# AUTOCAD CIVIL3D 2018

AutoCAD Civil3D is used in conjunction with the CGS template, Field Codes, Figure Prefix Database and Linework Code Sets created by the City's CADD Technician. These different components are essential in producing the specific CAD drawings that meet The City of Greater Sudbury's quality standards.

## CREATE A NEW JOB IN J:\SURVEYS\ONGOING CIVIL3D SURVEY PROJECTS

In J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS create a new job if you have not already done so.

- Click on 'new folder'.

- In BLOCK CAPS name the job exactly how it appears on the Survey Work Order, for example, 'WALFORD RD-REGENT TO PARIS 3D'. 3D is added to the end of the name

- Press enter

Copy the empty CORRESPONDENCE and DATA COLLECTOR FOLDERS folder into the job folder by following the steps below.

- Highlight the empty CORRESPONDENCE folder

- Hold down the CTRL button and click on the DATA COLLECTOR FOLDERS folder.

- Put the cursor over the two files and right click, then click copy.

- Double click on the working folder to open it.

- Right click and paste the folders into the job folder.

There will be a new folder created for each drawing sent to Drafting and Design. A main 3D CAD drawing, a 2D CAD drawing using the text file from the main 3D drawing, a BAR drawing in 3D and if the buildings are not included in the main 3D drawing then a separate drawing will be created in 2D. If the buildings have been tied-in around the entire building then the buildings will be on the main 3D drawing. If only a few corners have been tied-in and the buildings are manually measured with a cloth tape, then the buildings must be drawn in AutoCAD in 2D. See J:\SURVEYS\SURVEY PROCEDURE MANUAL\25-1 BUILDING MEASUREMENT PROCEDURE.

# HOW TO EXPORT POINTS FROM DATA COLLECTOR

- In SurvCE, be sure to be in the survey job folder that the points will be exported from

- under the FILE tab:

    - Tap Import/Export

    - Tap Export Ascii File

    - Change the range of shot numbers to be exported, for example, 10000-10237

    - Highlight the shot numbers by holding your finger on one side of them and swiping toward the other end of the name.

    - Press CNTL, then press C to copy shot numbers to be used as the file name

    - Tap checkmark

    - Tap the file name window at the bottom of the screen and press CNTL and then press V to paste the .txt file

    - Tap checkmark

    - Tap OK

# HOW TO COPY THE EXPORTED .TXT FILE TO THE COMPUTER

- Connect the data collector to the computer with the USB cable

- Windows mobile starts up

    - Click CONNECT WITHOUT SETTING UP YOUR DEVICE

    - Click FILE MANAGEMENT

    - Click BROWSE CONTENTS OF YOUR DEVICE

    - Double click C: drive and navigate to the survey job folder

    - Double click to open it

    - Highlight the .txt file that was exported and press CNTL C or right click copy, to copy it
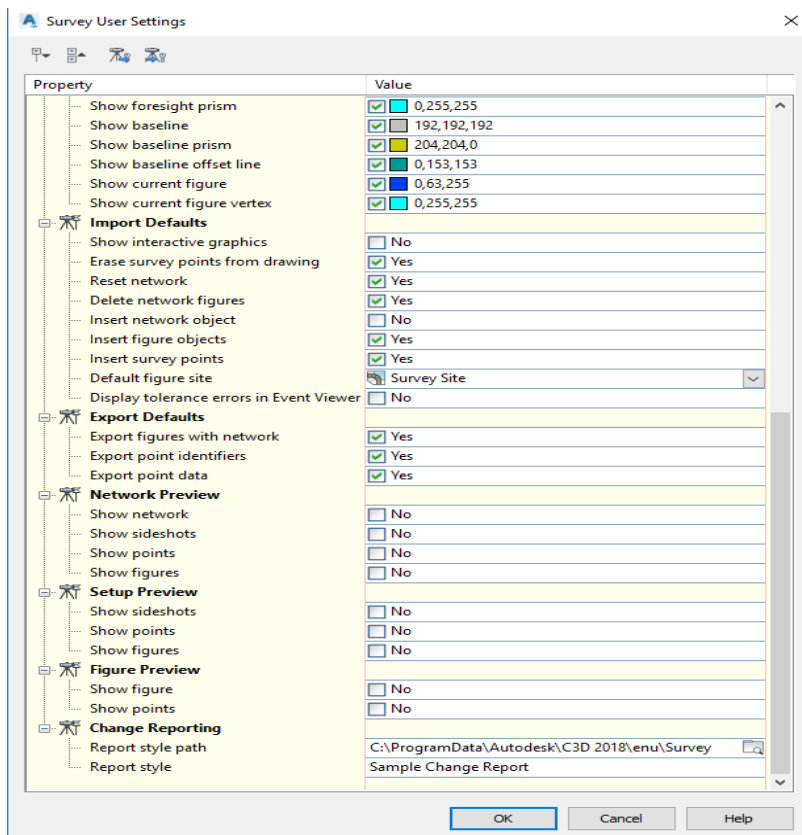
- Open J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS and navigate to the job created in the computer, double click to open it

    o Left click in the window and press CNTL V or right click paste, to paste the .txt file to the computer

    o Close the data collector window and minimize Windows Mobile

- Highlight the .txt file by clicking on it once then put the cursor over the file and right click then click copy.

- Move the cursor to the blank area of the page then right click and click paste. This creates a copy of the .txt file.

- Now you will name the copy of the text file the same name as the survey job folder, for example, WALFORD RD-REGENT TO PARIS.txt, this allows there to be an unedited copy of the original text file in the job folder. We will refer to this as the main CAD drawing text file.

- All future text files exported to the job folder will remain named as the corresponding shot numbers and the contents of each of those files will be added to the main CAD drawing .txt file in numerical order.

## CIVIL3D SURVEY IMPORT PROCEDURE

**This procedure only has to be done once** on a computer system to set up the paths for the Survey Database, Linework Code Sets and the Figure Prefix Database under the Survey User Settings.

- Under the Survey Tab, click on Edit Survey User Settings icon in the top left corner of the Toolspace window. This is located just above the Survey Databases icon in the grey portion of the window.
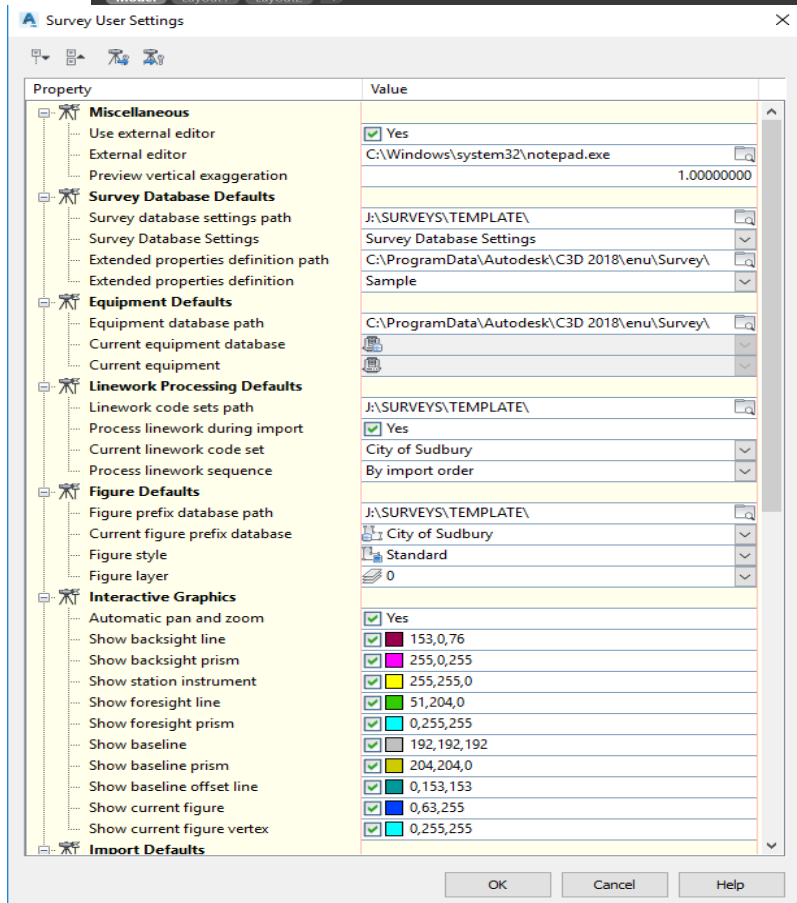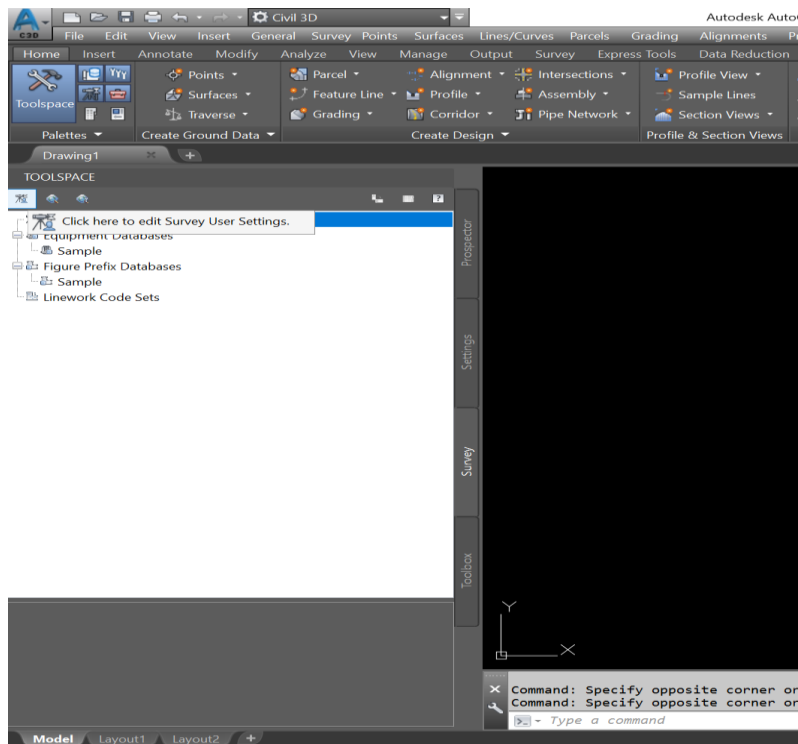
Set the path for the working folder to J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS. Right click on Survey Databases then click on set working folder

- Navigate to J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS and highlight the folder
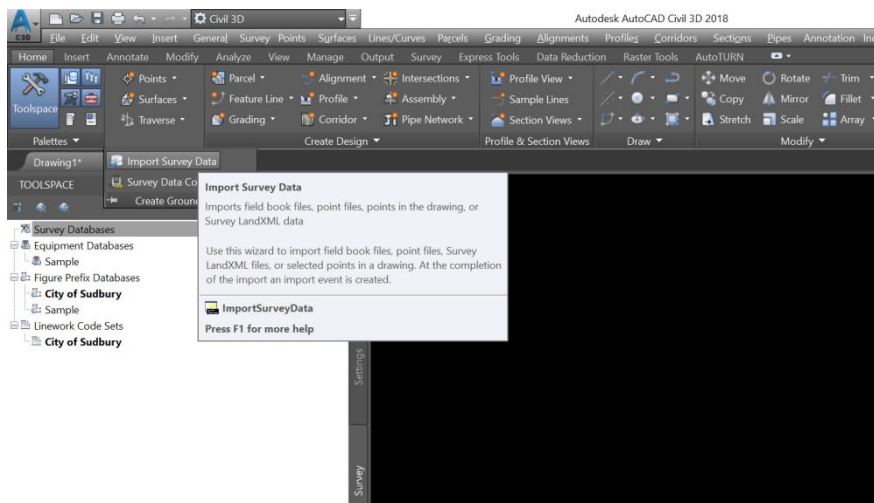
- Click ok
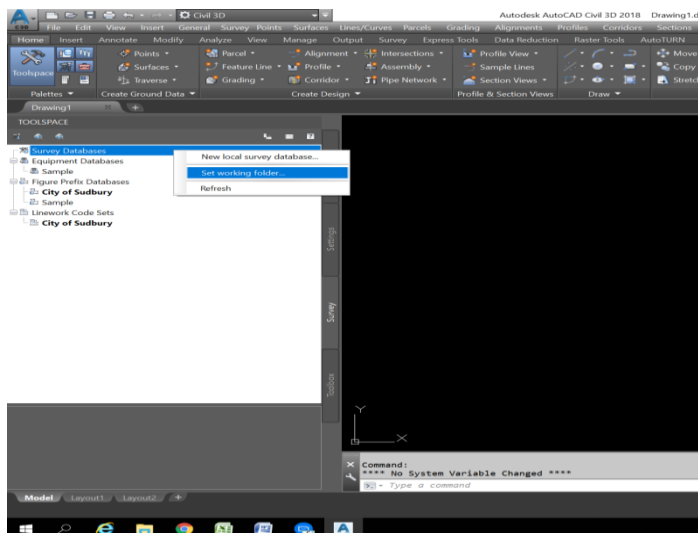
# CREATE A NEW DRAWING IN CIVIL3D

The most current template can be found in J:\SURVEYS\TEMPLATE

- Open Civil3D, click FILE, click NEW

- Highlight the newest survey template, click Open

- Click FILE, click SAVE AS

- In the drop down box, navigate to the new job that was just created in J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS folder

- Click once on the job name, pause, click again to highlight it in blue

- With the cursor over the highlighted name, right click copy

- Click off the job name to deselect it, double click back on the job folder to open it. The CORRESPONDENCE and DATA COLLECTOR FOLDERS folders will be visible.

- Click in the file name box at the bottom of the window.

- With the cursor over the area just highlighted, right click and paste

- Add 3D to the end of the drawing name

- Click SAVE.

This names the drawing exactly the same as the job you created in your J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS with 3D added to the end of the name. There are 3 additional files created in addition to the drawing file; Survey.sdbx, Survey.sdbx.info and Survey.SDXX. These files should be in the same folder with all the drawing files.

- Under the home tab and from the drop down Create Ground Data palette, click on Import Survey Data
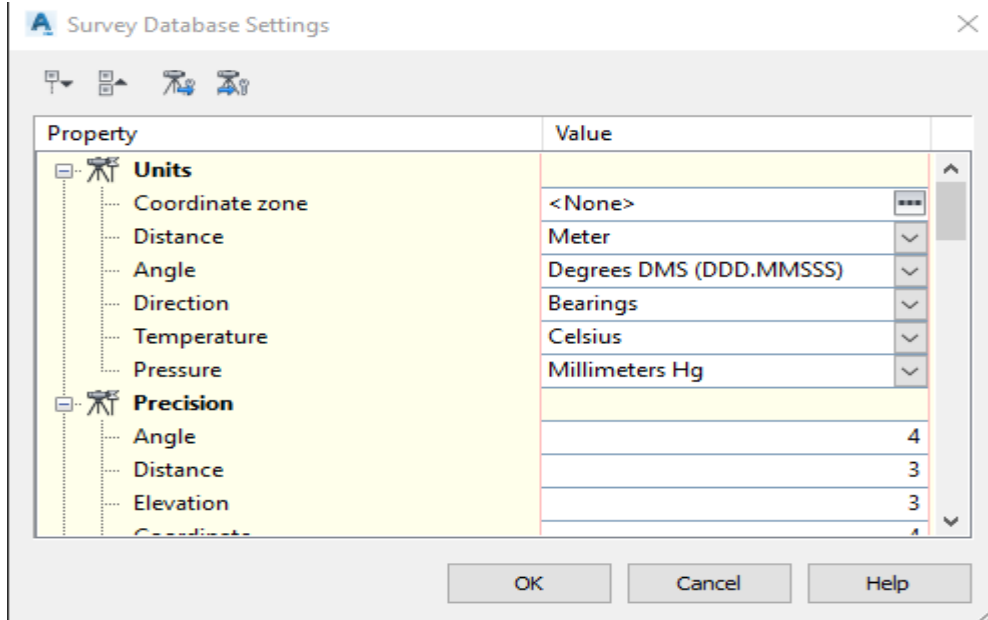
- **Under Specify Database**

- Click Create New Survey Database and give it the exact same name as the job folder.
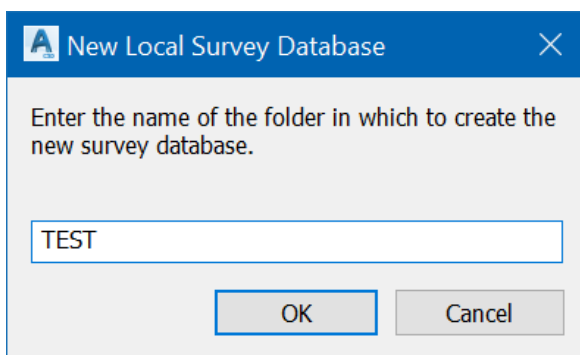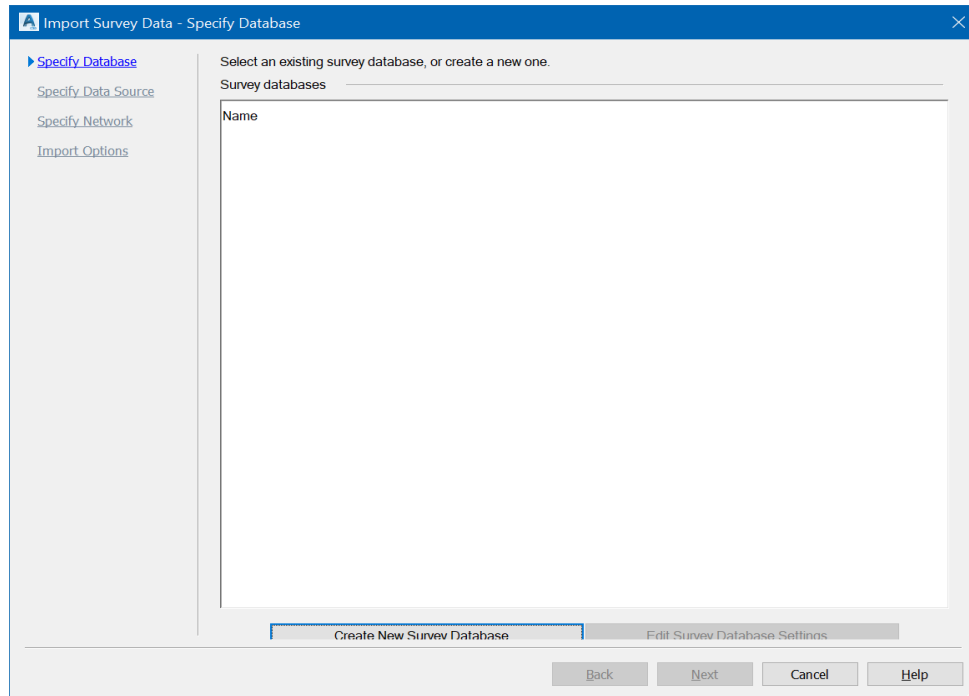




- Click Edit Survey Database Settings

- Ensure the following settings below are in the correct field



- CLICK OK

- CLICK NEXT

- **Under Specify Data Source**

- Under Data Source Type, choose Point File (text file)

- Under Selected Files, click on the PLUS sign to the right and navigate to your text file and select it then click open

- Under Specify Point File Format, choose PNEZD (comma delimited) format

- CLICK NEXT

Under **Specify Network**, leave this blank
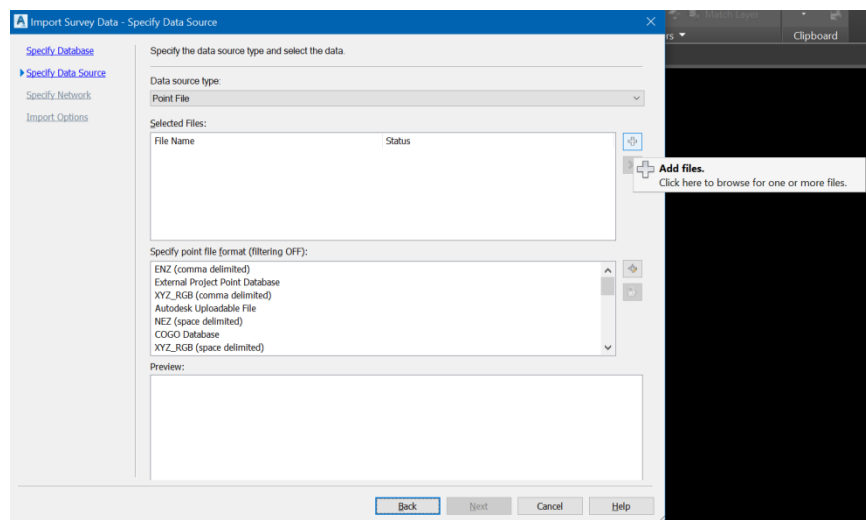
- CLICK NEXT

- Under **Import Options**, ensure settings are as shown below



CLICK FINISH

The drawing will now be created and if there are any problems with the drawing creation, an **event viewer window** will open after the drawing is created. These events should be looked into and/or edited before anything else. If you close this window it can be re-opened. Under the Home tab click on the Palettes palette then click on the Event Viewer Icon. The icon looks like a triangle with an exclamation point and a magnifying glass in it.

SAVE YOUR DRAWING

## HOW TO EDIT POINTS ON THE CAD DRAWING

Check the CAD drawing for events or errors in coding in the Event Viewer Window that appears after reducing a drawing. While viewing the drawing, lines may cross where they shouldn't or lines may join to other lines where they shouldn't. Edits are made to the .txt file to correct these errors.

- In J:\SURVEYS\1-ONGOING CIVIL3D SURVEY PROJECTS open the job folder then open the main .txt file and make edits, close and save the .txt file then re-import drawing.

After edits have been made to the .txt file, the CAD drawing is re-imported to apply the changes made. Check the revised drawing and make more edits if necessary. Once the drawing is correct**, save it.** This drawing will be saved as the 3D drawing using the 3D CAD File Naming Format, for example, JOB NAME_2017-06-12_DET_3D_CSRS_Z81.

Two drawings are sent to Engineering, one in 3D and one in 2D, along with the 3D .txt file.

## HOW TO RE-IMPORT DRAWING AFTER EDITS TO TEXT FILE

After the CAD drawing is imported for the first time, you will have to make edits to the main CAD drawing .txt file in order to make corrections on the drawing. Be sure the .txt file is saved and closed after the edits are made and before proceeding.

- In TOOLSPACE under the Survey tab, click the plus sign to the left of Import Events. The name of the survey project will appear under Import Events.

- Put cursor over the project name.txt file and right click then choose **re-import** from the drop down menu. The re-import window appears, click OK.

- In the bottom right corner of the AutoCAD screen it shows a bar that shows the progress of the re-import as it deletes the drawing and creates a new one.

- The duplicate point number screen appears. Choose overwrite and click on check box to apply to all duplicate point numbers, then click OK.

- Click on Prospector tab then click on points. This shows all the points in the survey project in the window at the bottom of the TOOLSPACE. Right click on Point Label Styles then click on edit.

- The Select Label Style window will appear. From the drop down menu select None then click OK.

- Click on QSAVE icon on top left corner of CAD window to save the drawing.

- Repeat these steps each time you make edits to the main CAD drawing .txt file.

# HOW TO ADD POINTS TO AN EXISTING CIVIL3D DWG IN THE COMPUTER

Once the main CAD drawing is created, you will usually need to add to this main drawing each day until the survey is completed.

- As described on page 1 & 2 above, export from the data collector the new text file for that days surveying and name it the same as the shot numbers taken that day, for example, 10238-10474.txt

- Copy this text file to the main job folder with the CAD drawing and other text files from the data collector.

- Open the main job folder in the computer and then open the main CAD drawing .txt file.

- Open the text file just exported from the data collector.

- Press control A to select all points or using the mouse, highlight in blue the points you want to copy over to the .txt file and press control C to copy or right mouse click copy

- Click on the main CAD drawing .txt file window that is already open and put cursor at precise point where the points are to be inserted in numerical order.

- Paste the points in the main CAD drawing .txt file by pressing control V or right click paste with the mouse.

- Save the .txt file by clicking file save or close the file and you will be prompted to save, click yes and close both .txt files.

- Open the drawing in Civil3D and **re-import** the drawing with the new points added to the .txt file. These new points will now appear on the drawing.

- Edit the points in the main CAD drawing .txt file as usual. Be sure to save and close the file.

- To re-import the drawing, click on the plus sign to the left of Import Events. The text file for that drawing will appear. Right click on the text file name then click re-import, click OK then click in checkbox to overwrite all duplicate points as described in previous section above.

- If this does not work, there will be a **red icon** beside the name of the Survey Database which means it can't be edited. Right click on the name of the survey database then click

**close survey database**. Right click on the survey database name again then right click **open for edit**.

- The text file for that database will appear under import events. You can now open the text file for the drawing and make edits.

- When the project is complete and all edits are done to the drawing, be sure to turn off all Point Label Styles and then **type regen in the command line** to ensure all custom linetypes display properly on the drawing.

- Save the drawing when the project is completed and add the corresponding 3D File Naming Format to the existing name.

## HOW TO CREATE A 2D CAD DRAWING

When the 3D CAD drawing is completed and saved, create a 2D CAD drawing that will be sent to Drafting and Design with the 3D drawing. In J:\SURVEYS\ONGOING CIVIL3D SURVEY PROJECTS create another new job folder with the same name and change the 3D to 2D at the end of the name.

- Click on 'new folder'.

- In BLOCK CAPS name the job exactly how it appears on the Survey Work Order, for example, 'WALFORD RD-REGENT TO PARIS 2D'. 2D is added to the end of the name

- Press enter

- Make a copy of the 3D main CAD drawing text file in this new working folder and change 3D to 2D at the end of the name.

- Change the file extension from .txt to .csv

- Click yes when asked if you want to change it

- Double click on the file to open it in Excel.

- Highlight the first elevation in the elevation column and change the elevation to zero (0)

- Pick the bottom right hand corner of that box until you see a thin solid black plus sign

- Press and hold down the mouse button and drag it to the bottom of the elevation column.  Zero will appear in that column from top to bottom.

- Highlight the Northing, Easting and Elevation columns and choose increase decimal points so each column has 3 or 4 decimal points. (minimum three)

- Click the X to close the file and say yes to all the prompts

- Rename the .csv file extension back to .txt

- Create a Civil3D drawing with the 2D text file. This will be done in the same job folder.

- Follow steps in pages 5 to 13 above on how to create a Civil3D drawing.

- Remove all Point Labels before saving and closing the drawing. See next section below.

- In TOOLSPACE under the Survey tab, under Import Events, right click on the 2D text file then click delete.

- In J:\SURVEYS\ONGOING CIVIL3D SURVEY PROJECTS right click on the 2D job folder and cut and paste it inside the 3D job folder.

- Use the correct 2D file naming format to name the drawing. The 2D text file **does not** need to be sent to Drafting and Design. Send only the 2D drawing, 3D drawing and 3D text file.

## HOW TO EDIT POINT LABELS IN DATA REDUCTION

The drawing is much easier to see if none of the Point Labels are visible on the drawing.

If the Toolspace window is not visible on the left side of the drawing in Civil3D:

- On the command line in Civil3D, type toolspace and the window will appear on the left side of your drawing.

If the Toolspace window is visible:

- Click on PROSPECTOR tab on the right side of the toolspace window.

- Click on the Points

- At the bottom of the screen in the left corner, scroll over to POINT LABEL STYLE, right click in the title bar of that column.

- Click EDIT

- Select NONE or whatever combination you want to show up on the drawing. Turn off all Point Labels before doing the last save and before sending the drawing to Drafting and Design.

## HOW TO CUSTIMIZE USER INTERFACE

While viewing the drawing, hover over the point with the cursor and a window appears and displays several Point Labels for that point. What appears in this window can be edited by Customizing the User Interface.

- On command line type in CUI

- Click on Rollover Tooltips

- Click on Cogo Point Information

- Check off the items in the list to be visible when the cursor hovers over a point in the drawing.

- Under Information check Point Number and Raw Description, and under Geometry check Point Elevation. Click Apply then click OK.

- When you hover the cursor over a point on the CAD drawing this allows you to see Point Number, Layer, Description, Easting, Northing, Elevation and the Raw Description which is the exact code the surveyor used in the field.

# HOW TO GRID SHIFT A DRAWING FROM Z53 TO Z81

- open GRID SHIFT drawing in AutoCAD. Drawing can be found in J:/SURVEYS/CITY MAP DRAWINGS.

- in GRID SHIFT drawing highlight one of the white lines by clicking on it

- in the command line, type COPYBASE then hit enter

- in the command line, enter 0,0,0 for base point then hit enter

- open the drawing that is to be shifted

- in the command line, type PASTEBLOCK then hit enter

- in the command line, enter 0,0,0 then hit enter

- type ZOOM EXTENTS in the command line then hit enter

- tag a white line again and type a EXPLODE then hit enter

- type PROPERTIES in the command line then hit enter, this opens properties dialog box

- tag the white line again

- in the dialog box under GEOMETRY make sure start Z=0 and end Z=0 then hit enter

- press escape to deselect white line

- tag white line again to make sure start and end Z=0

- close the PROPERTIES dialog box

- type MOVE in the command line then hit enter

- select drawing items to move by using the blue selection box then hit enter

- press CTRL then right mouse click then click on END POINT

- scroll in to South end of white line and click to select point

- scroll out so you can see North end of the white line

- press CTRL then right mouse click, click on ENDPOINT then click on the other end of white line, click on white line, tap delete to erase white line, save your new drawing.