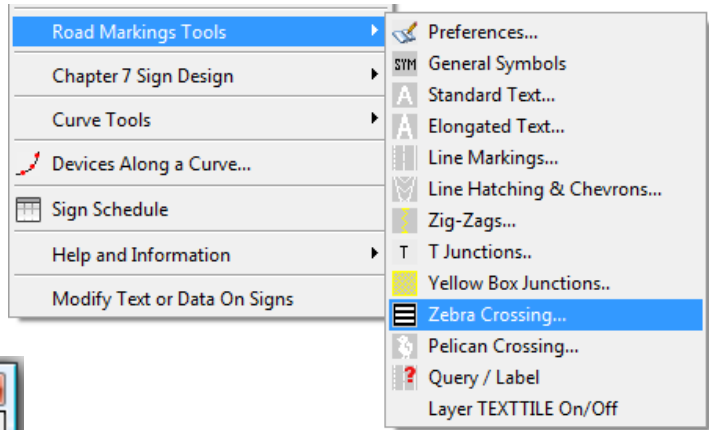
Please enter hatch spacing 2.0 or 2.5 <2.5>: *type a value or press ENTER to accept default*

The hatch markings are then drawn in 150mm wide individual Polyline segments and the boundary is drawn in 200mm wide Polyline segments.

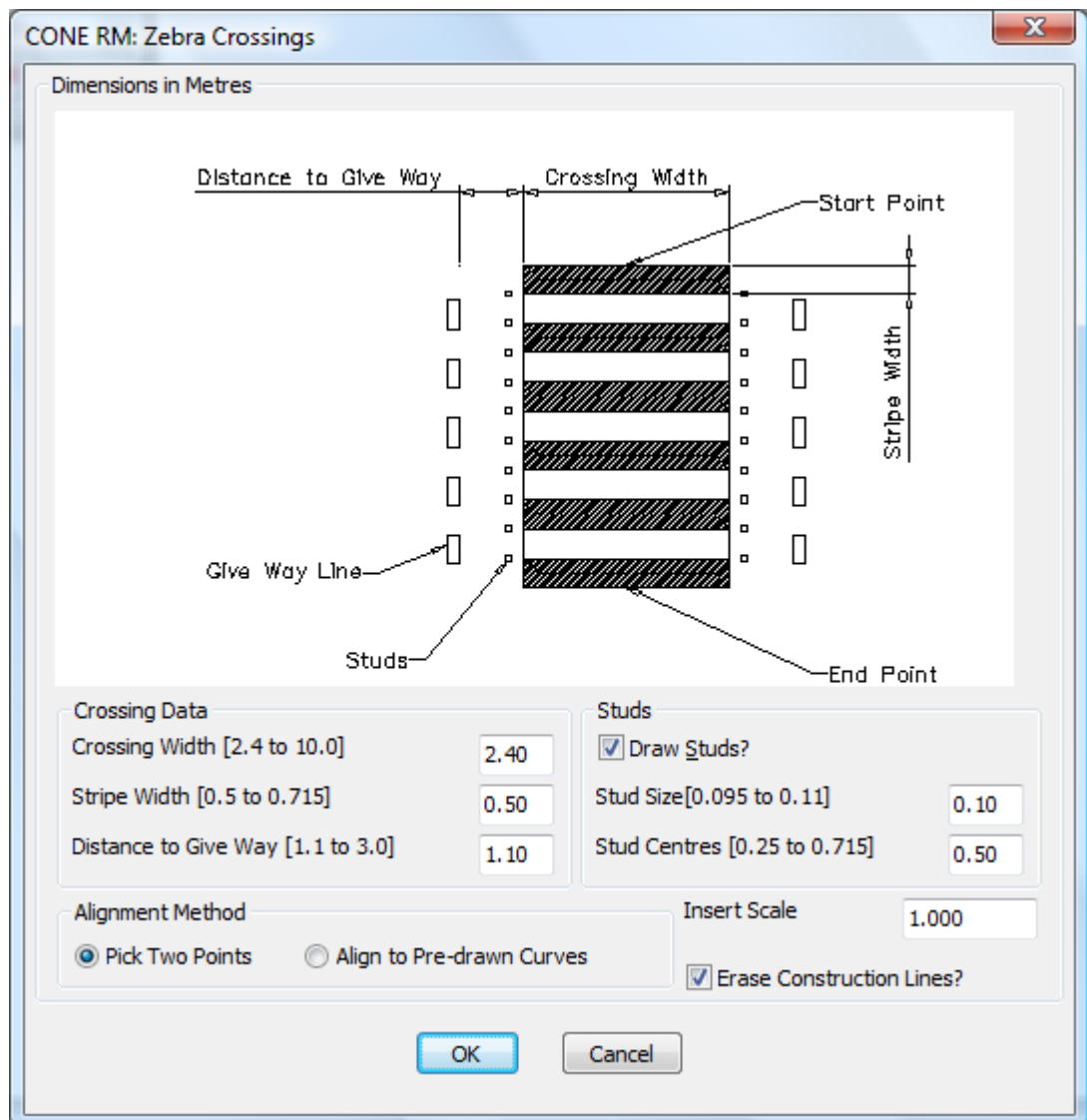


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Road Marking Tools:  
Zebra Crossing



The Zebra Crossing tool creates zebra crossings between two picked points or aligned to pre-drawn curves (Carriageway Edges)



### Crossing Data

Crossing Width [2.4 to 10.0] Enter the desired crossing width

Stripe Width [0.5 to 0.715] Enter the desired stripe width

Distance to Give Way [1.1 to 3.0] Enter the distance to the Give Way lines

**Studs** - These are optional

Draw Studs? If you want to draw studs ensure the checkbox is ticked

Stud Size [0.095 to 0.11] Enter the desired stud width

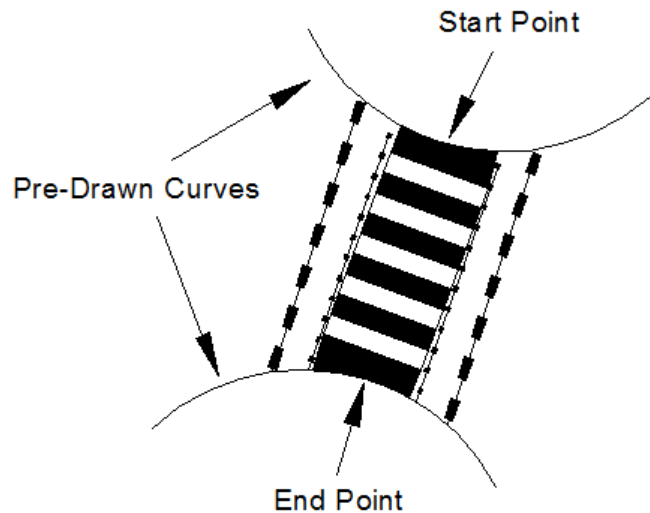
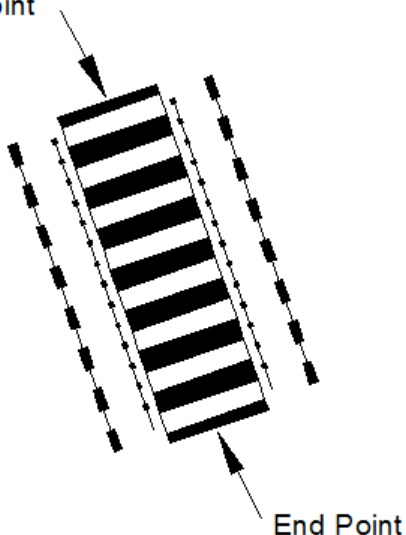
Stud Centres [0.25 to 0.715] Enter desired stud centres

**Insert Scale** This is normally 1.0 (1 unit = 1 metre)

**Erase Construction Lines:** The tool creates Give Way and Stud construction lines, if you don't need these ensure the checkbox is ticked

**Alignment Method** (see below)

Start Point



Pick Two Points Method

Align to Pre-Drawn Curves Method

The **Align to Pre-Drawn Curves Method** creates the first and last stripe trimmed back to match the curves selected, the **Pick Two Points Method** create the stripes at 90 degrees to the start point / end point direction

Select the OK button and follow the on screen points (Align to Pre-Drawn Curves Method is shown below)

Command: RMUKZEBRA

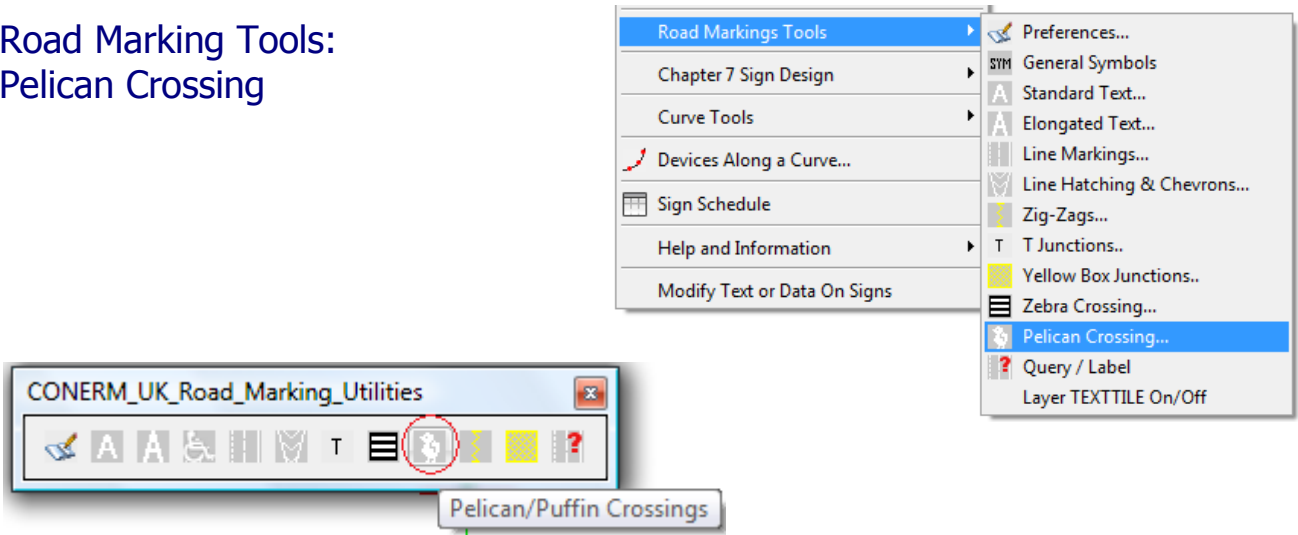
Select First Alignment Curve (Line,Polyline,Arc, or Spline) *Select first curve*

Zebra Crossing Start Point on selected object: *Pick first point*

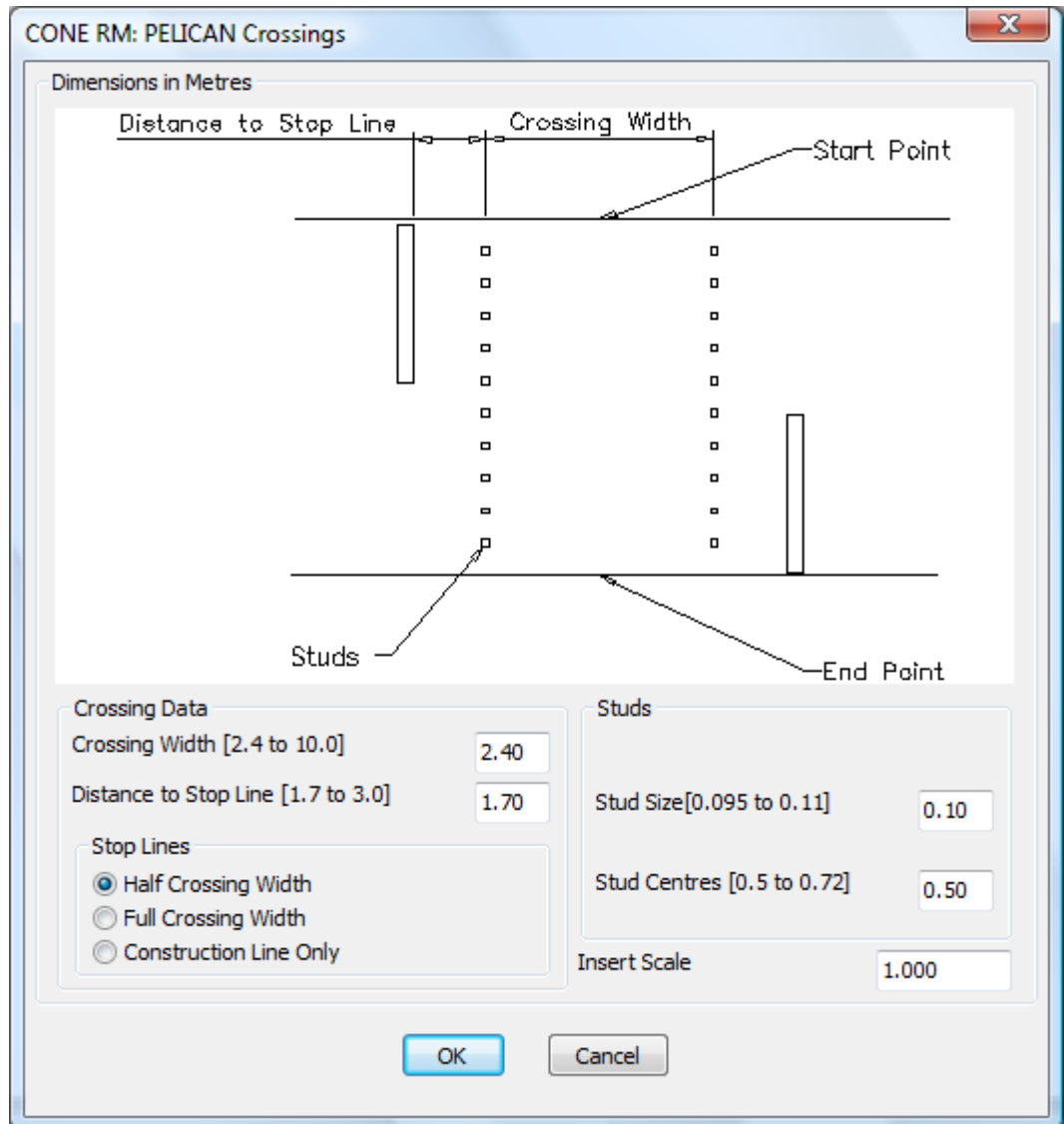
Select Other Alignment Curve (Line,Polyline,Arc, or Spline) *Select other curve*

Zebra Crossing End Point on selected object: *Select second point*

## Road Marking Tools: Pelican Crossing



The Pelican Crossing tool creates Pelican crossings between two picked points



## Crossing Data

Crossing Width [2.4 to 10.0] Enter the desired crossing width

Distance to Stop Line [1.7 to 3.0] Enter the distance to the Stop lines

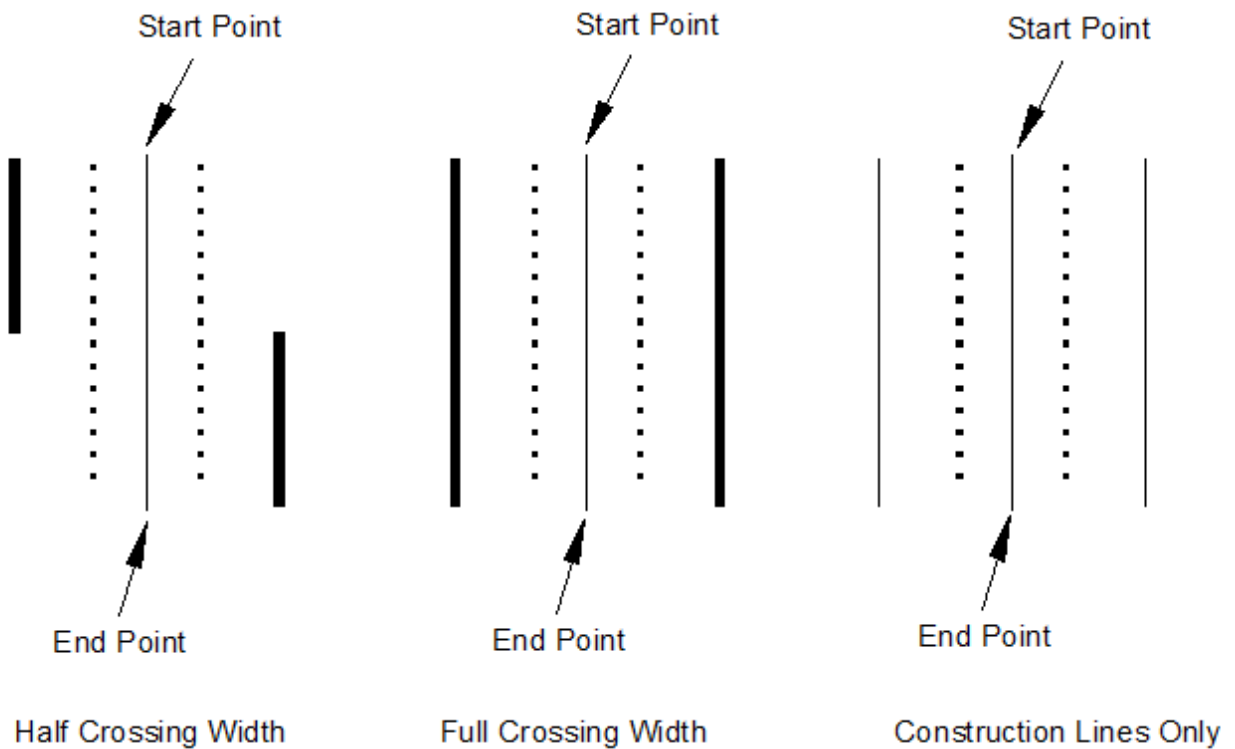
## Studs

Stud Size [0.095 to 0.11] Enter the desired stud width

Stud Centres [0.25 to 0.715] Enter desired stud centres

**Insert Scale** This is normally 1.0 (1 unit = 1 metre)

**Stop Lines** (see below)



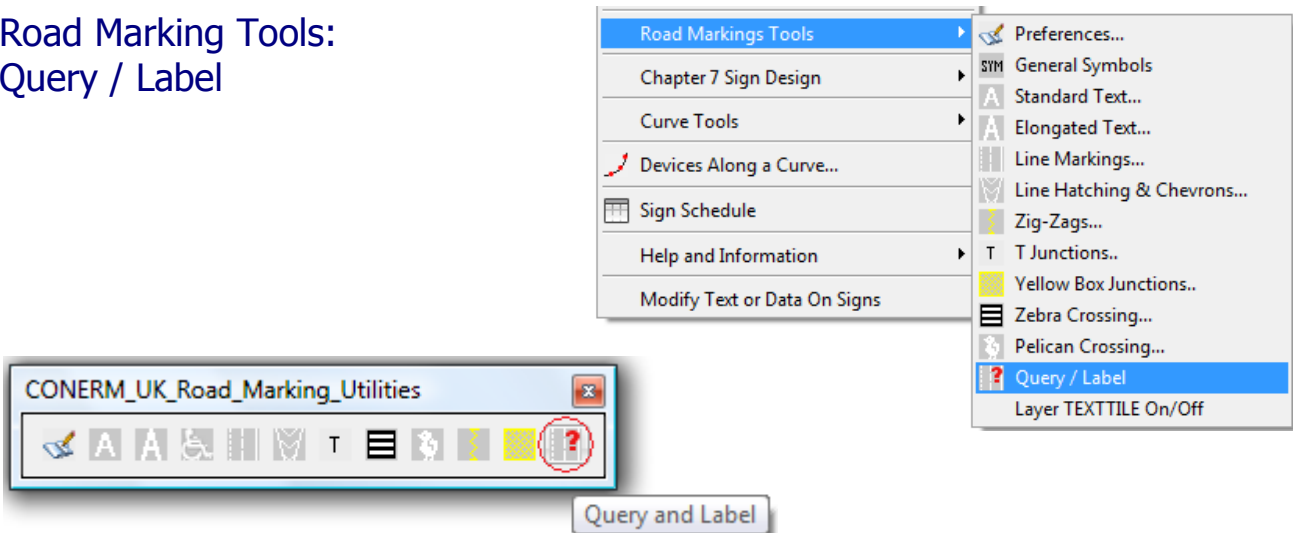
Select the **OK** button and follow the on screen points

Command: RMUKPELICAN

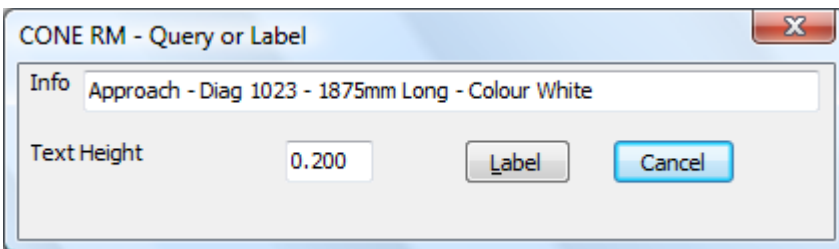
Crossing Start Point: *Pick start point*

Crossing End Point: *Pick end point*

Road Marking Tools:  
Query / Label



The Query/Label tool allows you to query a particular road marking line or symbol on your drawing.



Approach – Diag 1023 – 1875mm Long – Colour White

After indicating an element of road marking on the drawing, the dialog above displays the information available.

Pick **Cancel** to close the dialog, or

Pick **Label** to add the text to the drawing at the specified **Text height**

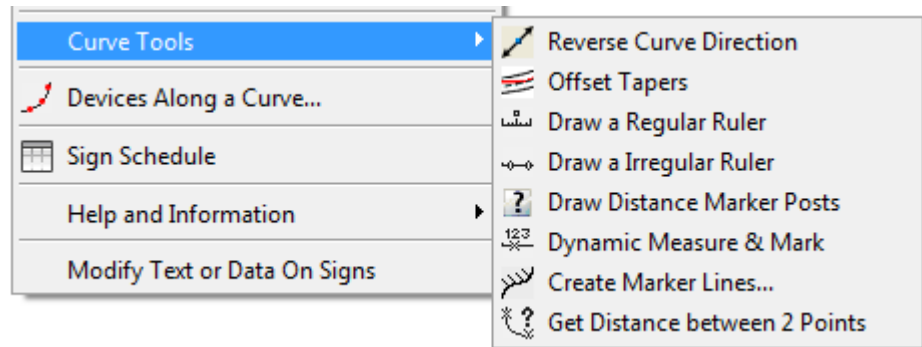
NOTE: you can edit the text string in the **Info** box to add/delete any other information you required.



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## Curve Tools:

The Curve Tools are a series of separate tools that allow you to easily and quickly draw and measure items along a curve.



The curved lines in the examples below represent the edge of a carriageway going around a bend

Example 1: If you wanted to place a series of marker points (sign locations) at specific distances (20, 50 and 80m) from the datum point then you would find this task very difficult and time-consuming using normal CAD methods

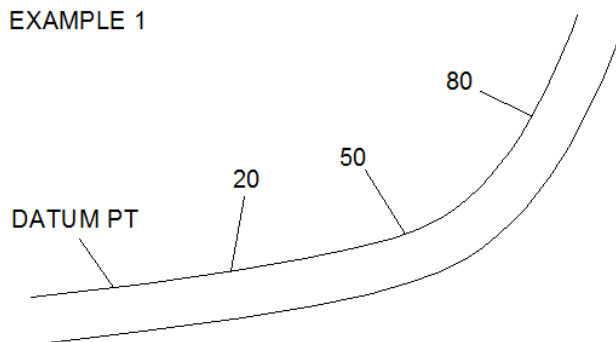
The tools: **Draw a Regular Ruler**  
**Draw an Irregular Ruler**  
**Dynamic Measure & Mark** and  
**Create Marker Lines**

provide different ways of achieving this task

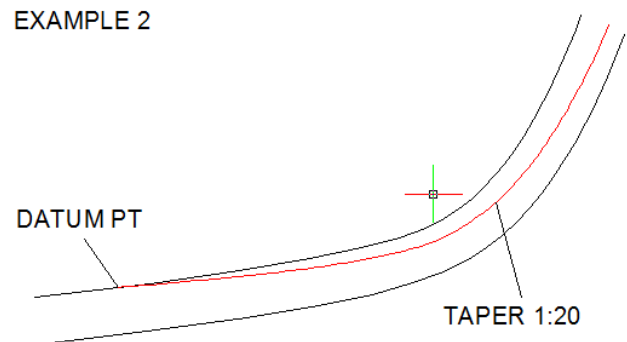
Example 2: If you wanted to draw a 1:20 taper starting from the datum point then again you would find the task very difficult and time-consuming using normal CAD methods

The tools: **Offset Taper** provide different ways of achieving this task

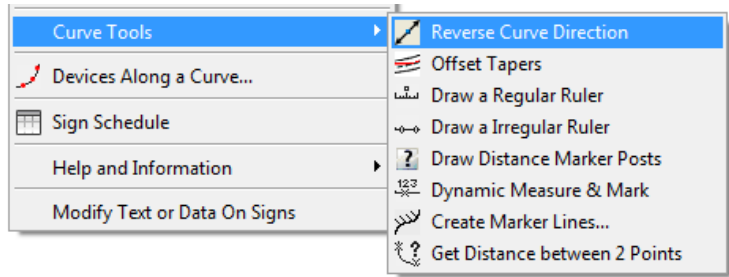
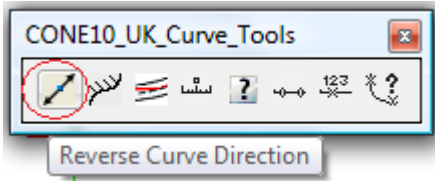
EXAMPLE 1



EXAMPLE 2



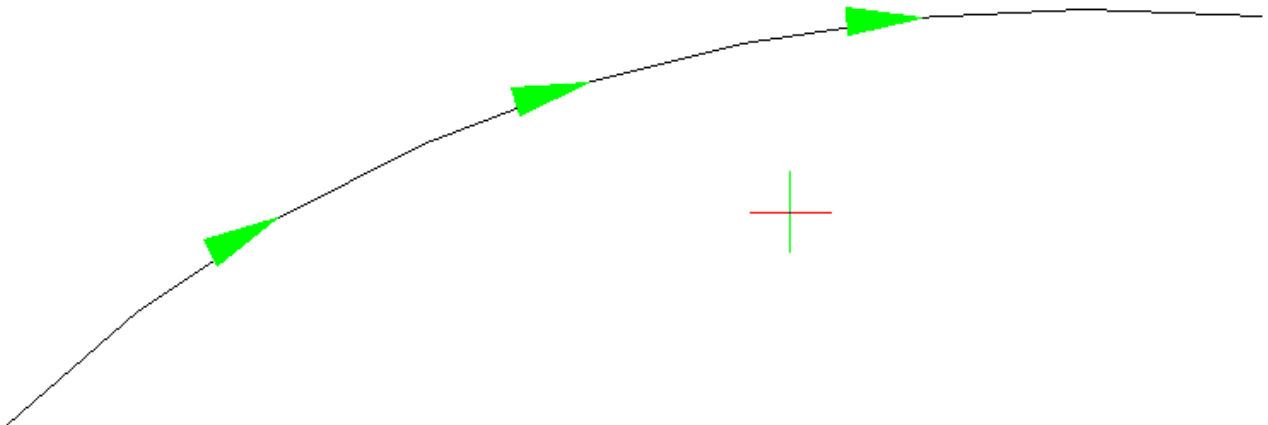
## Curve Tools: Reverse Curve Direction:



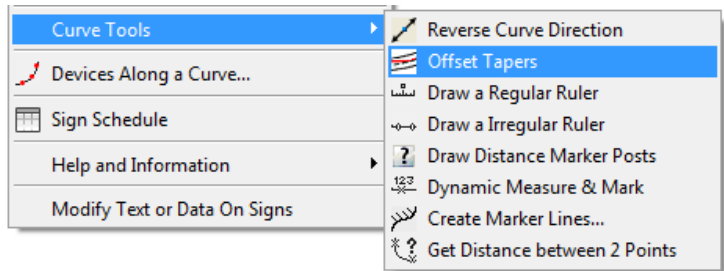
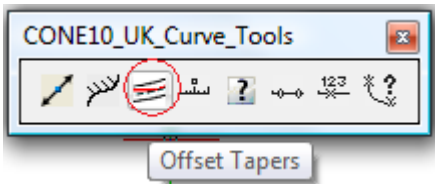
Command: REVERSEDIRECTION  
Select a Line, Polyline or Arc to Reverse:  
Enter R to Reverse - press Enter when done

This tool reverses the direction of a curve, after selecting the tool respond to the prompts by selecting a Line, Polyline or Arc to Reverse:

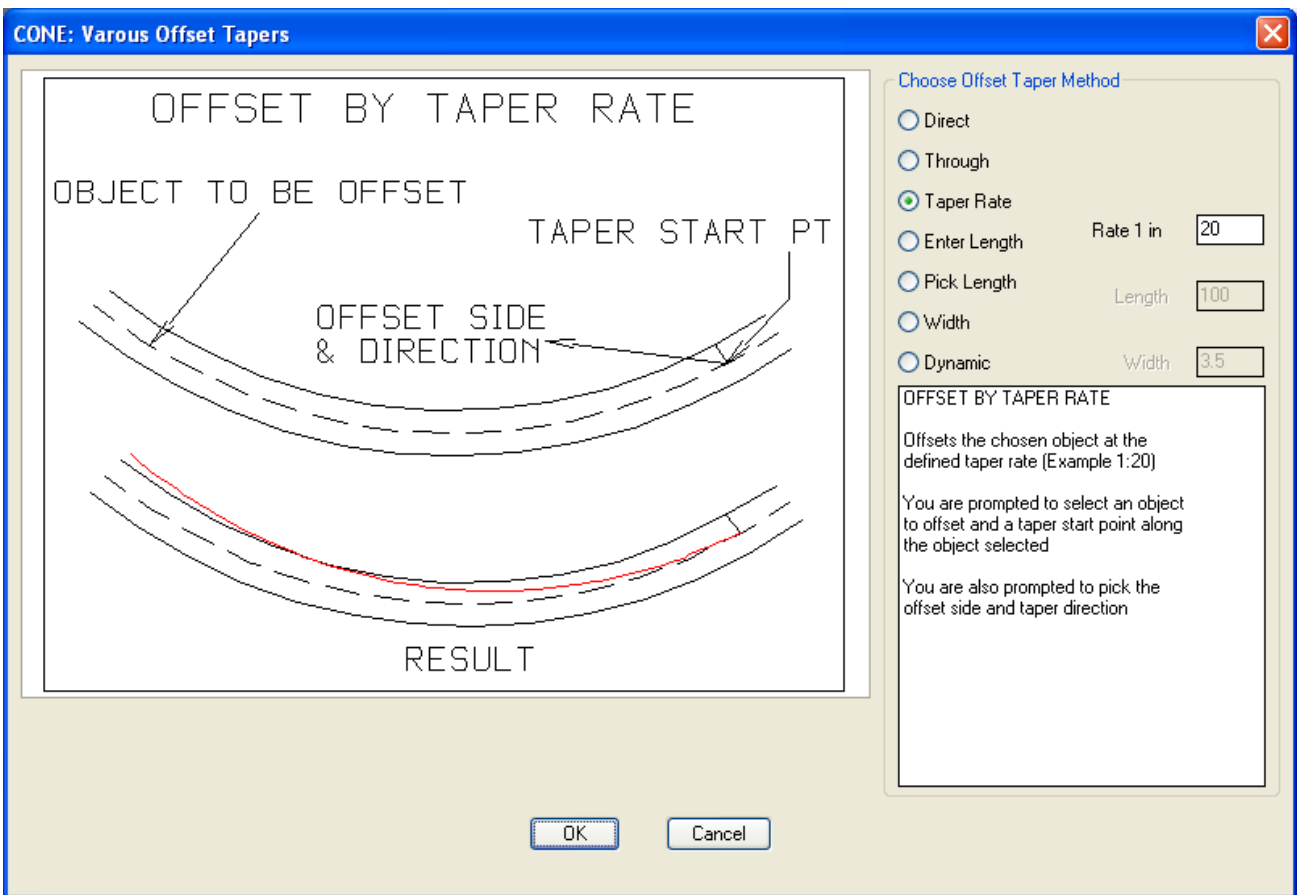
Green arrows will be placed on the curve indicating the curve direction, simply key in R to reverse the curve direction, press the Enter key when done, the arrows will be erased



Curve Tools:  
Offset Tapers



This tool provides several methods of creating offset tapers



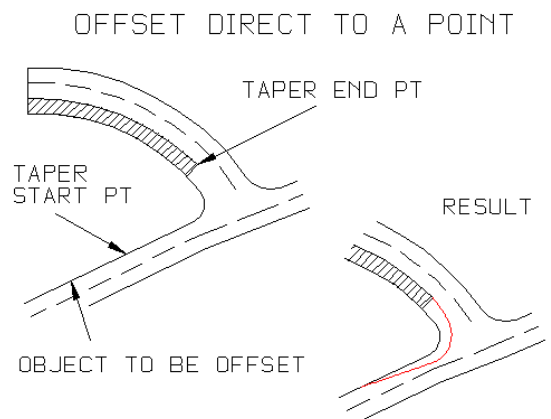
**Direct**

Offsets the chosen curve object at a uniform taper rate directly to picked taper end point

You are prompted to select an object to offset and a taper start point along that object

The taper end point is another point picked anywhere on the drawing

The actual taper rate is reported at the end of the routine.



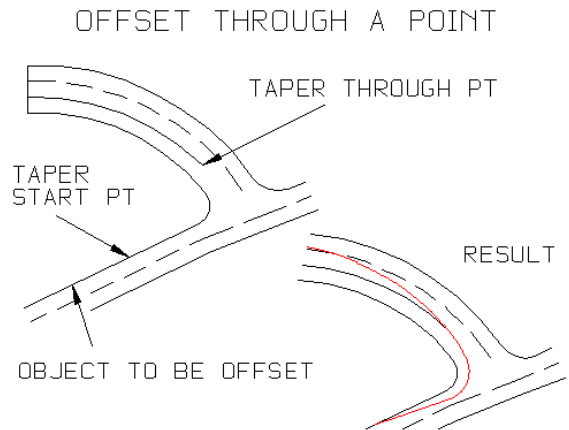
## Through

Offsets the chosen curve object at a uniform taper rate through a point and continues the taper to the end of the chosen object.

You are prompted to select an object to offset and a taper start point along that object.

The taper through point is another point picked anywhere on the drawing.

The actual taper rate is reported at the end of the routine.



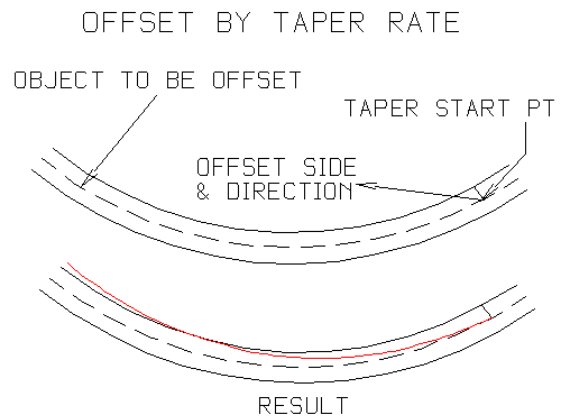
## Taper Rate

Offsets the chosen curve object at the defined taper rate, which can be specified in the dialog box.

You are prompted to select an object to offset and a taper start point along that object.

You are also prompted to pick the offset side and taper direction.

The taper continues to the end of the chosen object.



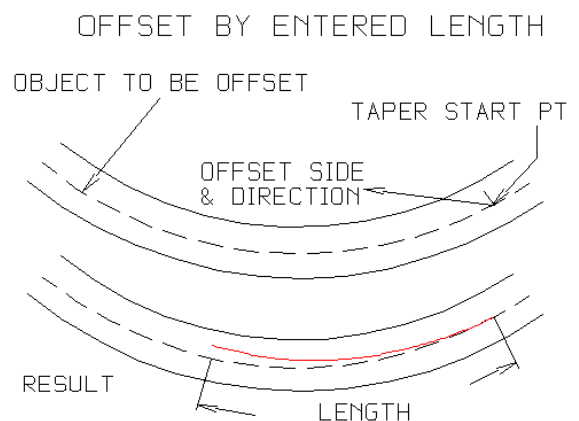
## Enter Length

Offsets the chosen object at the defined taper rate – which can be specified in the dialog box for a specified length which you also enter in the dialog box

You are prompted to select an object to offset and a taper start point along that object.

You are also prompted to pick the offset side and taper direction.

The taper continues to the length specified in the dialog box



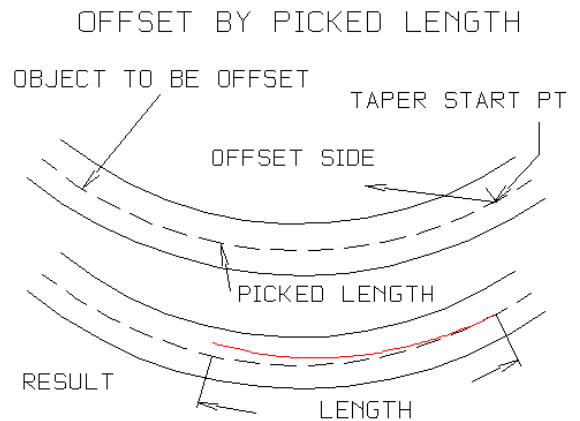
## Pick Length

Offsets the chosen object at the defined taper rate – which can be specified in the dialog box.

You are prompted to select an object to offset and a taper start point along that object.

You are also prompted to specify a taper end position

You are also prompted to pick the offset side and taper direction.

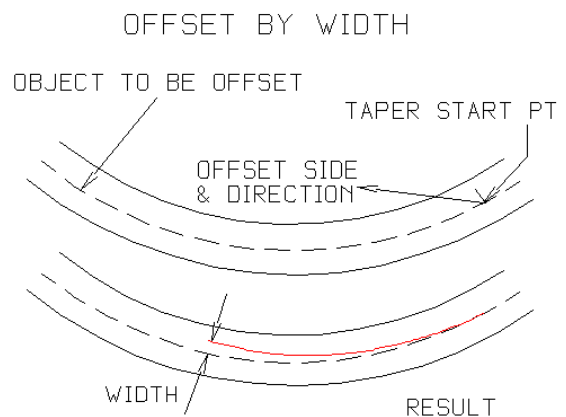


## Width

Offsets the chosen object at the defined taper rate which can be specified in the dialog box until the width also specified in the dialog box is reached

You are prompted to select an object to offset and a taper start point along that object.

The offset taper then starts from the picked point and tapers until the desired width is reached.



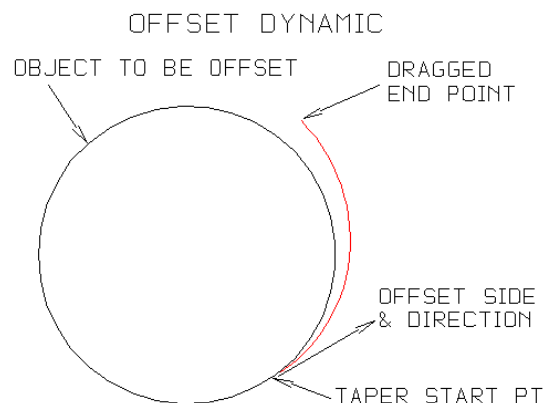
## Dynamic

Dynaically offsets the chosen object at the defined taper rate.

You are prompted to select an object to offset and a taper start point along that object.

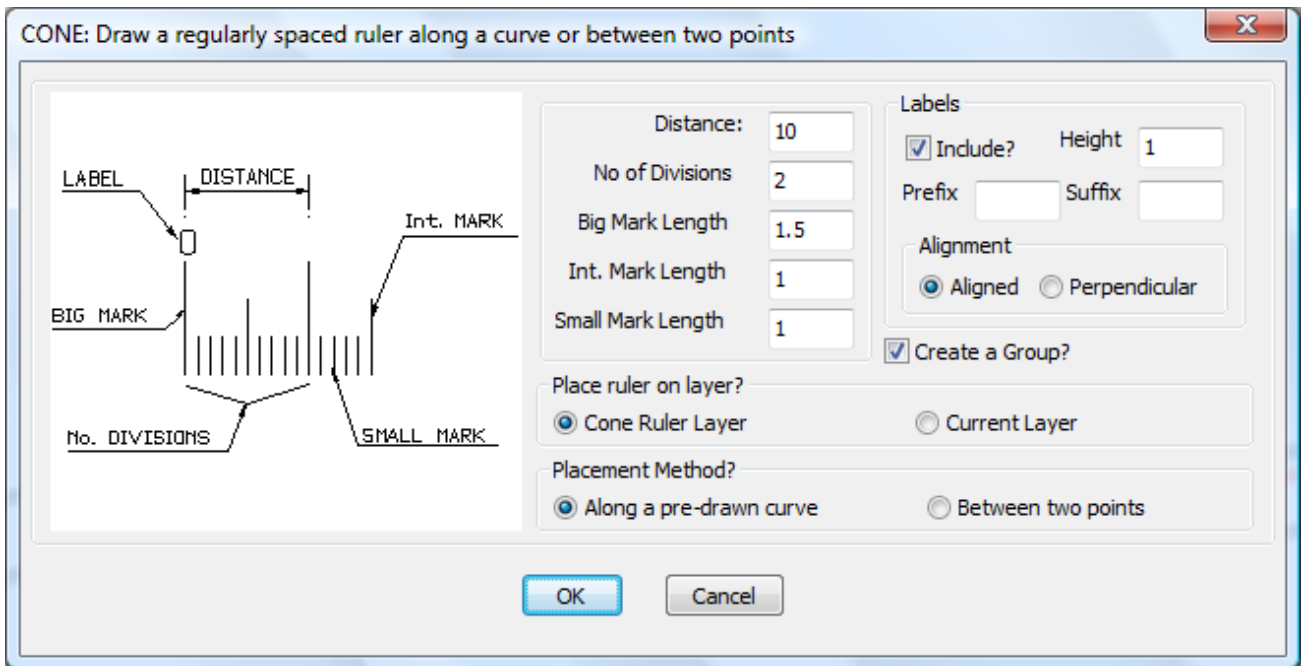
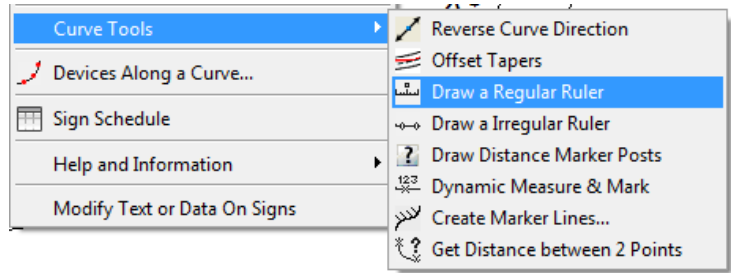
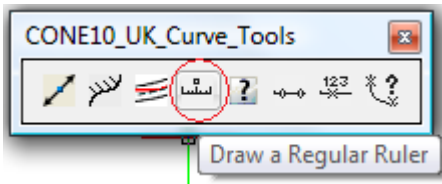
The taper end point is indicated by moving the mouse.

The taper is updated in real-time.



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Curve Tools:  
Draw a Regular Ruler



The **Draw a Regular Ruler** tool enables you to draw a series of ruler lines at fixed regular intervals along a curve.

The dialog above shows the various options for this tool.

**Distance** *default value 10*  
Interval at which the labels will be inserted.

**No of Divisions** *default value 2*  
The number of sub divisions between the distance specified above.

**Big Mark Length** *default value 1.5*  
Length of the divider marks at the distance interval specified above.

**Int Mark Length** *default value 1*  
Length of the divider marks at the midpoint of distance interval specified above.

**Small Mark Length** *default value 1*  
Length of the divider marks at the divisions between distance interval specified above.

**Labels:** This refers the actual distance text that will be shown, if you do not want to include labels un-check the **Include Labels** checkbox

**Height:** The text height of the label

**Prefix:** Any characters you wish to appear before the distance

**Suffix:** Any characters you wish to appear after the distance

**Alignment:** Whether the label text is rotated parallel or perpendicular to the object curve



**Place ruler on layer?:** Choose between creating the ruler elements on the current selected layer, or the Cone Ruler Layer "CONERULER"

**Placement method:**

**Along a pre-drawn curve**

The ruler elements will be along a selected curve, you will be prompted to specify the ruler start point and ruler end points along the curve.

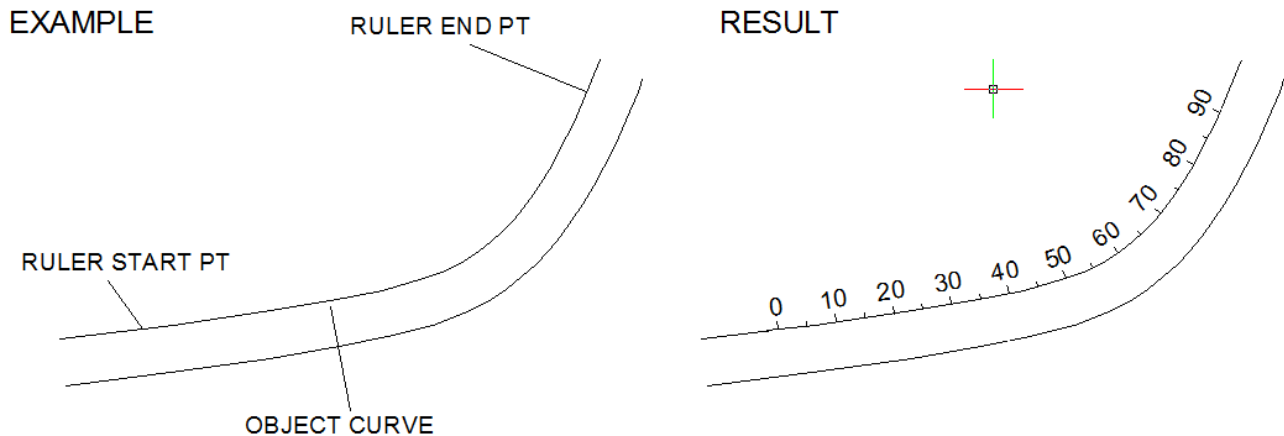
**In a straight line**

The ruler elements will be drawn in a straight line between the start and end points you indicate on the drawing.

Once the tool has drawn the ruler elements you have to option to **mirror** them to the **other side** of the line from which they were drawn.

**Example**

A 10m ruler (with 2 divisions) will be aligned to the object curve as shown below between the ruler start and ruler end points



Select: **Draw a Regular Ruler** from the **Curve Tools** section of the cone pull down menu  
Change any values in the dialog as required (see previous page)  
Select the **OK** button

The program will respond with the following prompts:

Command: CRRULER

Select Object Curve (Line,Polyline,Arc,Circle,Ellipse or Spline) to align rule to: *select a curve*

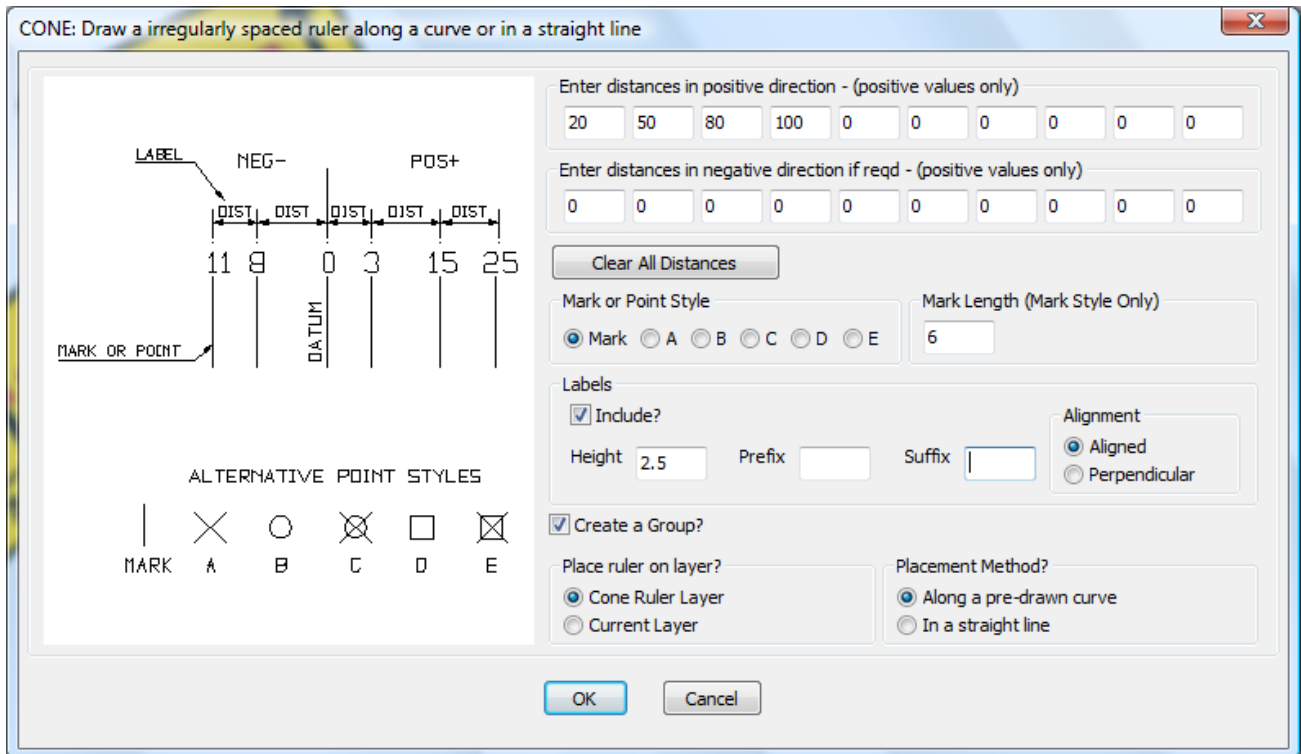
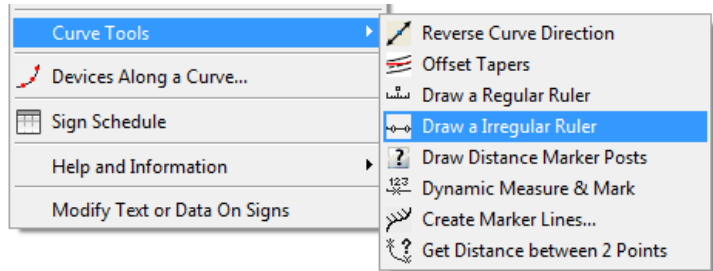
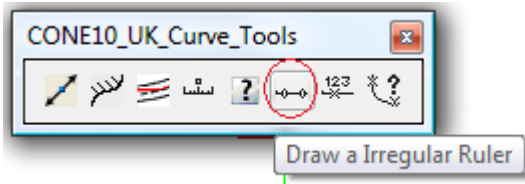
Pick ruler start point on selected object: *pick a ruler start point on the curve*

Open Curve: Pick ruler end point on selected object or press enter to fully rule in both directions:

*pick a ruler endpoint on the curve*

Do you want mirror the alignment: Yes or No <No>: *Y or N as required*

## Curve Tools: Draw a Irregular Ruler



The **Draw a Irregular Ruler** tool enables you to draw a series of marker lines or points at irregular intervals along a curve.

The dialog above shows the various options for this tool.

You may enter up to ten positive and ten negative distances in the input boxes

NOTE: although the negative distances are drawn in the opposite direction from the start point, their values must be entered WITHOUT a MINUS SIGN.

### Clear All Distances

Picking the Clear All Distances button will reset all the boxes to zero, allowing you to enter a new set of values, there is no warning that all existing values will be cleared.

**Mark or Point Style:** You can draw individual marks (a simple line at the **Mark Length** specified) or standard CAD point entities, the point styles available are:

A: Cross, B: Circle, C: Circle and Cross, D: Square, E: Square and Cross

**Labels:** This refers the actual distance text that will be shown, if you do not want to include labels un-check the **Include Labels** checkbox

**Height:** The text height of the label

**Prefix:** Any characters you wish to appear before the distance

**Suffix:** Any characters you wish to appear after the distance

**Alignment:** Whether the label text is rotated parallel or perpendicular to the object curve

**Place ruler on layer?:** Choose between creating the ruler elements on the current selected layer, or the Cone Ruler Layer "CONERULER"

### Placement method:

#### Along a pre-drawn curve

The ruler elements will be along a selected curve, you will be prompted to specify the start along the curve.

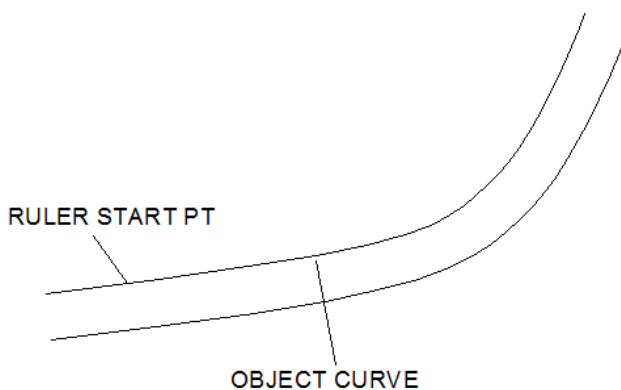
#### In a straight line

The ruler elements will be drawn in a straight line between the start and end points you indicate on the drawing.

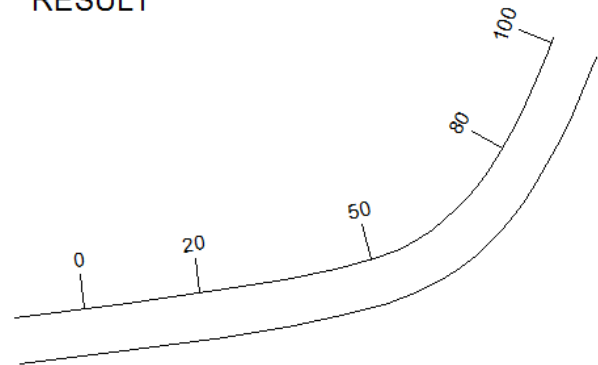
### Example

A series of marker lines at distances of 20,50,80 and 100 from the ruler start point will be aligned to the object curve as shown below

EXAMPLE



RESULT



Select: **Draw a Regular Ruler** from the **Curve Tools** section of the cone pull down menu  
Change any values in the dialog as required (see previous page)  
Select the **OK** button

The program will respond with the following prompts:

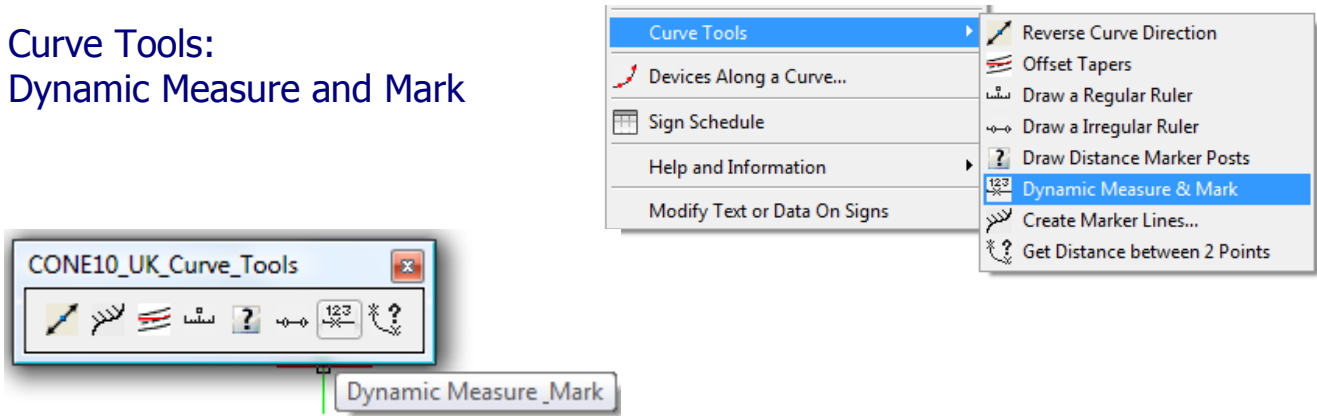
CIRULER

Select Object Curve (Line,Polyline,Arc,Circle,Ellipse or Spline) to align rule to: *select a curve*

Pick ruler start point on selected object: *pick a ruler start point on the curve*

Pick a point to indicate ruler side and POSITIVE direction:

Curve Tools:  
Dynamic Measure and Mark

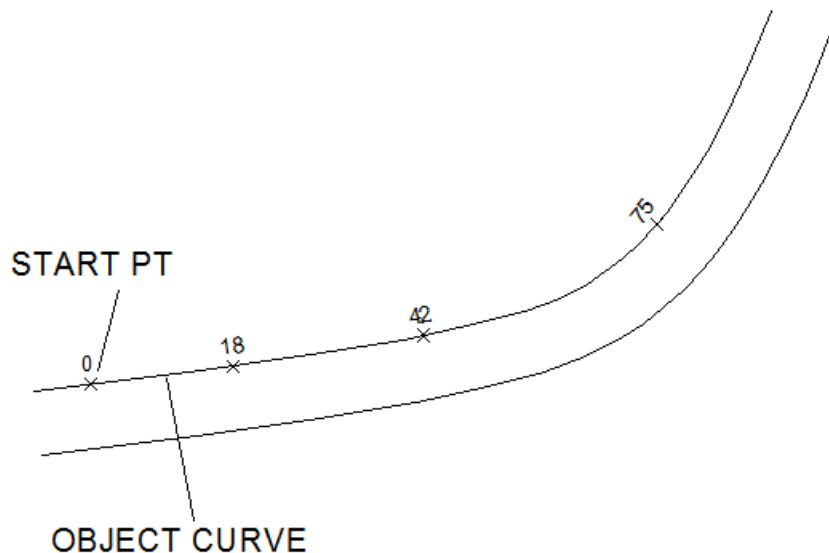


This tool dynamically draws marker points along a selected curve and annotates the distance from a start point.

The program prompts you to select a curve object on the drawing, then a start position along that curve.

As you move your mouse pointer along the curve the distance from the start point will dynamically update. Subsequently clicking at points along the curve element will draw the marker at that point. Alternatively you can type a specific distance for the marker point to be inserted.

The tool has a **Settings** option (keyword **S**) that will display a dialog (shown on the next page) where you can change various marker settings



The Dynamic Measure and Mark prompts:

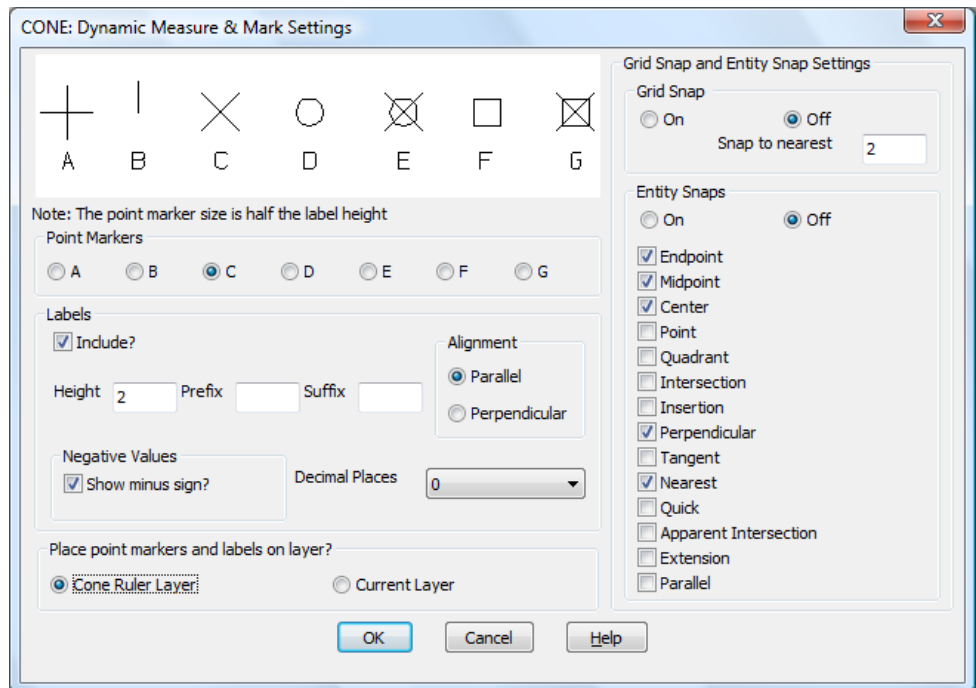
Select Object Curve (Line,Polyline,Arc,Circle,Ellipse or Spline) to measure: *select a curve*

Settings/Help: Pick first point [Datum] on selected curve object: *pick start point or key S for settings*

Settings/Help: Pick next point or key-in desired distance: *move the mouse, pick a point of key S for settings*

Press the Enter key to exit the tool

If you key **S** for settings whilst using the Dynamic Measure and Mark tool the following dialog will be displayed, change any settings as required and pick the **OK** button to continue using the tool



**Point Markers:** Select from seven different marker styles by picking one of the radio buttons A-G

**Labels:** This refers the actual distance text that will be shown, if you do not want to include labels un-check the Labels checkbox

**Height:** The text height of the label

**Prefix:** Any characters you wish to appear before the distance

**Suffix:** Any characters you wish to appear after the distance

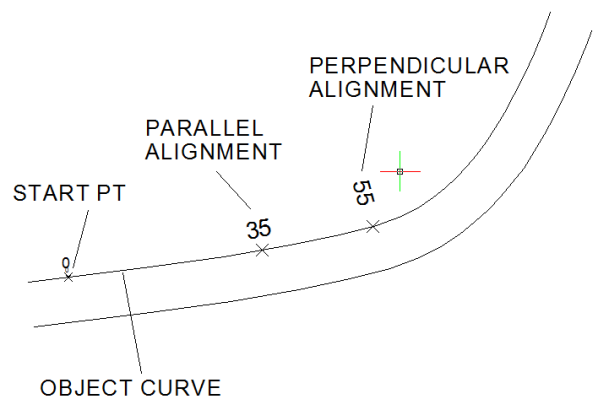
**Alignment:** Whether the label text is rotated parallel or perpendicular to the object curve

**Negative Values: Show minus sign?** Every curve has a positive and negative direction referenced from the start point you pick on the curve. If you do not want the minus sign to be displayed then un-check this checkbox

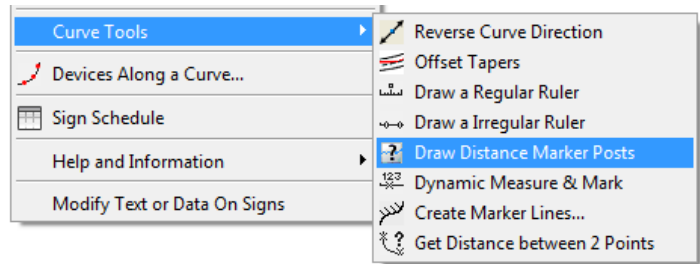
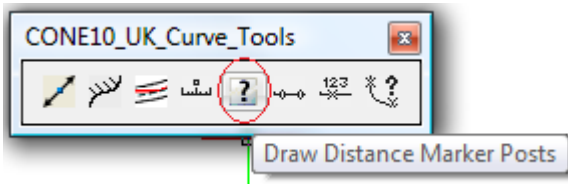
**Decimal Places:** The number of decimal places to display (default is 0)

**Grid Snap:** Sets the virtual grid snap on or off, is set to on the marker points snap to the nearest number of units set in the edit box, for example if you want the markers to snap to every 5 units enter 5 in the edit box and turn the Grid Snap on

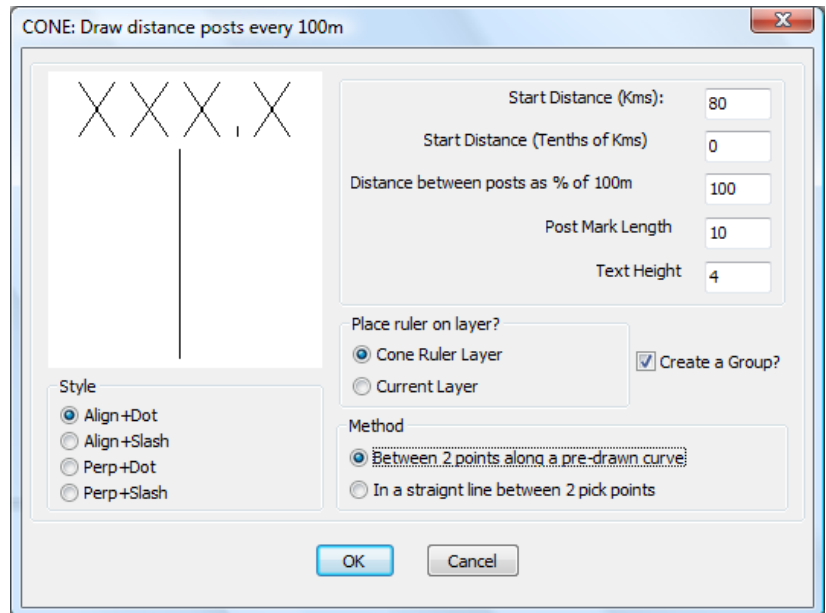
**Entity Snaps:** Access to the standard CAD Esnap/Osnap tools are disabled during operation of the Dynamic Measure and Mark tool but you can change the status and setting here



## Curve Tools: Draw Distance Marker Posts



This tool draws distance marker posts every 100m along a curve or between 2 picked points.



**Start Distance(Kms):** Enter the desired start distance in whole kilometres

**Start Distance(Tenths of Kms):** Enter the desired start distance in tenths of kilometres (0 to 9)

**Distance between posts a % of 100m:** Normally this value will be 100% but you may wish to create schematic versions where the actual gap between posts on the drawing is reduced (example 50%) but the distances are still in real world sizes

**Post Mark Length:** The length of the line mark

**Text Height:** The height of the text label

**Style:** Choose one of four marker post styles

**Place ruler on layer?:** Choose between creating the ruler elements on the current selected layer, or the Cone Ruler Layer "CONERULER"

**Method:**

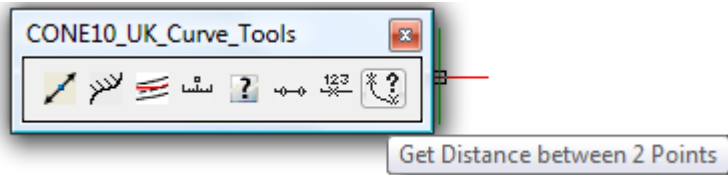
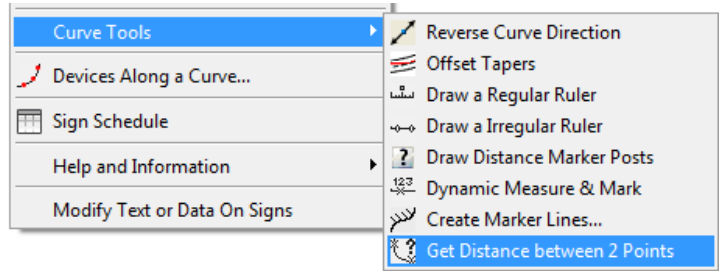
**Between 2 points on a pre-draw curve**

The marker posts will be placed along a selected curve, between two points picked along the curve

**In a straight line between 2 picked points**

The marker posts will be drawn in a straight line between the start and end points you indicate on the drawing.

Curve Tools:  
Get Distance Between Two Points



Command: C2PDISTANCE

Select Object Curve (Line, Polyline, Arc, Circle, Ellipse or Spline) to measure:

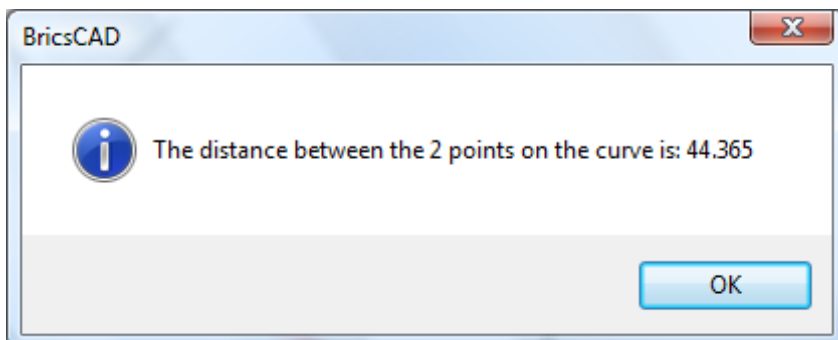
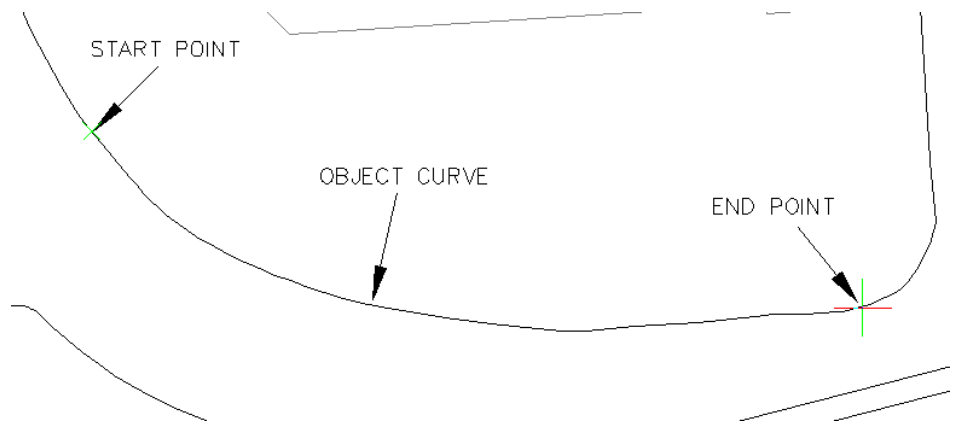
Pick first point on selected curve object:

Pick next point on selected curve object:

This tool measures between two indicated points and reports the distance between them along the curved path.

The program prompts you to select a curved object, then for a start point along that curve. You then indicate an end-point along the curve

The distance between the two points is then displayed.



## Devices Along a Curve

This tool enables you to place channelling devices and direction arrows (symbols) along pre-drawn curves (Arcs, Lines and Polylines)

You may place the devices between 2 points on the curve or specify that the devices fully fit on the chosen curve

Each type of devices has a number of "Size" options:

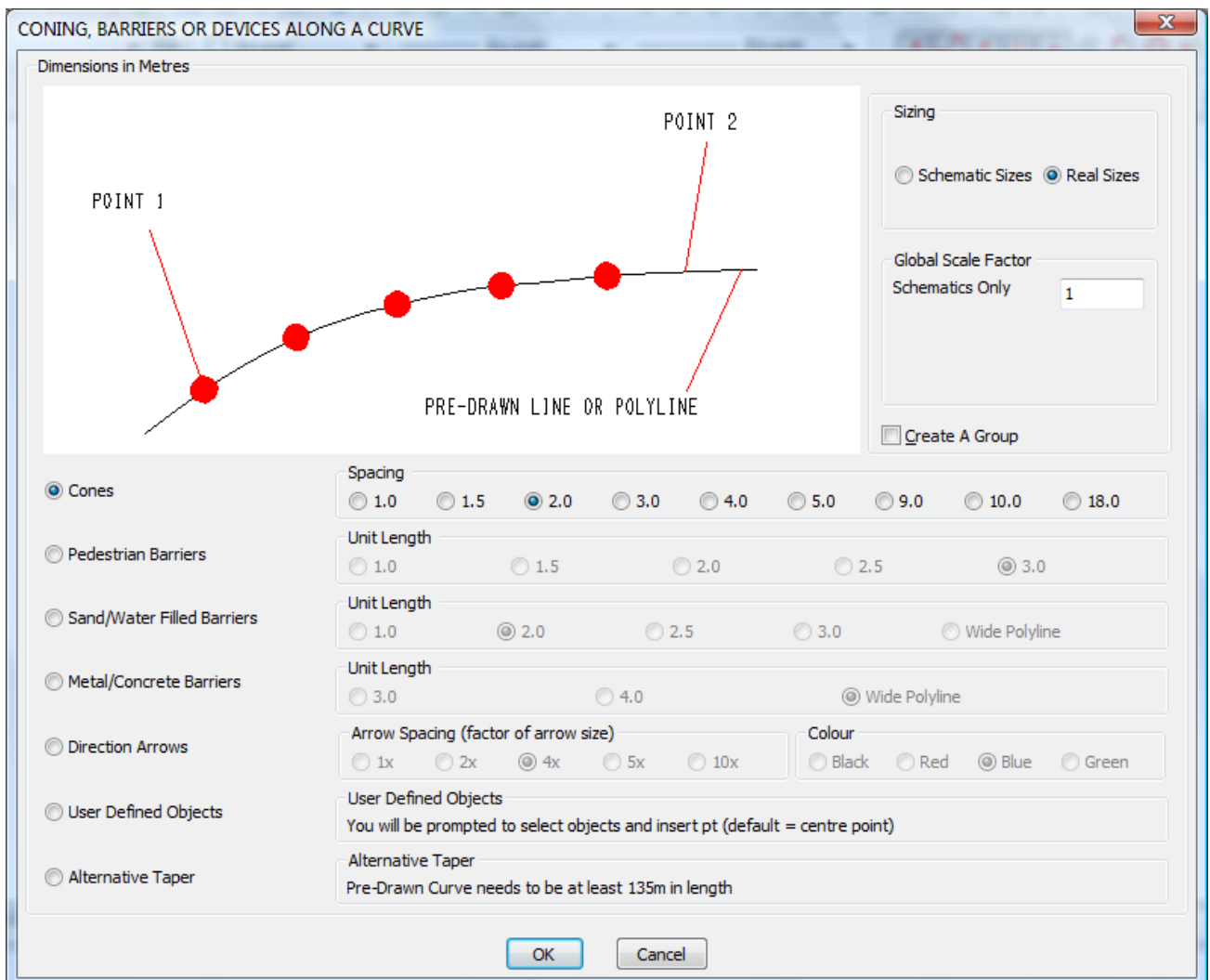
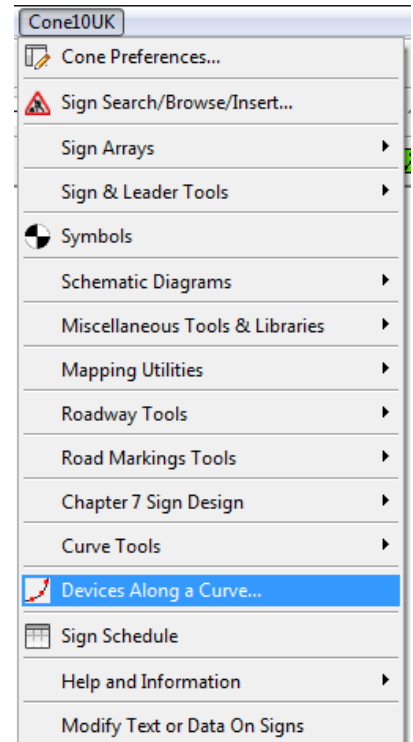
For Cones you specify the spacing between cones

For Barriers you specify the Unit Length

For Arrows the spacing is determined by a factor of the arrow size

Barriers can also be created with wide polylines

For User Defined Objects see example 3 on page :



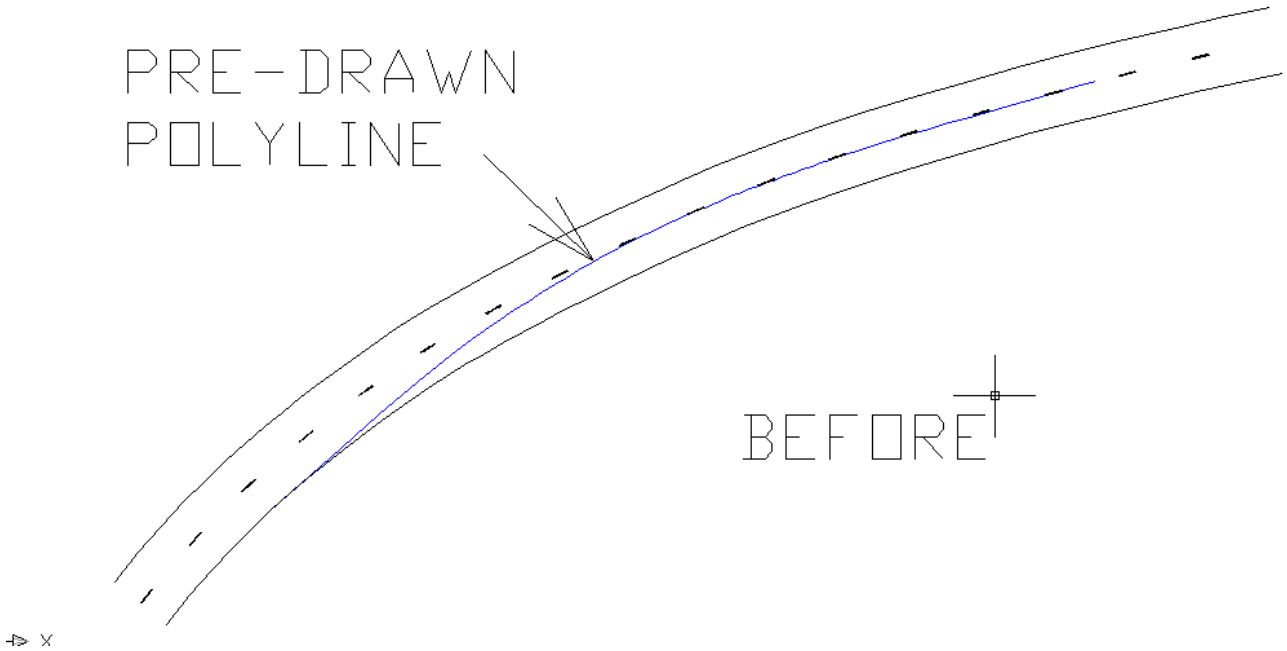


**Example 1: Sand and Water Filled Barriers 2.5 metres long**

Real Sizes

Select OK button

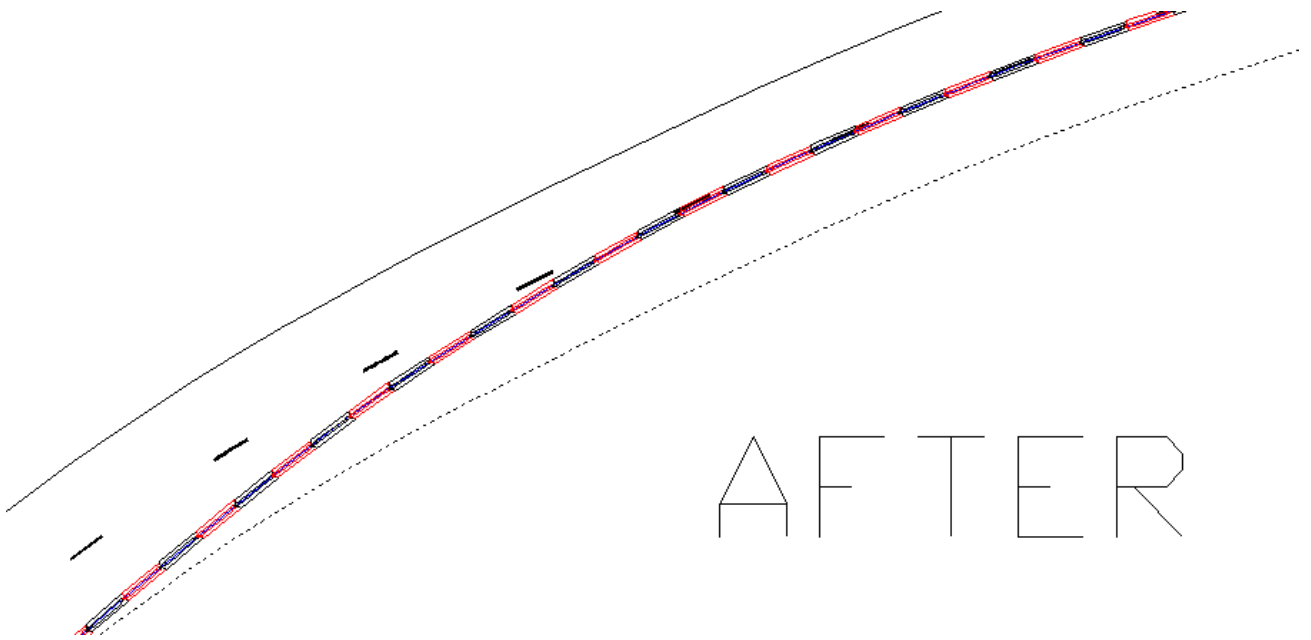
PRE-DRAWN  
POLYLINE



CAD system prompts below:

**Command:** Select Object Curve (Line, Polyline ,Arc or Circle) *Select a pre-drawn object curve*

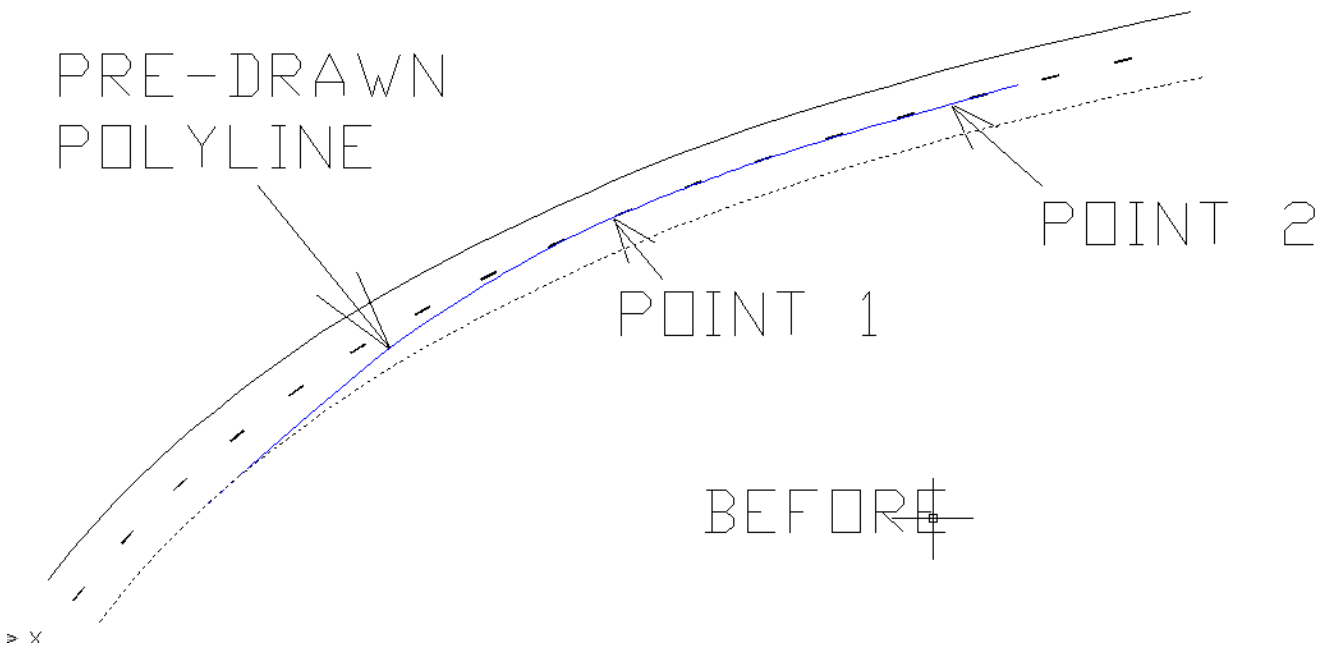
**Command:** Pick First Point or key <F>ull use the full length: F *Enter F*



**Example 2: Cones 2.5 metre spacing**

Real Sizes

Select OK button

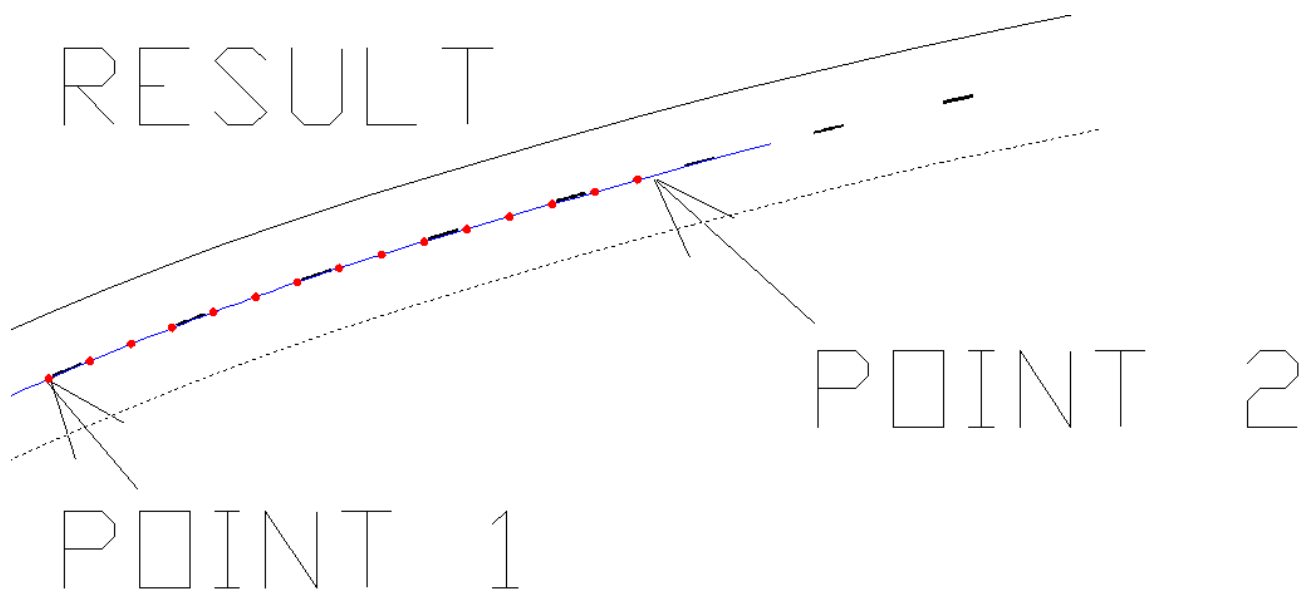


CAD system prompts below:

**Command:** Select Object Curve (Line, Polyline ,Arc or Circle) : *Select a pre-drawn object curve*

**Command:** Pick First Point or key <F>ull to cone use the full length: *Pick point 1*

**Command:** Pick Second Point: *Pick point 2*



### Example 3: User Defined Objects

The User Defined Objects option allows you to place ANY object(s) along a curve  
If you select this option the program will prompt you to select some pre-drawn objects

Command: UKDEVICES

Select User Defined Objects to align to a curve:

Select entities:

*Use normal CAD selection methods to select objects and press the enter key when done selecting*

The program will now prompt you to pick the object alignment point and offer the centre of the objects as the default point

Pick object alignment point [default is centre of objects] <91921.3179,90186.4544>:

*Press the enter key to accept the default point or pick a point of your choosing*

The program will calculate the length of the objects and prompt you to enter the gap between the objects

Object Length = 3 - Enter the gap between objects on the curve <0>:

*Enter the desired gap, if you want the object to line up end to end then enter 0 as the gap*

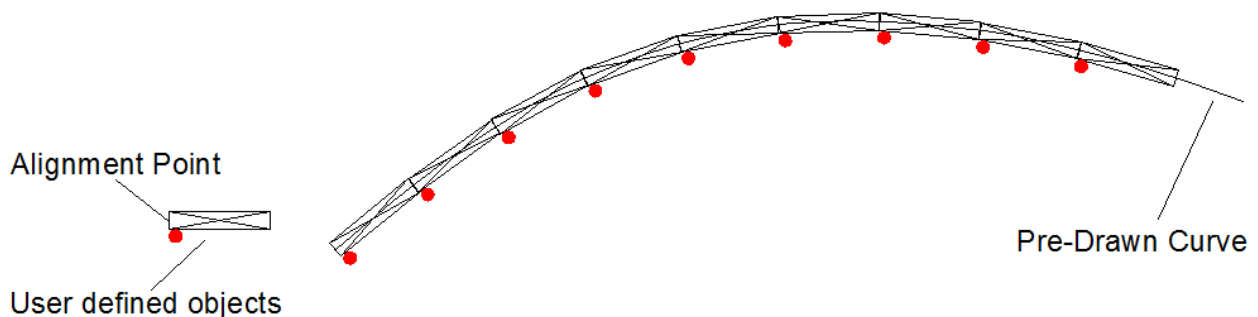
Finally you will be prompted to:

Select Object Curve (Line, Polyline ,Arc or Circle) *select a curve*

Pick First Point or key <F>ull to use the full length: *enter F for full length or pick 2 points along the curve*

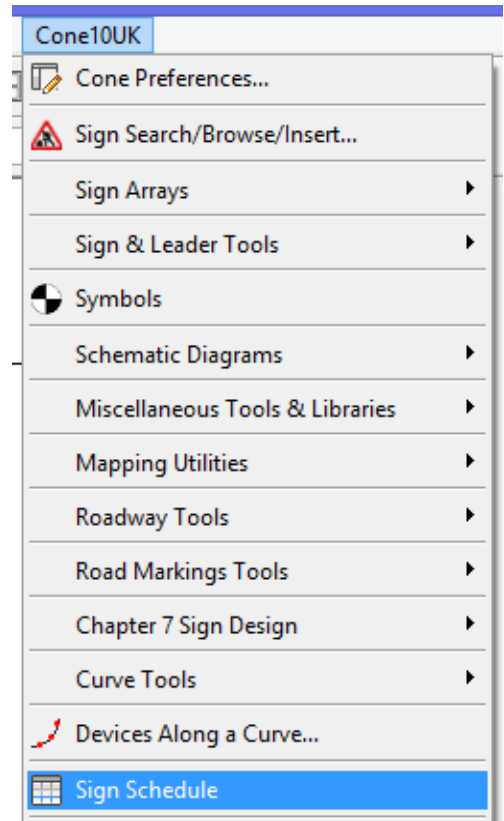
See example below:

In this case the alignment point selected was the left middle point on the rectangle



## Sign Schedules

The Sign Schedule tool creates a quantified list of signs complete with Reference, Description and an image of the sign



To create a Sign Schedule, select the Sign Schedule tool

The CAD system prompts:






**Command:** QASCHEDULE

**Command:** Select signs <Any Method> to include in this schedule:

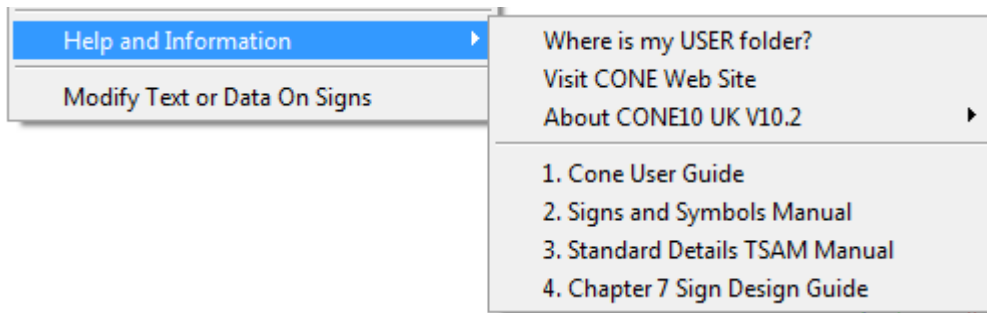
Now select the signs to include, the program will ignore anything that is not a CONE sign

Then when prompted place the schedule

**Command:** Pick the Top Left Corner of the Schedule Insertion Point :

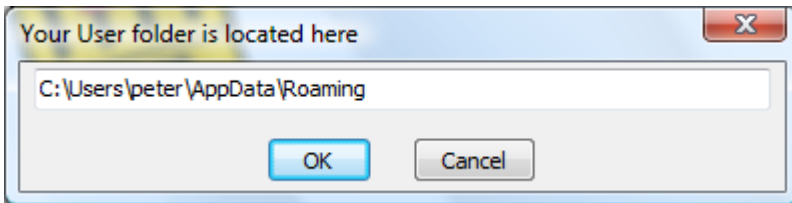
QTY: 5      REF: 7105 Lane closure barrier	
QTY: 4      REF: 7001 Road works ahead	
QTY: 2      REF: 543 Traffic signals ahead	
QTY: 2      REF: 645 End plate	
QTY: 8      REF: 610 Keep left	

## Help and Information



The Help and Information menu item displays the CONE version , contact details and provides a link to the [www.conesoftware.com](http://www.conesoftware.com) web site.

The **Where is my USER folder** topic when selected displays the path to the user folder on your hard disk used by CONE to store various User created data



The four numbered links shown below open PDF versions of the Cone manuals:

- 1 Getting Started Manual**
- 2. Signs and Symbols Manual**
- 3. Standard Details – TSAM Manual**
- 4. Chapter 7 Sign Design Guide**

When selected these will open up in Adobe Reader

## Modify Text or Data On Signs

Command: CMODSIGN

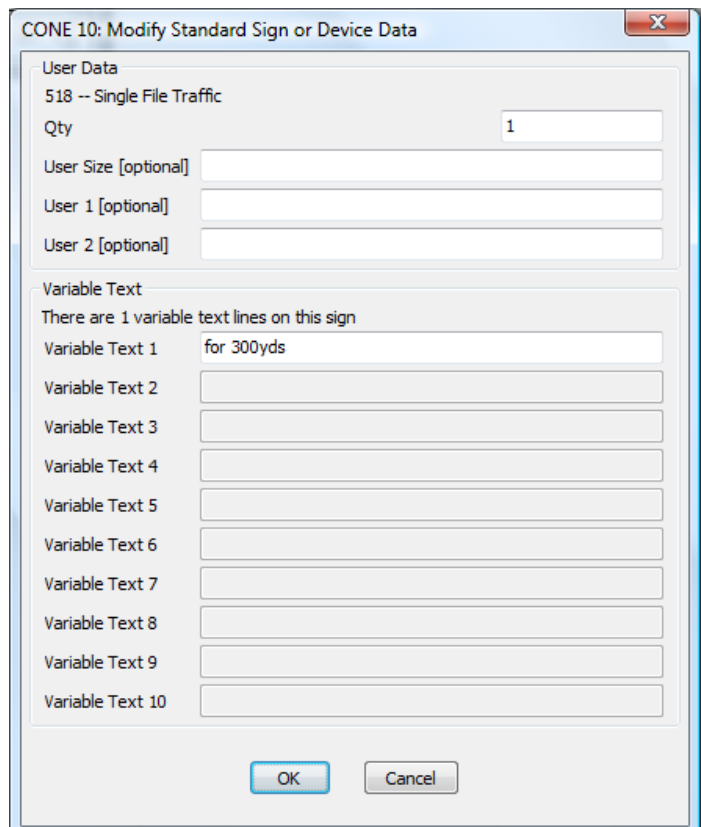
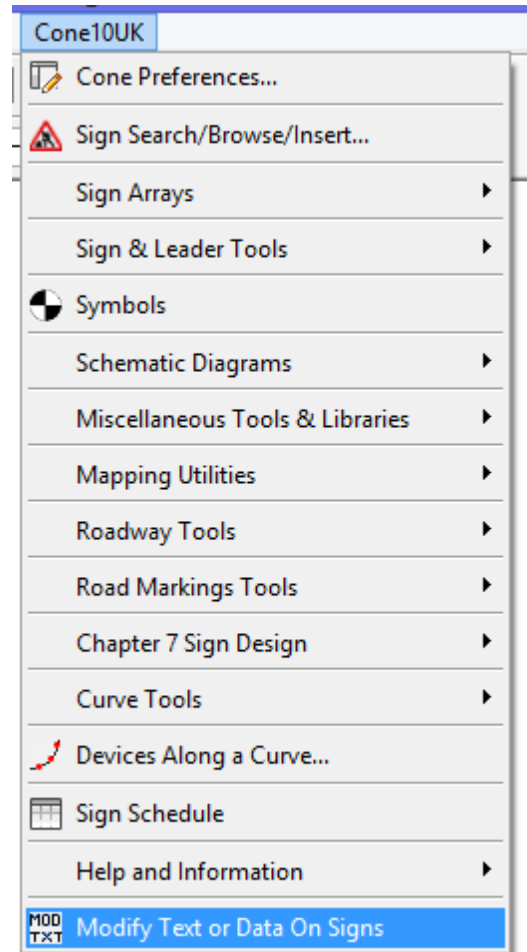
Select a CONE sign or device: *select a CONE sign (on its edge)*

This tool allows you to change the variable text on signs that have variable text.

The tool can also be used to change the quantity (for sign schedule purposes) of signs to be used at a location

Change the text as required; please note entering longer text will not update the width of the sign.

Select the **OK** button to update the sign, or Cancel to ignore any changes.



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Web: [www.conesoftware.com](http://www.conesoftware.com)