Survey Points Import

Survey Info & Soil Info · https://mes100.com/docs/survey-points-import/

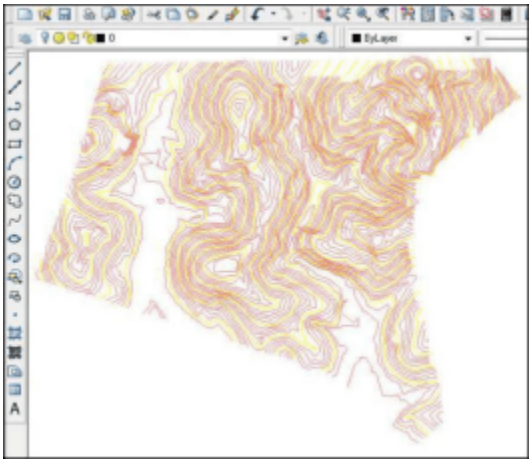
Survey points in MiTS can be imported in CAD drawing, CSV format file, LAS file and Google Earth.

CAD Drawing

MiTS-Earthworks can directly generate an existing ground digital terrain model from the surveyor CAD drawing imported. The surveyor CAD drawing can in ANY of the following form:

1. Contour lines
2. Points
3. Texts

Contour Line

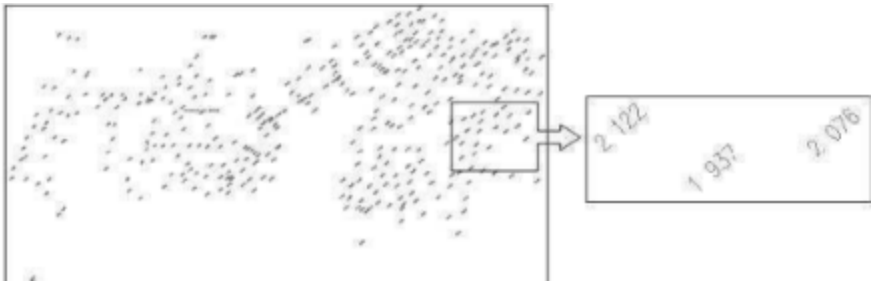


Note:

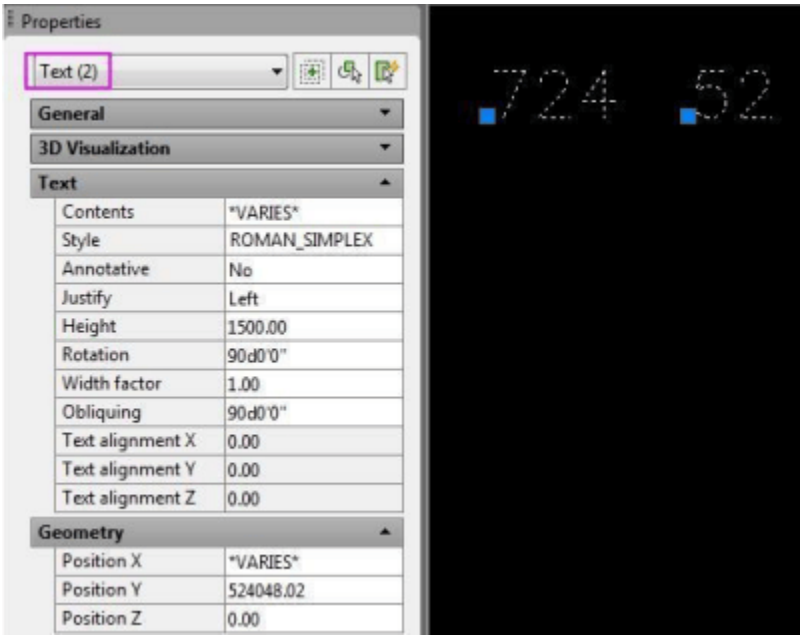
Contour lines that are having incorrect Z value or elevation are not usable.

Text Spot Levels

1. Spot Levels with Single Text



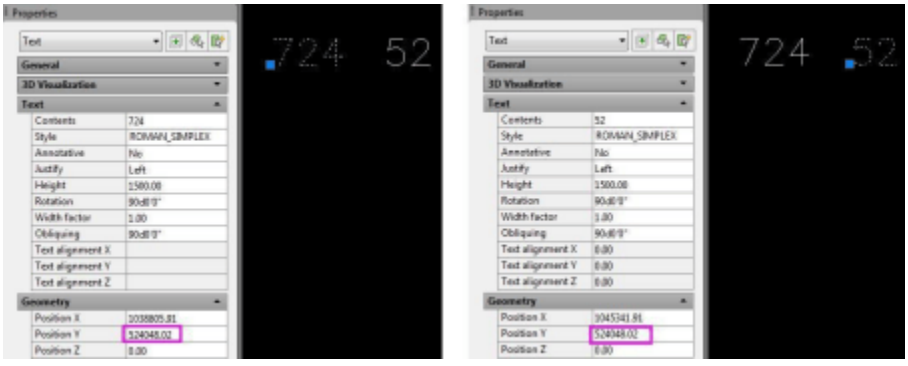
2. Spot Levels with Two Separated Texts



A spot level with two separated texts which fulfil the following criteria will be accepted during survey point import:

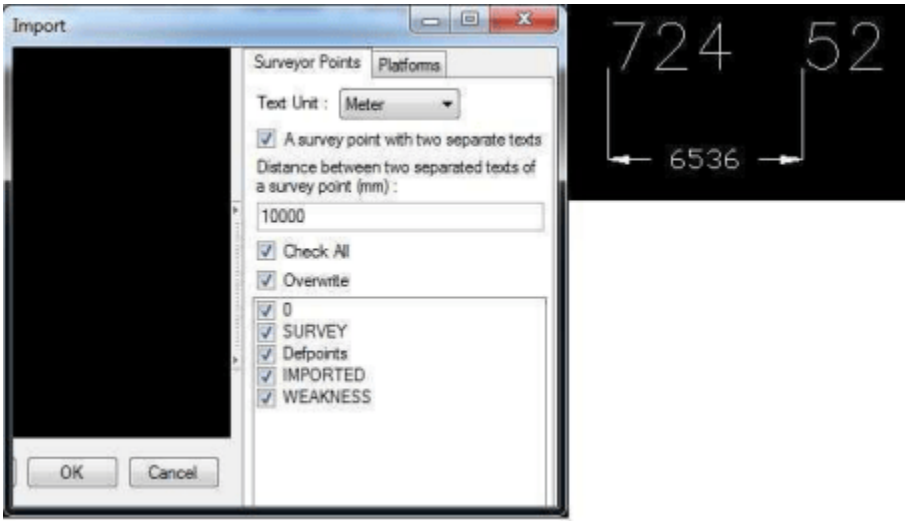
Criteria 1:

The two separated texts of a spot level have the same Y-coordinate.



Criteria 2:

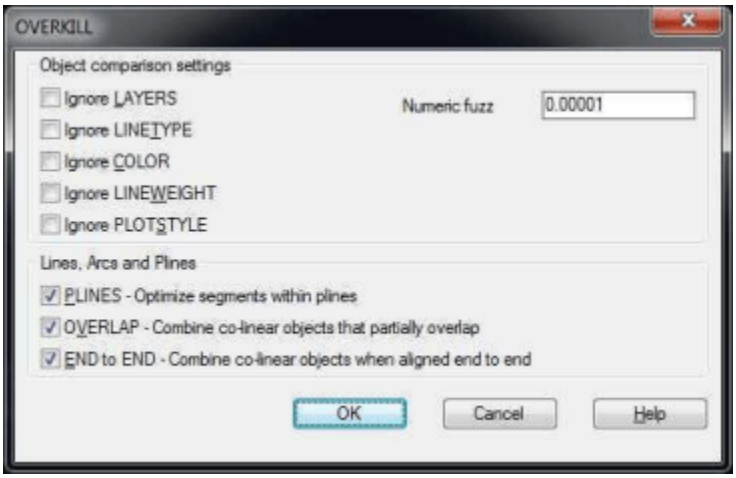
Distance between two separated texts of a spot level is less than or equal to the value specified in setting.



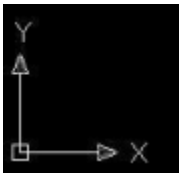
The texts ‘724’ and ‘52’ have the same Y-coordinate . The distance between two separated is 6563mm which is less than 10,000mm, therefore application will regard ‘724’ and ‘52’ as a single spot level.

Touch Up Before Separated Sport Level Import:

Open the drawing in the CAD application, delete overlapping texts. If AutoCAD is used, command OVERKILL can be used to automatically delete overlapping objects.



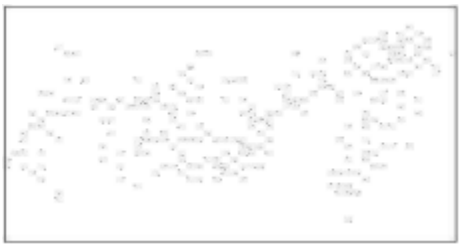
Make sure the user coordinate system (UCS) is as below; not rotated:



3. Text alignment is horizontal.

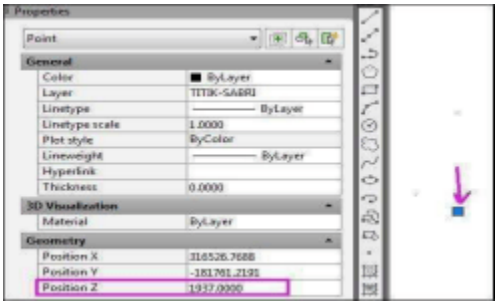


Points



Note:

Points that have incorrect ‘Position Z’ values are not usable.

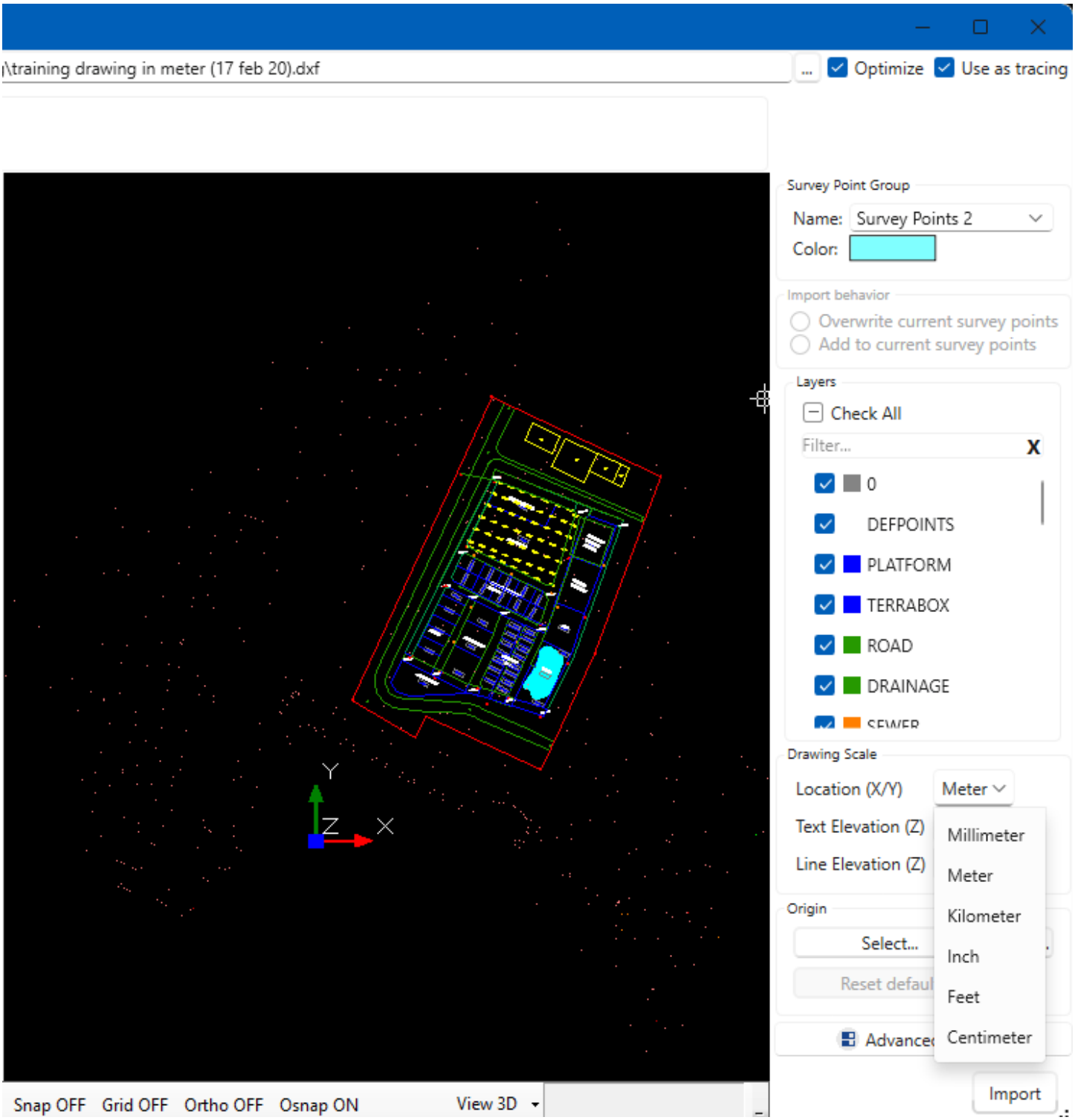


CAD Drawing Import

Prior Requirements for Import

Drawing in Full Scale

The surveyor CAD now can be imported in any scale (mm, m, inch and etc) in order to generate a Digital Terrain Model with a set of true topography data. The import of scaled drawing will lead to generation of mini Digital Terrain Model.



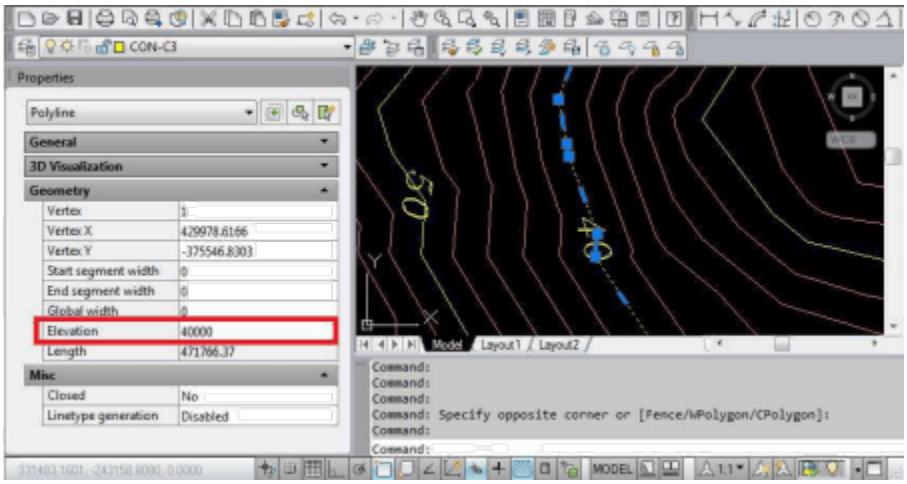
Layers for Import

Users must have prior knowledge of which layers in the drawing are needed to be imported.

Select **ONLY** the layers needed for the surveyor drawing import:

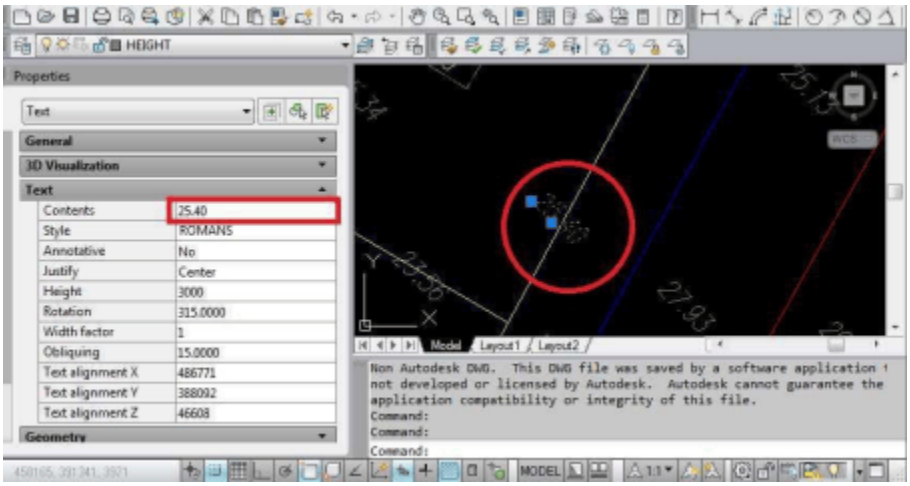
Contour Lines Stored Correct Z Value (Height)

For the drawing with contour lines import, the contour lines must carry correct Z values. Users are advised to have prior checking on the contour lines in CAD program by right-click on the lines and select ‘Properties’ then view the ‘Elevation’ or ‘Z value’ value of the lines.



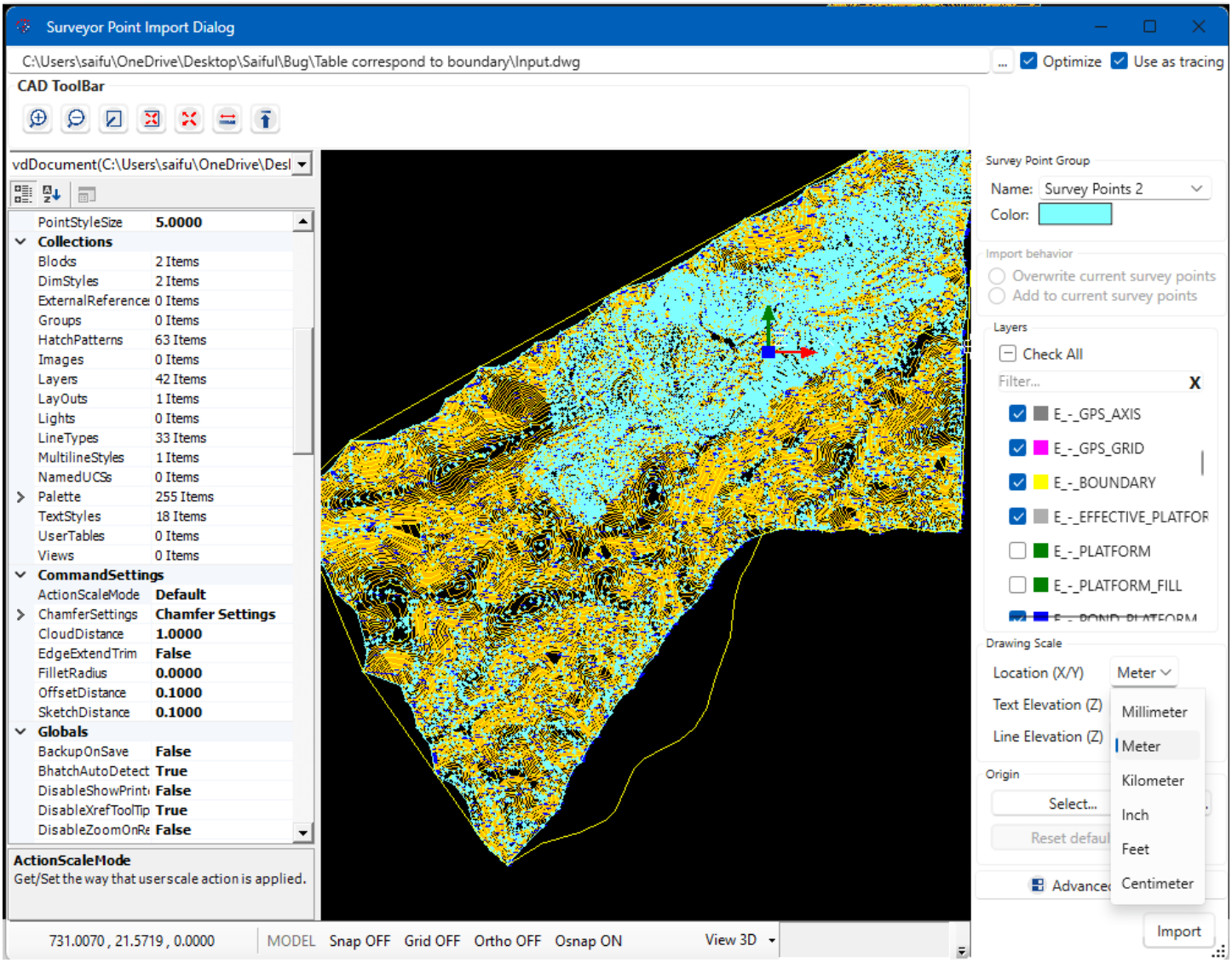
Texts Unit

For the import of drawing with Texts, check the text and make sure the value in the ‘Contents’ is an acceptable numeric or alphanumeric text. (Refer to below)

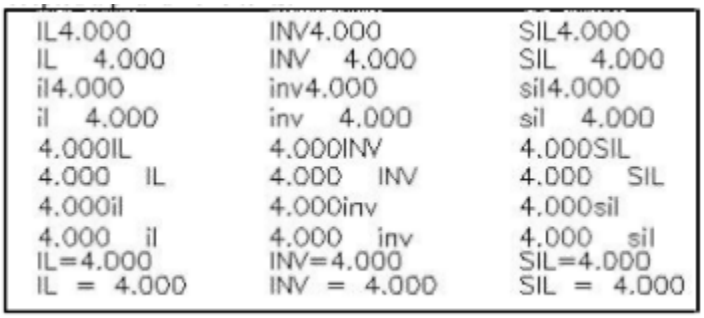


The command ‘FIND’ in the CAD program can be used to replace all the alphabet or symbols to an acceptable format.

There are five unit conversions for Texts; the Texts can be either in millimeter, meter, kilometer, inch or feet in the drawing. Application will only accept and import IL, INV, and SIL alphanumeric texts, the rest will be discarded.

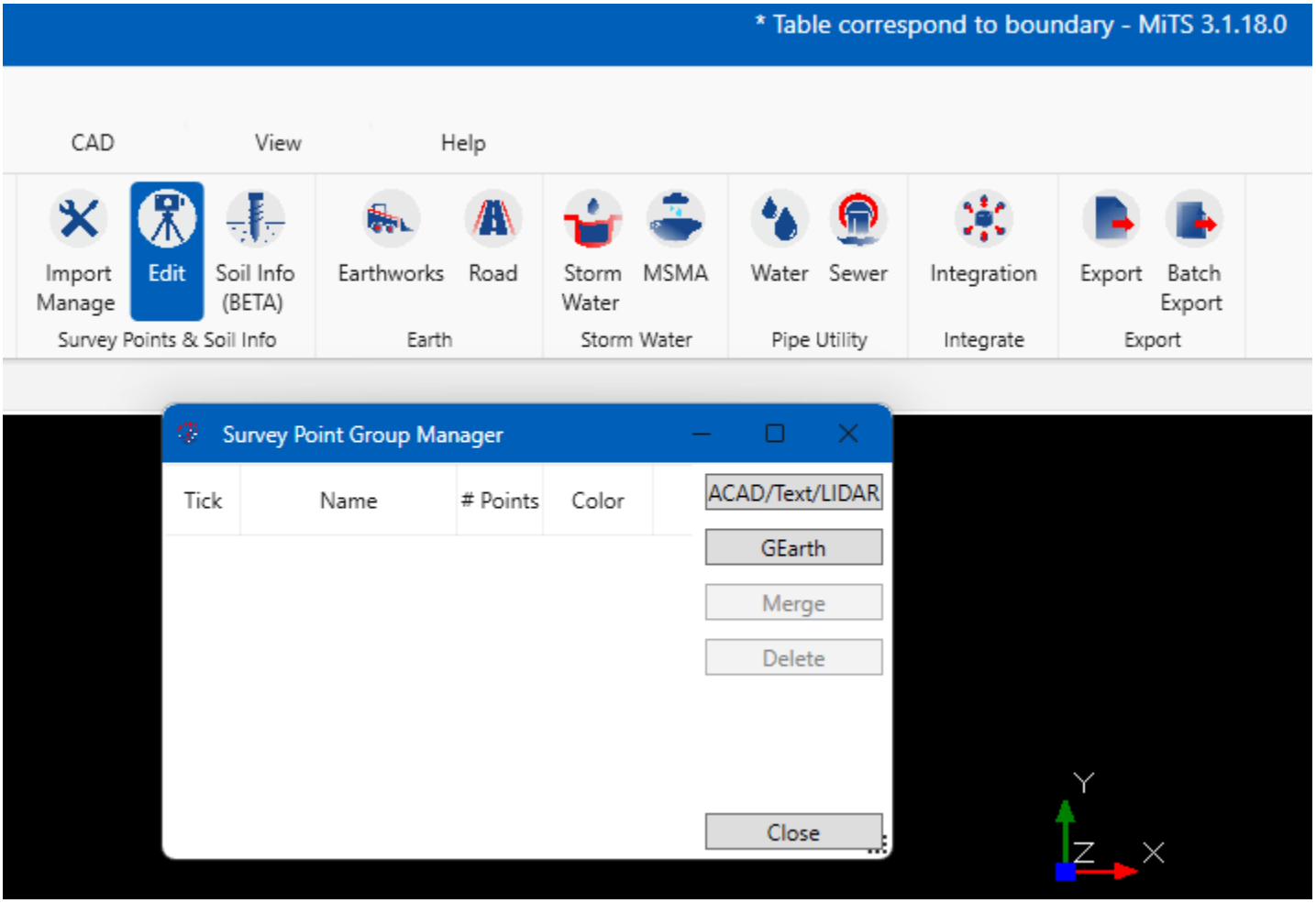


Accepted alphanumeric texts:

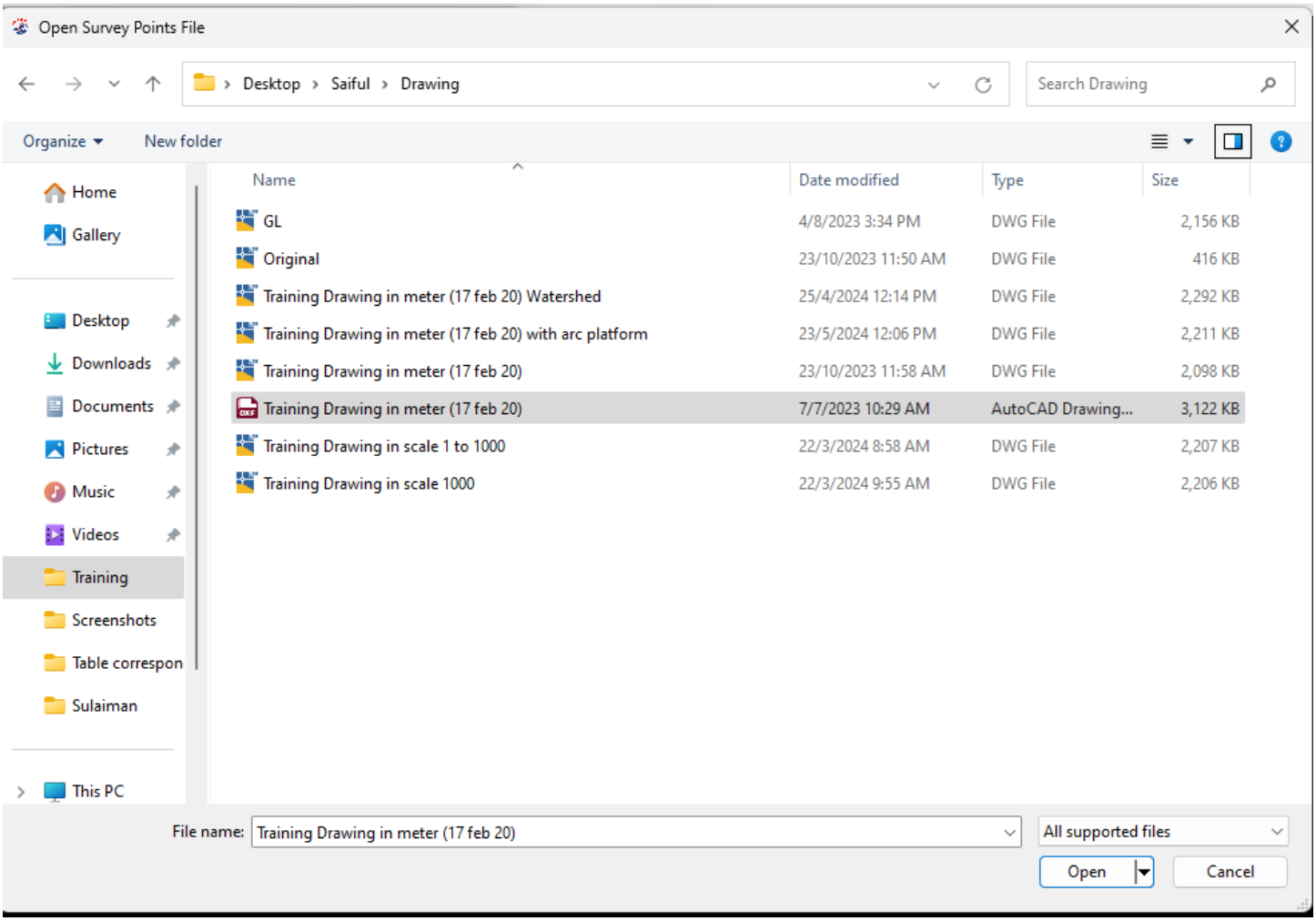


Steps to Import Survey Data

Survey Points can be imported in the Main page, or in ‘Earthworks’ or ‘Road’. Click Import Manage to import survey points and click ACAD if survey points are imported from the CAD Drawing.

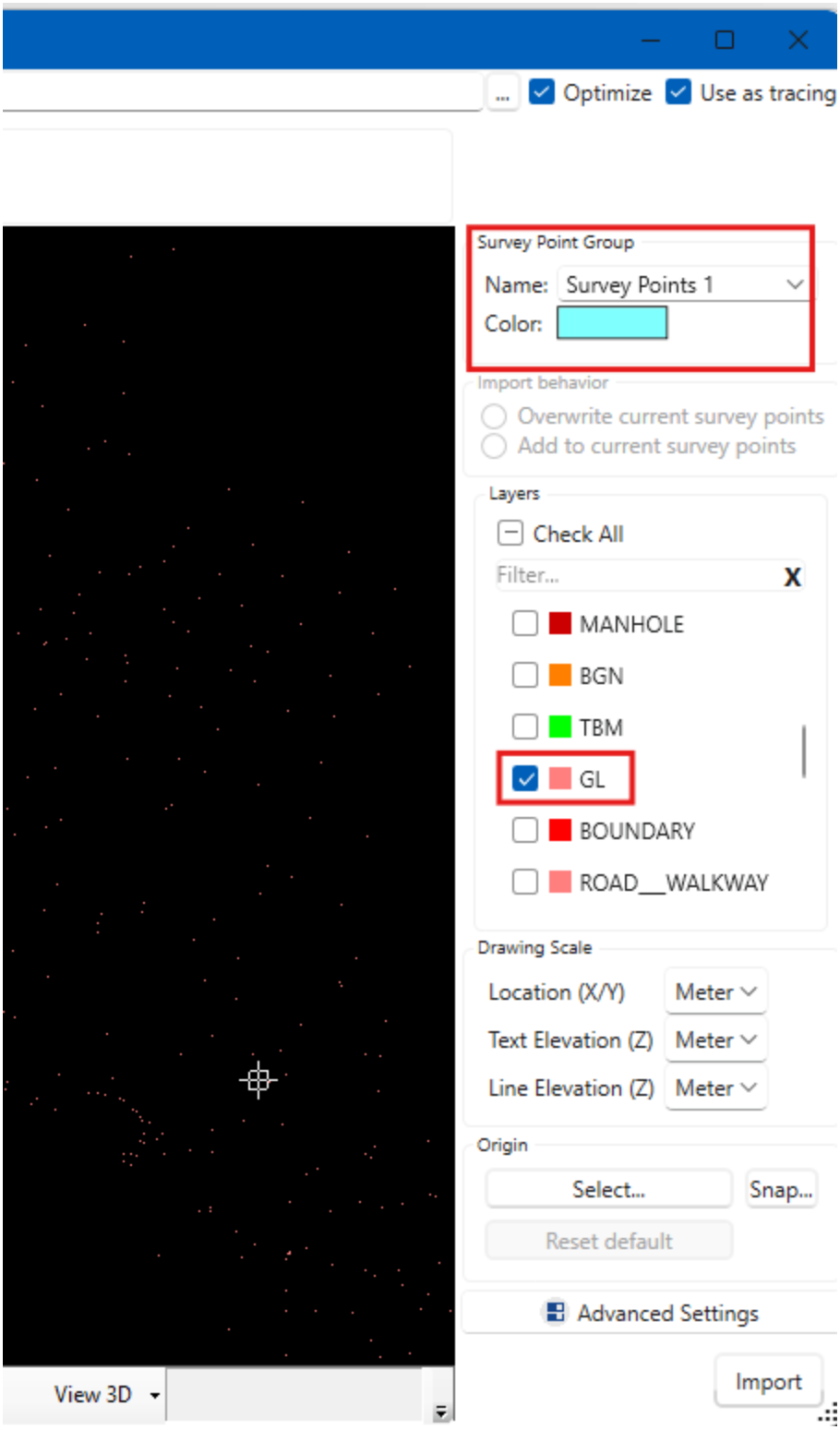


Select and open the CAD drawing



Name the survey points group at *'Point Group Name'* , select/tick the layers

which are ONLY relevant to survey data and click *'Save'* & *'OK'* .

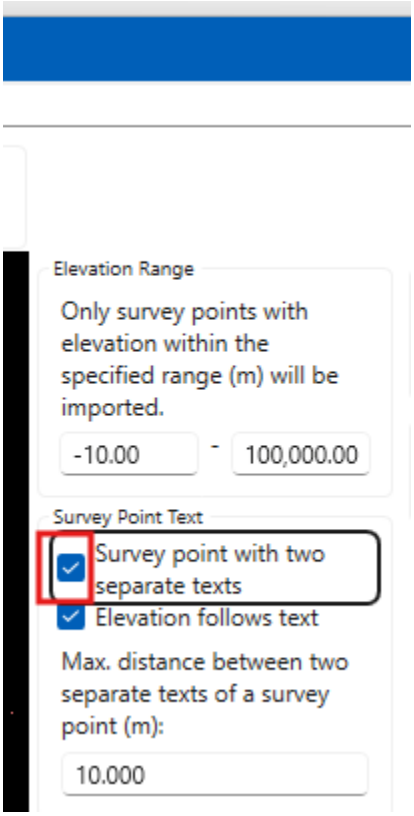


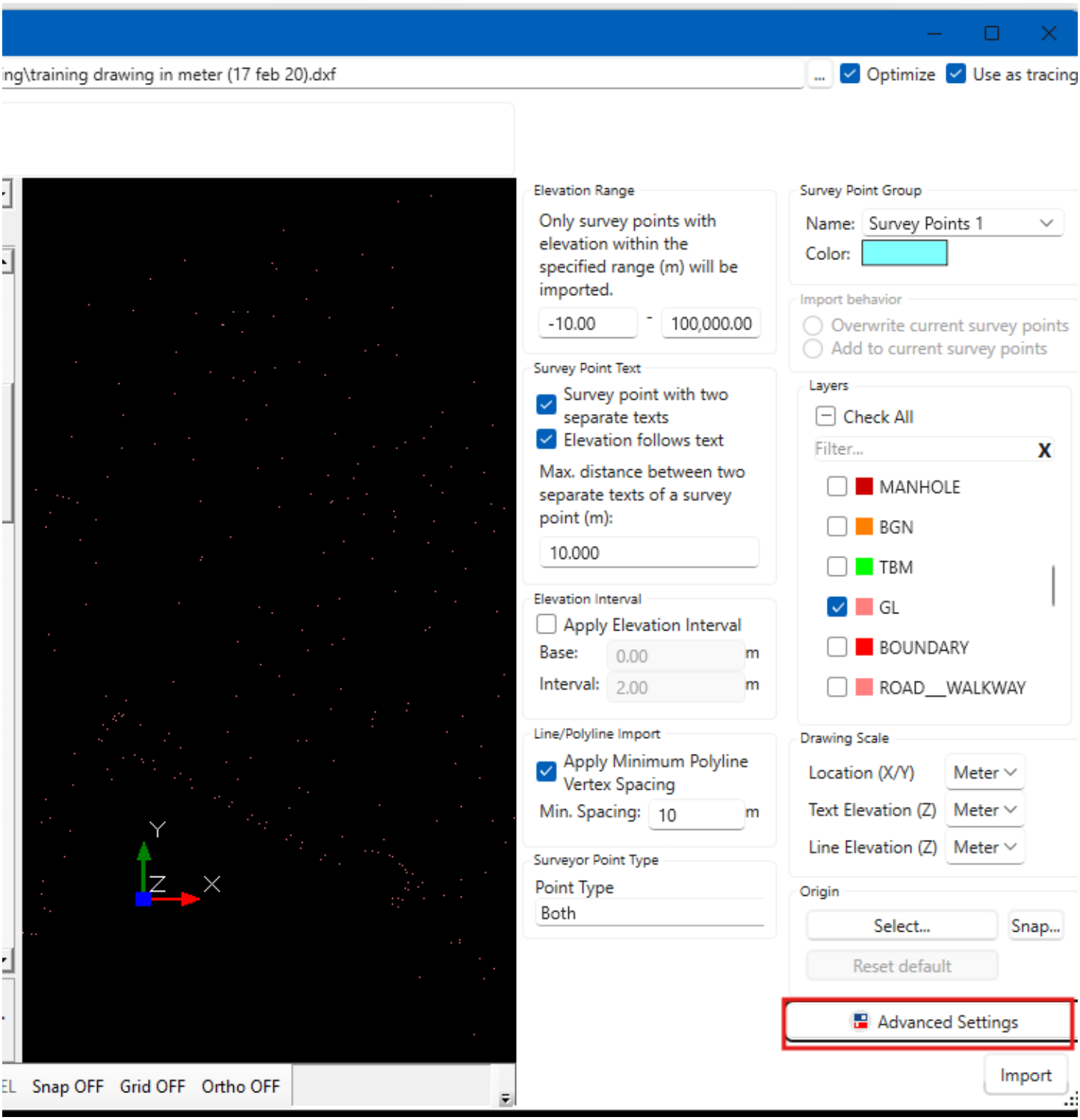
Note:

a. Saved survey points group can be deleted by clicking the *'Delete'* .

b. Survey point groups with different colours can be created via changing the colour box located at the right of ‘Point Group Name’ before clicking ‘Save’

c. If there are spot levels with separated two texts being imported into application, kindly ensure the checkbox of the *‘Import survey point with two separated texts’* is ticked.





Import behavior

Overwrite current survey points

Using this feature, users can overwrite the existing survey point group.

For example, we have an existing survey points group named “Survey Points 1” with 14663 points and we would like to overwrite this survey points group.

In the “Surveyor Point Import Dialog” window, select the survey points layer you would like to import and tick on the “Overwrite current survey points”.

Now, we can see that our “Survey Points 1” group has been overwritten with 105402 new survey points.

Add to current survey points

This feature can be used to add more survey points in the existing survey points group.

For example, we have an existing of 14663 survey points for the “Survey Points 1” group.

Then, we add a few more survey points by selecting the appropriate layer to be added on. Please ensure that the Survey Points Group selected is the same as an existing group we have before. Tick on the “Add on current survey points” and then click Import.

Now, we can observe that the number of our survey points has increased to 120065 after adding new survey points.

Advanced Setting

To active the advance settings, click the Advanced Settings button at the bottom RHS

Then, the advanced settings tab will be shown

- **Elevation Range**
  - To allow the user to select the survey point range users want to to import.
- **Survey Point Text**
  - ‘Survey point with two separate texts’ can refer to 1.2
  - ‘Elevation follows text’ is applicable if there is only one text

- **Elevation Interval**
- **Polyline Import** is applicable if there is a contour line import. User may refer to here for your further reference
- **Survey Point Type** can be used to only select a specific type of survey point

Platforms Import (if any)

Choose the respective layers **ONLY** for platforms imported in the ‘Platform’ tab & click OK.

Note:

There have same criteria need to meet before import platforms into application:

a. The platforms drawn in the CAD program must be **CLOSED POLYGON**.

b. There must have **Proposed Level Text inside the polygon** in order to generate the correct proposed level after imported.

CSV Survey Points Import

CSV (comma-separated values) format for survey points can also be imported in MiTS. Example of CSV file as below.

LAS Format for Survey Points Import

LAS format is a file format designed for the interchange and archiving of Lidar point cloud data.

To import LAS file, click on “Import Manage > Click ACAD/Text/LiDAR > Choose the file”

Google Earth Import

In MiTS, users are able to use Google Earth Import from Google.

Go to *Main >> Import Manage >> “Survey Point Group Manager” window >> GEarth*

The Gearth Import tab will look like the image below:

1. **“Go To” section**;

- Users can insert the latitude and longitude of their respective project development and GEarth will bring the user to the latitude and longitude inserted.
- Users will also be able to import the OGL directly from GEarth or use the OGL import from GEarth as a comparison with the existing Surveyor Drawing.

2. **First button on the upper left corner**;

- This button can help you to make sure there is no project area that is left out or out of the boundary when you draw the gridlines.
- You may define your project development area with this button for a better visual.
- You can also ignore this button if you want to proceed straight to drawing the gridlines.

3. **Second button on the upper left corner;**

- By default, this button is already clicked when you open the GEarth Import tab.
- It has the function to define the gridlines.
- Upon clicking this button, users will see the ‘OriginForm’ windows pop up when the users click any point on the terrain.
- The ‘pin’ icon will show up upon clicking the ‘OK’ button on the ‘OriginForm’ windows marking the point clicked by the users as the origin to draw the gridline.

4. **OriginForm;**

- Click at the first point of the survey area, and the ‘OriginForm’ windows will pop up as shown in the image below.
- What you can see in this window is that you can input X and Y coordinates.
- This will be the origin coordinate of the imported survey points in MiTS software.

5. **Specify the EW Coordinate Axis Direction**

- When you click at the second point, the “Specify the EW Coordinate Axis Direction” window will pop out as per the image below.

Item	Description
Follow GPS Orientation	Will follow perpendicular from the first drawn line
Set EW Axis Direction	To produce a tilt axis
Set EW Axis Point	To produce a tilt axis by using a coordinate BUT user needs to make sure the coordinate will produce the 90-degree axis

6. **RHS Panel**

- There are another six items at the RHS Panel as highlighted in the image below.

Item	Sub-Item	Description
01 – General	API Key	API Key is used to track API requests associated with user project for usage and billing. You may refer to "How to Get API Key for Google Earth Import" blogpost for further reference.
02 – Surveyor point system info	Name	The surveyor point group name
03 – Grid Size	Major Axis grid size (m)	This is the part where you can adjust your grid size. Note that you will have more survey points if you have a smaller grid size.
	Minor Axis grid size (m)	
04 – Origin	GPS	Latitude and Longitude of your origin
	EW	X and Y coordinate of your origin set in the "OriginForm" window previously
05 – Major Axis Point	GPS	Latitude and Longitude of your major axis point
	EW	X and Y coordinate of your major axis point

06 – Minor Axis Point	GPS	Latitude and Longitude of your minor axis point
	EW	X and Y coordinate of your minor axis point

7. **Information icon;**

- At the bottom right corner, you will find an information icon.
- If you click on this icon, you will be directed to a website here which explains more about the accuracy of the google earth elevation.

8. **Import button**

- After you are sure and finished defining the survey point group you need to import, click on the Import button which can be found at the bottom right corner.

How to import more than one (1) survey point groups

To import more survey point groups

Note:

*Kindly note to differently name the survey point groups to avoid software confusion

*Let say if the new survey points name is the same as the previous survey point group name, then the user will need to choose whether to ‘overwrite current survey points’ or ‘add to current survey points’.

After importing a new survey point group, users may proceed to calculate earthwork cut and fill volume.

Go to Earthwork >> Click ‘Calculate Cut/Fill’

Select the survey point group at the comparison tab and click calculate.

Survey Points Properties

“Survey Points > Edit > Properties MISC tab”

Display one survey point group

Click on the Point Group and select one of the survey points groups

“Survey Points > Edit > Properties MISC tab > Point Group”

Display All survey point groups

“Survey Points > Edit > Properties MISC tab > Show All > Choose Yes”

Visible

To turn survey points layer on/off.

Point Size

To change the survey points point size.

Text Display Setting

Users are now able to show the survey point value.

Go to RHS property grid > click properties tab > 3.Text Display Setting > Show Value > set to YES

All in One Import Function

All in One import function is now available.

This is to allow users to import all modules in one go.

For example, to import survey points, earthwork platforms and drainage networks in one click.

Go to Import > select drawing > at ‘All in One Import’ tab, users may switch tabs to select which module to import

Related



Ngu Soon Hui

I’m the Benevolent Dictator for Life for MiTS Software cum Editor of this website. Read more here.

You can also contact me at soonhui@mes100.com