

## Survey File Graphics, DTM Creation, Survey ALG file

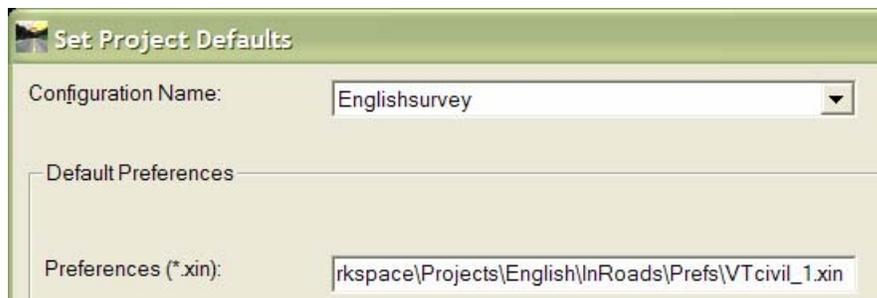
### General Setup:

1. Open up MicroStation and InRoads Survey. Open the VTrans English 3D seed file. Save this file as xPPMSsv.dgn in project survey folder.
  - MicroStation resource files are located on network drive and are attached automatically when you use the ENGLISH project configuration.
  - If using the off network configuration MicroStation resource files will load when you use the VTransEng project configuration.

### Preferences:

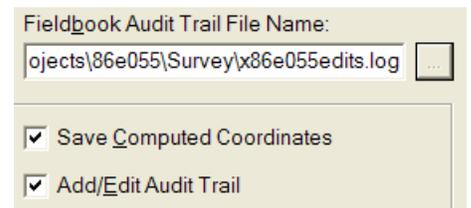
T:\CADD\Workspace\Projects\English\InRoads\Prefs\VTcivil\_1.xin

C:\Program Files\Bentley\Workspace\Projects\VTransEng\InRoads\Prefs\VTcivil\_1.xin



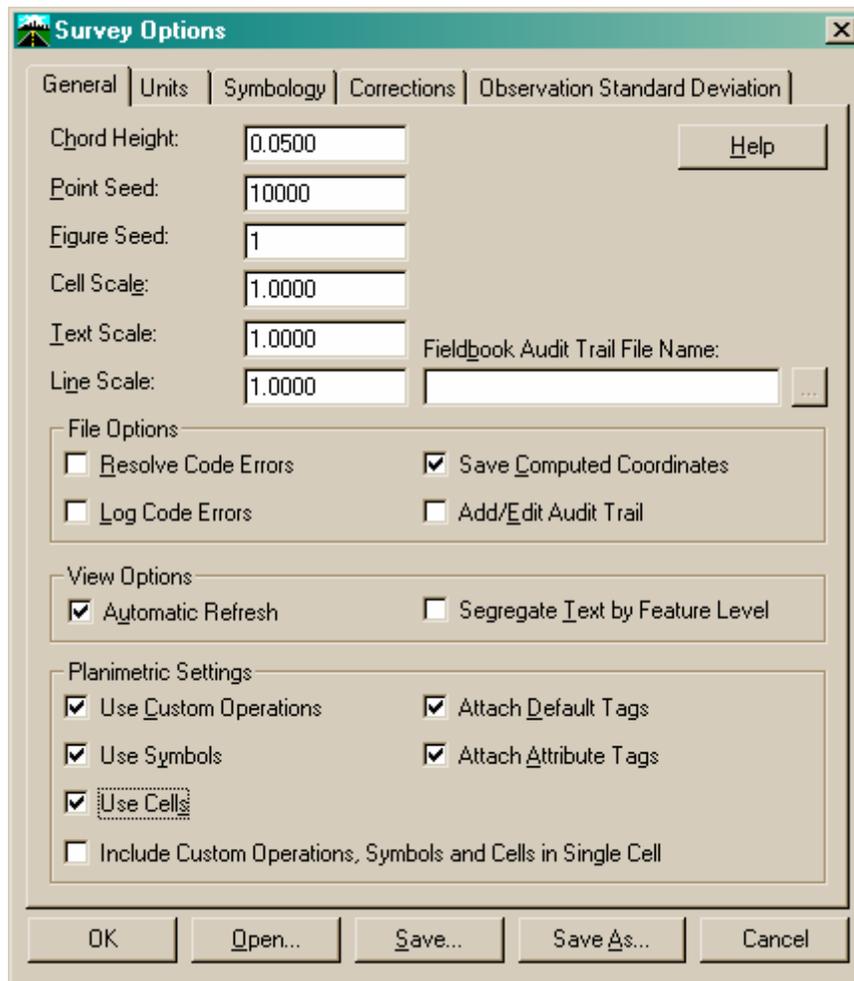
2. File > New > Survey Data > Name: (xPPMSog).
3. Tools > Survey Options: enter the PPMS number in the Fieldbook Audit Trail file name; in the [...] button choose a location for this file (ie. Project folder)
4. Import Survey Data: File > Import > Survey Data > browse to the RW5 or RAW file you are importing click on the file click import and close.

- The Survey data is loaded. Now you can review the data on the screen and in the field book. You can make changes to the field book as required. Audit Trail must be activated in the Survey Option Dialog before any edits are made (also set the file name).

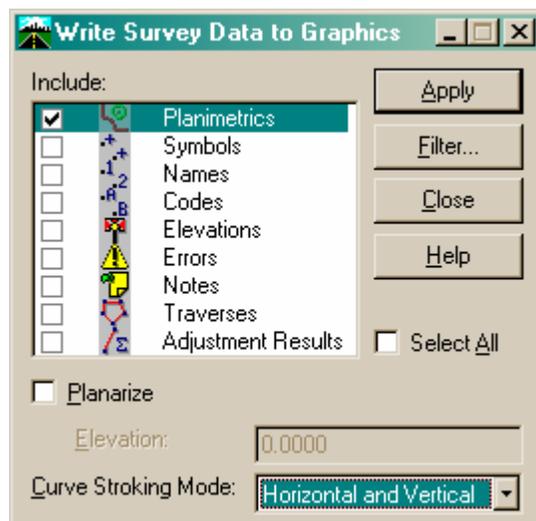


- All edits must be recorded in the audit trail.
- Saving the Field book: File > Save > Survey Data. Save the FWD file to the project survey folder using the VAOT standard file naming conventions.

**Survey File Graphics: (Metric Scale Factor 0.3048006 see page 5 of 5)**



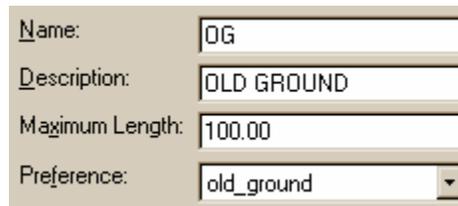
1. Survey > View Survey Data > Turn off all on display of survey data.
2. Tools > Survey Options > General Tab > check on use custom operations > check on use cells > OK.
3. Survey > View Survey Date > Write Survey Data to Graphics.
4. Check on > Planimetrics, all other option are off.



5. Apply > Close
6. MicroStation View fit view
7. Make sure all levels are on.
8. Save DGN file to project folder.

**DTM Data Terrain Model:**

1. Toggle on InRoads feature filter lock. 
2. File > New > Surface > OG > Enter a description > Max length 100FT (30m) > Default preference > Apply > Close.



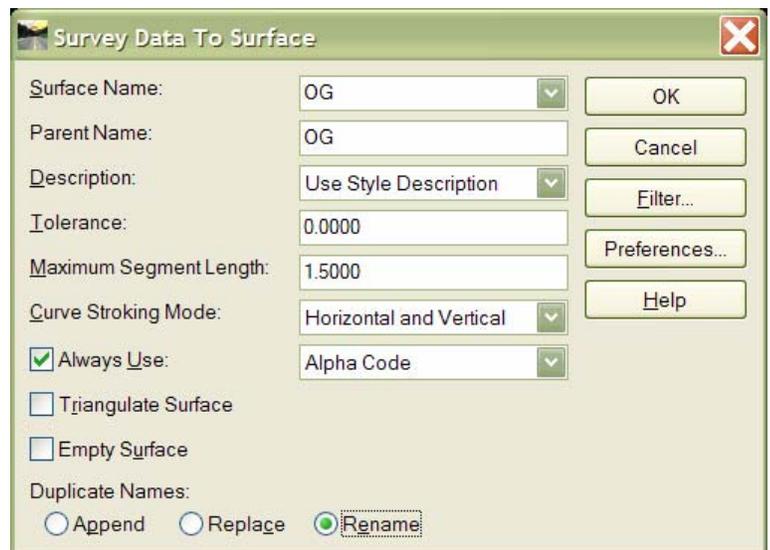
Name:	OG
Description:	OLD GROUND
Maximum Length:	100.00
Preference:	old_ground

3. Under Survey Feature filter set to > 1.5FT(.5m)
4. Survey > Survey Data to Surface:



- 4.1. Surface Name = OG
- 4.2. Parent Name = OG
- 4.3. Description..... = Use Style Description
- 4.4. Tolerance..... = 0.0
- 4.5. Maximum Segment length..... = 1.5FT or (0.5m)
- 4.6. Always > Check on ..... = Alpha Code
- 4.7. Triangulate > Check OFF.

5. Repeat Steps (3 - 4.7) using the 10FT (3m) Filter with a maximum segment length of 10FT or 3m.
6. Repeat Steps (3 – 4.7) using the 100FT(30m) Filter with a maximum segment length of 100FT or 30m.



Surface Name:	OG	OK
Parent Name:	OG	Cancel
Description:	Use Style Description	Filter...
Tolerance:	0.0000	Preferences...
Maximum Segment Length:	1.5000	Help
Curve Stroking Mode:	Horizontal and Vertical	
<input checked="" type="checkbox"/> Always Use:	Alpha Code	
<input type="checkbox"/> Triangulate Surface		
<input type="checkbox"/> Empty Surface		
Duplicate Names:	<input type="radio"/> Append <input type="radio"/> Replace <input checked="" type="radio"/> Rename	

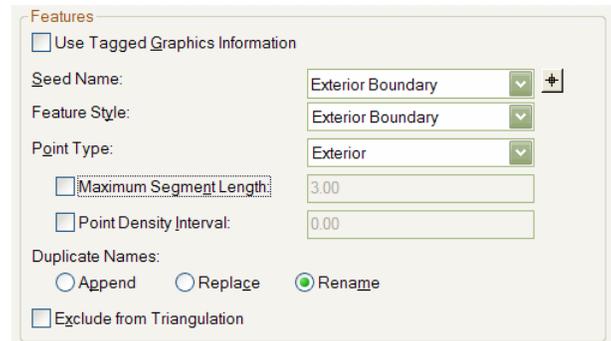
7. Set InRoads filter lock to OFF. 
8. Surface > Triangulate surface > Maximum Length 100 FT (30m).
9. File > Save > Surface > save the DTM to the Project folder. With the VAOT standard file naming convention as defined in the VAOT Standards and Procedure Manual.

**DTM Data Terrain Model Adjustments:**

1. Check the surface for Errors: Surface > View Surface > Crossing Segments.
2. Delete Triangles along the outer edge of the model.
  - 2.1. Write lock on Pencil
  - 2.2. Surface > View Surface > Triangles.
  - 2.3. Surface > Edit Surface > Delete Triangles.
  - 2.4. Work along the outer edge of the Model and delete all triangles that are outside the Surveyed area.

3. Display perimeter graphics Element and import it as the Exterior Boundary feature.

- 3.1. Select the Perimeter Graphical element
- 3.2. Select > File > Import > Surface
- 3.3. Surface: OG
- 3.4. Load From: Single Element (This will load the current MicroStation selection set)
- 3.5. Elevation: Use element Elevation
- 3.6. See Name: Exterior Boundary
- 3.7. Feature Style: Exterior Boundary
- 3.8. Point Type: Exterior
- 3.9. Use the Rename option for any duplicates

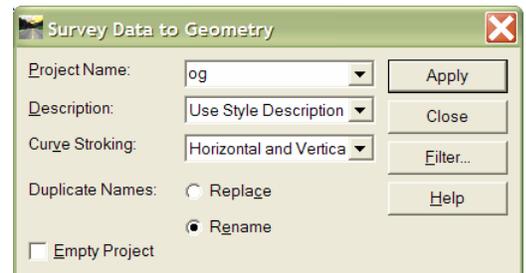


4. Contour and Render surface during the review process as required.
5. File > Save > Surface > save, to save the DTM.

**Survey ALG file:**

1. File > New > Geometry > OG > Enter a description > Apply > Close.
2. Survey > Survey Data to Geometry >
  - 2.1. Project Name.....= OG
  - 2.2. Description .....= Use Style Descriptions
  - 2.3. Curve Stroke.....= Horizontal and Vertical

3. Click > Yes when prompted to append geometry, then close. The ALG file is created.
4. File > Save > Geometry Project (file type to ALG) save to Project folder.
5. File > Save > Geometry Project (file type to ICS) save to Project folder.



**Survey in Metric units:**

The procedure used for a route survey done in metric units. Follow all steps on page 1-4 replacing the English units with the metric units. Measurements in ( ) are metric units see example shown below.

**English (Metric)**  
**100FT (30m)**

**U.S. survey foot = 0.3048006 m.**

When entering in the scale factor for the Cell, Text, and Line you can enter in more digits than will show in the window. InRoads will internally use all digits you type in regardless of the displayed precisions. When MicroStation True Scale is active, Cell Scale and Line Scale will be adjusted accordingly only the Text Scale requires a conversion factor as shown above.

The image shows a screenshot of the 'Survey Options' dialog box in MicroStation, specifically the 'Units' tab. The dialog has four tabs: 'General', 'Units', 'Symbology', and 'Corrections'. The 'Units' tab is active and contains the following settings:

Parameter	Value
Chord Height	0.0500
Point Seed:	10000
Figure Seed:	100
Cell Scale:	1.0000
Text Scale:	0.3048
Line Scale:	1.0000