

Importing Terrain Elevation Data from a DWG or DXF File

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The information in this article applies to:



QUESTION

I have a DWG file containing terrain data that I received from my surveyor or engineer. How do I import this into my design?

ANSWER



Importing terrain data from a DWG or DXF file is a straight-forward task, though it requires some knowledge of what layers were used when the drawing was created and which layers contain the data that you need.

Terrain drawings typically contain several types of data, specifically lot boundary data, elevation/contour data, and other CAD data such as text. There is no single CAD standard, and which layers the different data is on is determined by who created the drawing.


In this article, we will discuss the following topics:

- Determining which layers contain pertinent terrain data
- Importing lot boundary data and elevation/contour data
- Importing other CAD data

To determine which layers contain pertinent terrain data

1. In a **New Plan** , navigate to **File> Import> Import Drawing (DWG, DXF)**  from the menu to open the **Import Drawing Assistant**, then click **Next/Continue**.
2. On the **Select File** page, click the **Browse** button to open the **Import Drawing File** dialog and select the desired DWG or DXF file saved on your computer. Once the desired file is selected, click **Open** to return to the **Import Drawing Assistant**. Do not make changes to the other options on this dialog page at this time. Click **Next/Continue**.
3. On the **Select Layers** page, make sure there is a check beside the name of each layer shown in the **Layer Name** column, then click **Next/Continue**.

You can click the **Select All** button to check all layers at once, ensuring that every layer will be imported during this process.


Import Drawing Assistant
✕

Select Layers

Specify which layers to import and specify which contain terrain and elevation data.

Layer Name	Visible	Frozen	Convert To
<input checked="" type="checkbox"/> 0	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> ASHADE	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-ECTR-EXST	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-LEGEND	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-NGAS-EXST	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> CONT-MJR	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> CONT-MNR	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-PROP-ADJ	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-PROP-BNDY	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-PROP-CONTROL	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> C-PROP-POINTS	<input checked="" type="checkbox"/>		

Convert Selected Layer(s) to: ▼

< Back
Next >
Cancel
Help

- On the **Layer Mapping** page, select the **Chief Architect layers by name.** radio button, leave the **Import all layer attributes into the current layer set.** radio button selected, then click **Next/Continue**.

The screenshot shows the 'Import Drawing Assistant' dialog box with the 'Layer Mapping' tab selected. The title bar includes the software logo and the text 'Import Drawing Assistant' with a close button. The main heading is 'Layer Mapping' with a subtitle 'Associate layers in the DWG/DXF drawing file with layers in Chief Architect.' Below this, the instruction 'Map all drawing file layers to:' is followed by two radio button options. The first option, 'A single layer in Chief Architect:', is unselected and includes a dropdown menu showing 'CAD, Default' and a 'Define...' button. The second option, 'Chief Architect layers by name.', is selected and contains two sub-radio buttons: 'Import all layer attributes into the current layer set.' (which is selected and highlighted with a dashed border) and 'Do not import layer attributes' (which is unselected). Below these options, a paragraph states 'You can map each layer individually and specify layer attributes on the Advanced Layer Mapping panel.' followed by an unchecked checkbox labeled 'Go to the Advanced Layer Mapping panel.' At the bottom right, there are four buttons: '< Back', 'Next >' (highlighted with a blue border), 'Cancel', and 'Help'.

Import Drawing Assistant

Layer Mapping
Associate layers in the DWG/DXF drawing file with layers in Chief Architect.

Map all drawing file layers to:

☐ A single layer in Chief Architect:
CAD, Default Define...

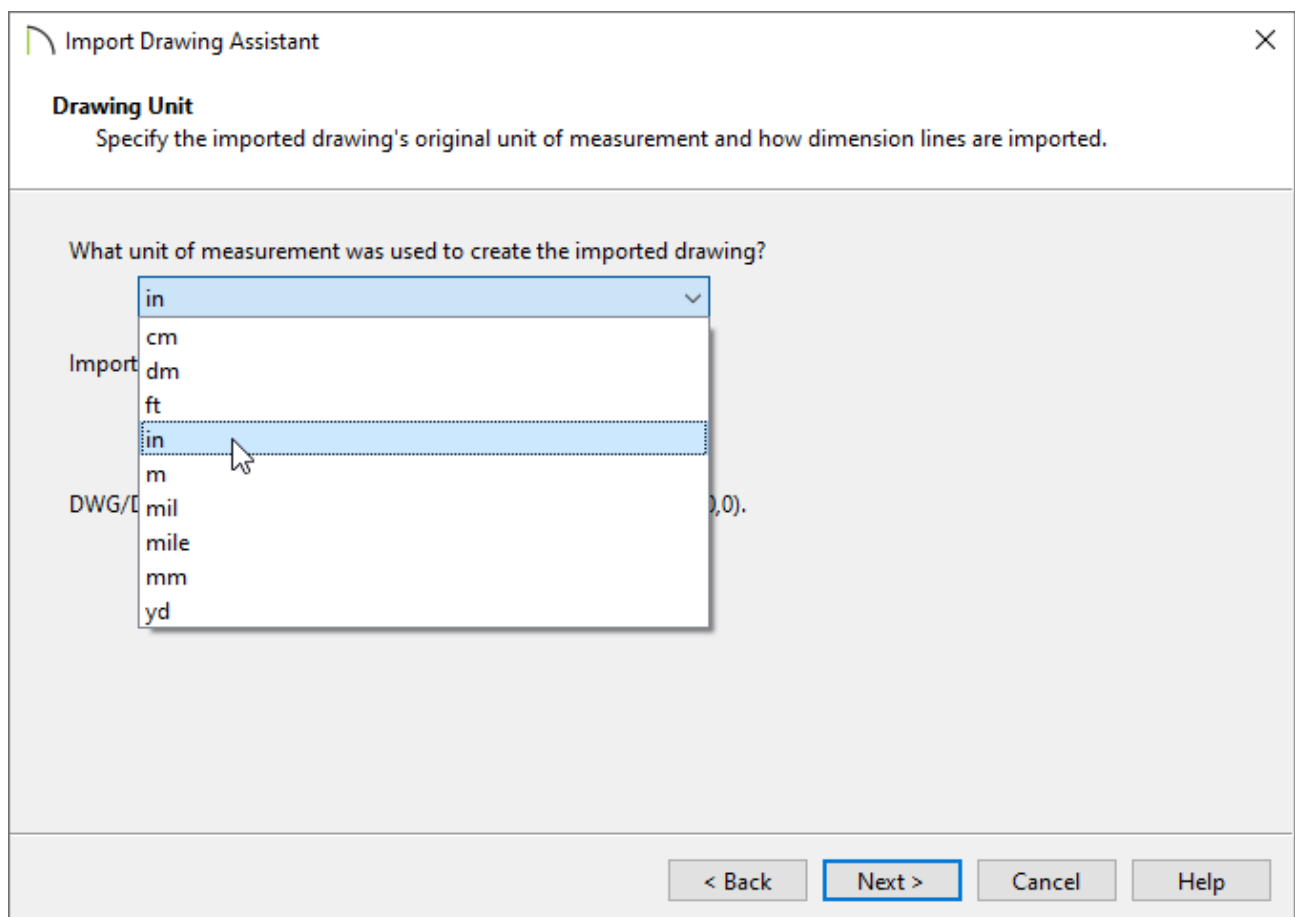
☒ Chief Architect layers by name.
☒ Import all layer attributes into the current layer set.
☐ Do not import layer attributes


You can map each layer individually and specify layer attributes on the Advanced Layer Mapping panel.
☐ Go to the Advanced Layer Mapping panel.

< Back Next > Cancel Help


5. On the **Drawing Unit** page, select the unit of measurement that was used to create the drawing using the drop-down list, click **Next/Continue**, then click **Finish/Done** to close the dialog and import the drawing.

Note: If you are uncertain of which unit of measurement to select, contact your surveyor or engineer.

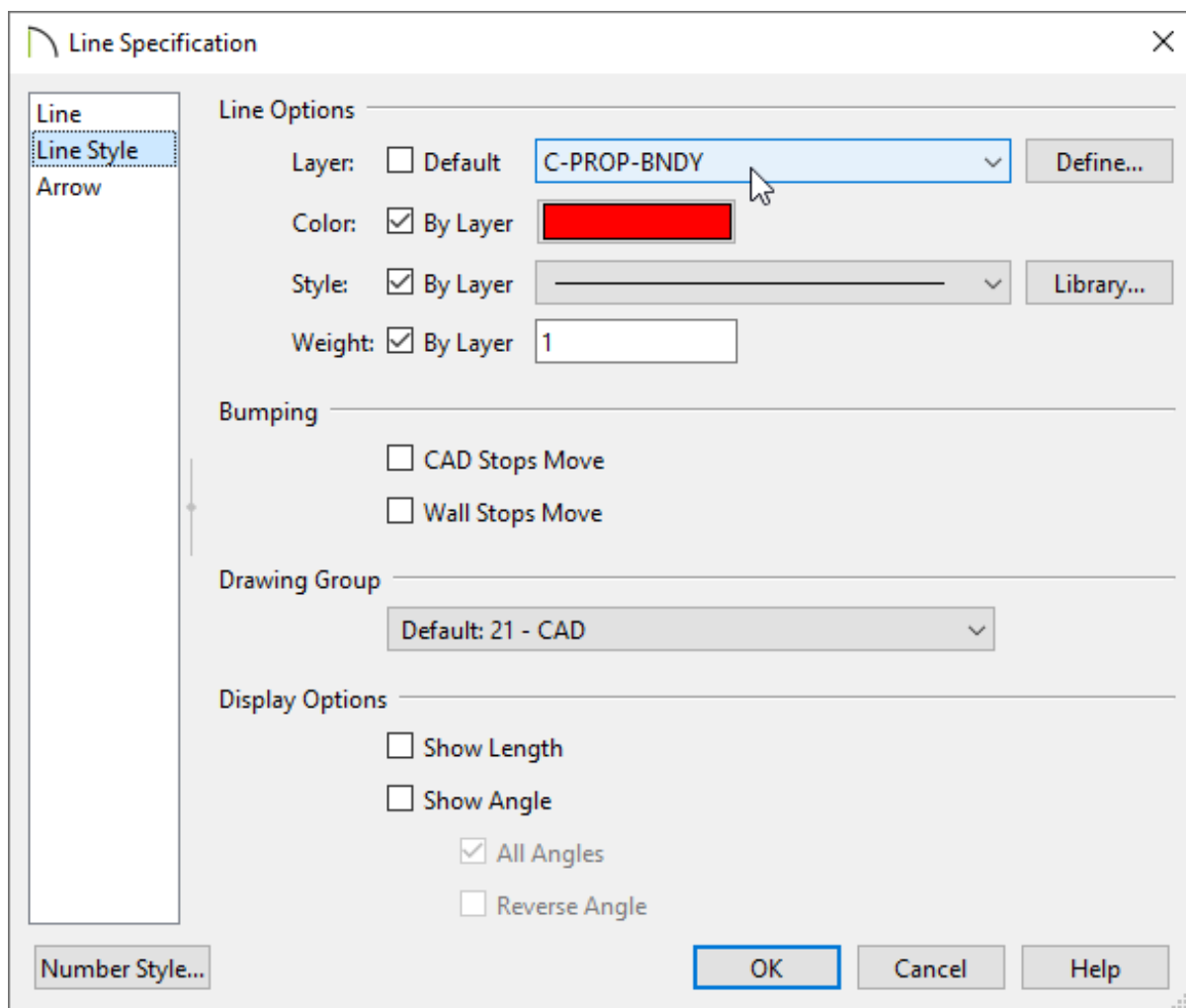


6. You should now see the drawing in the plan. If you do not, select **Window> Fill Window**  from the menu to center it in the drawing area.

If you still do not see the drawing, please refer to the [ADDITIONAL INFORMATION](#) section at the end of this article.


7. Click on the polyline representing the lot boundary to select it, click the **Open Object**  edit button, then select the **LINE STYLE** panel of the object's specification dialog. Make a note of the **Layer** that it is on, then click **OK**.

In this example, the lot boundary is on a layer called C-PROP-BNDY.

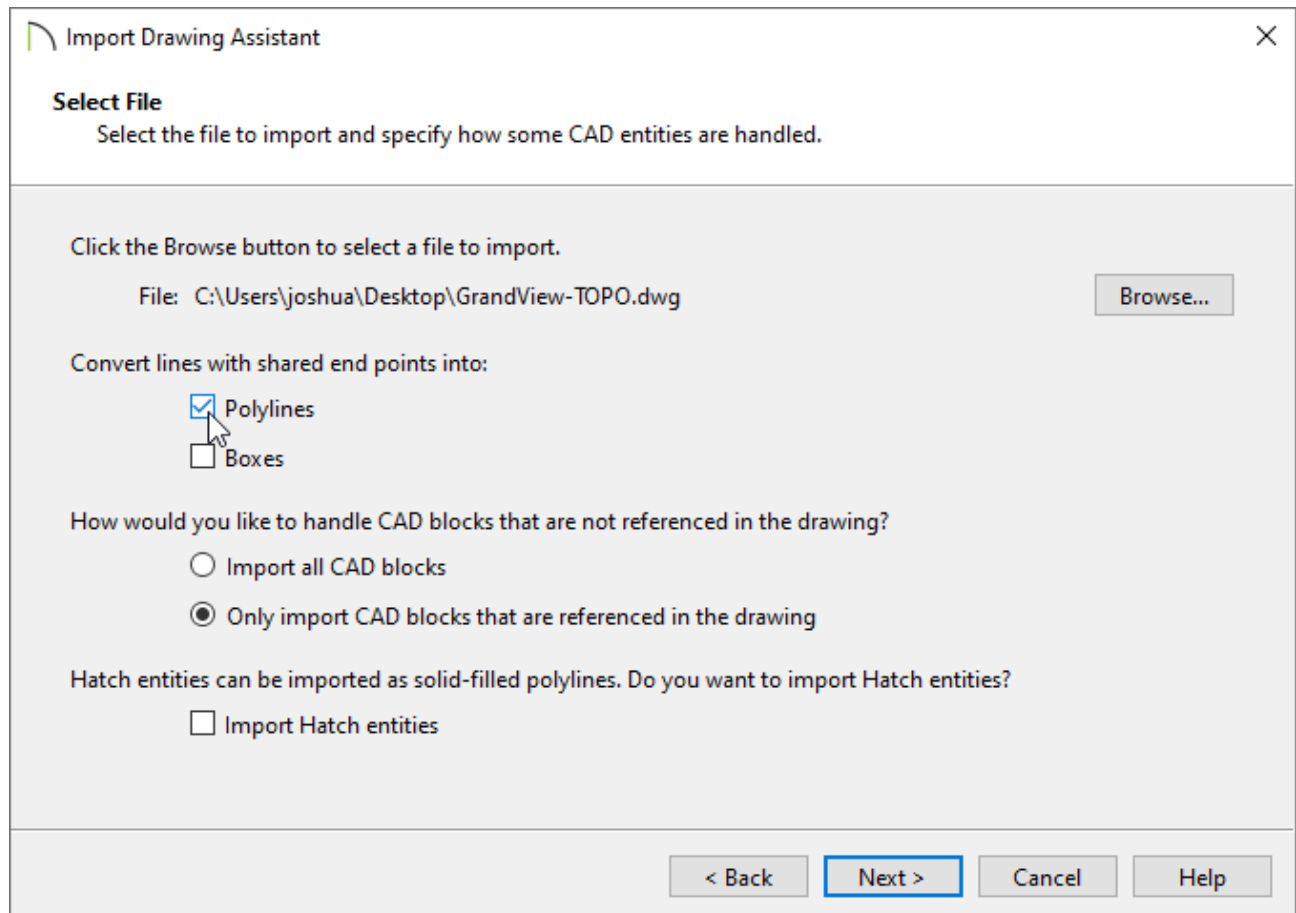


8. Next, determine which layer(s) the contour/elevation lines are on using the same technique just mentioned in Step 7.
9. Once you have determined the layers that the terrain data is on, close the file without saving it, then proceed to the next section.

To import lot boundary data and elevation/contour data

1. In your desired plan, and with the appropriate plan view active, navigate to **File> Import> Import Drawing (DWG, DXF)**  from the menu to open the **Import Drawing Assistant**, then click **Next/Continue**.
2. On the **Select File** page, click the **Browse** button to open the **Import Drawing File** dialog and select the desired DWG or DXF file saved on your computer. Once the

desired file is selected, click **Open** to return to the **Import Drawing Assistant**. Check the **Polylines** box under the Convert lines with shared end points into: heading, then click **Next/Continue**.



The screenshot shows the 'Import Drawing Assistant' dialog box. At the top, it says 'Select File' and 'Select the file to import and specify how some CAD entities are handled.' Below this, there is a section with the instruction 'Click the Browse button to select a file to import.' The file path 'C:\Users\joshua\Desktop\GrandView-TOPO.dwg' is displayed, and a 'Browse...' button is to its right. The next section is 'Convert lines with shared end points into:', which contains two options: 'Polylines' (checked with a blue checkmark) and 'Boxes' (unchecked). Below this is the question 'How would you like to handle CAD blocks that are not referenced in the drawing?' with two radio button options: 'Import all CAD blocks' and 'Only import CAD blocks that are referenced in the drawing' (selected). The final section asks 'Hatch entities can be imported as solid-filled polylines. Do you want to import Hatch entities?' with an unchecked 'Import Hatch entities' checkbox. At the bottom right, there are four buttons: '< Back', 'Next >' (highlighted with a blue border), 'Cancel', and 'Help'.

Import Drawing Assistant

Select File
Select the file to import and specify how some CAD entities are handled.

Click the Browse button to select a file to import.

File: C:\Users\joshua\Desktop\GrandView-TOPO.dwg Browse...

Convert lines with shared end points into:

☒ Polylines
☐ Boxes

How would you like to handle CAD blocks that are not referenced in the drawing?

☐ Import all CAD blocks
☒ Only import CAD blocks that are referenced in the drawing

Hatch entities can be imported as solid-filled polylines. Do you want to import Hatch entities?

☐ Import Hatch entities

< Back Next > Cancel Help

3. On the **Select Layers** page:

Import Drawing Assistant

Select Layers
Specify which layers to import and specify which contain terrain and elevation data.

Layer Name	Visible	Frozen	Convert To
<input type="checkbox"/> 0	✓		
<input type="checkbox"/> ASHADE	✓		
<input type="checkbox"/> C-ECTR-EXST	✓		
<input type="checkbox"/> C-LEGEND	✓		
<input type="checkbox"/> C-NGAS-EXST	✓		
<input checked="" type="checkbox"/> CONT-MJR	✓		Elevation Data
<input checked="" type="checkbox"/> CONT-MNR	✓		Elevation Data
<input type="checkbox"/> C-PROP-ADJ	✓		
<input checked="" type="checkbox"/> C-PROP-BNDY	✓		Terrain Perimeter
<input type="checkbox"/> C-PROP-CONTROL	✓		
<input type="checkbox"/> C-PROP-POINTS	✓		

Select All Clear All

Convert Selected Layer(s) to: Terrain Perimeter

Terrain Perimeter
Elevation Data

< Back Next > Cancel Help

- Uncheck any unwanted layers using the **Layer Name** column. You can click the **Clear All** button to quickly, and easily, uncheck all layers at once.

In this example, the CONT-MJR, CONT-MNR, and C-PROP-BNDY layers are the only layers selected.

- Select the layer containing the lot boundary polyline, then select **Terrain Perimeter** from the **Convert Selected Layer(s) to** drop-down list.

In this example, the C-PROP-BNDY layer is the lot boundary layer and is specified to be converted to the Terrain Perimeter.

- Select the layer(s) that contain contour/elevation data and select **Elevation Data** from the **Convert Selected Layer(s) to** drop-down list.

In this example, the CONT-MJR and CONT-MNR layers consist of minor and major contour/elevation data and are specified to be converted to Elevation Data.

- Once the correct layers are selected and defined correctly, click **Next/Continue**.

4. On the **Layer Mapping** page, select a layer mapping option. Any option will work in

this instance; however, you can, for example, map the lot boundary directly to the native Chief Architect Terrain Perimeter layer by checking the box beside **Go to the Advanced Layer Mapping panel**, then clicking **Next/Continue**.

5. (Optional) On the **Advanced Layer Mapping** page, click on the layer(s) that you would like to remap, then use the drop-down menu at the bottom to map the layer(s) to the desired Chief Architect layer(s). Once the layers are mapped to your liking, click **Next/Continue**.

In this example, the C-PROP-BNDY layer is mapped to the Terrain Perimeter layer. You could also map the contour/elevation layers to native Chief Architect layers at this time.

You can also click on the Define button located beside the layer drop-down option to open the Layer Display Options dialog, where additional layer properties can be adjusted.

Import Drawing Assistant

Advanced Layer Mapping
Map imported layers individually and specify their attributes.

Select one or more imported DWG/DXF layers from the list.

DWG/DXF Layer	Chief Layer	New
CONT-MJR	CONT-MJR	New
CONT-MNR	CONT-MNR	New
C-PROP-BNDY	Terrain Perimeter	


Choose a Chief Architect layer from the drop-down list to map the selected DWG/DXF layer(s) to.
Click the Define button to specify the layer's attributes.

Terrain Perimeter Define...

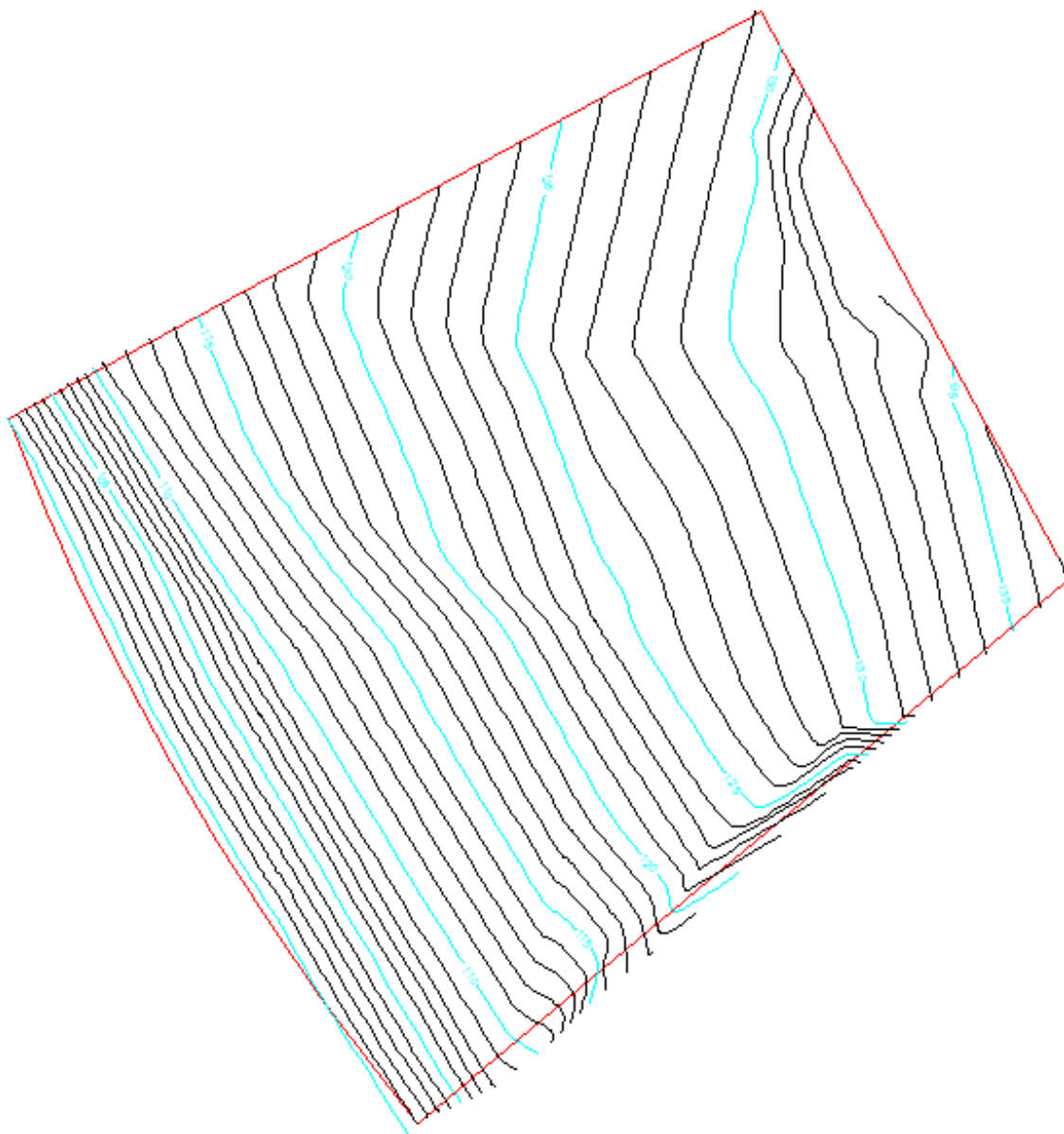
< Back Next > Cancel Help



6. On the **Drawing Unit** page, select the desired unit of measurement, click **Next/Continue**, then click **Finish/Done** to close the dialog and import the drawing.

Note: If you receive a message stating: "The imported CAD line/s could not be converted to a Terrain Perimeter. You must have one closed polyline to convert to a Terrain Perimeter.", the lot boundary was not recognized as a fully enclosed polyline. Click "OK" on this message, then analyze the lot boundary. Once you have found the culprit and have enclosed the polyline, use the Convert to Polyline edit button to convert the polyline to a Terrain Perimeter. Please refer to the "Converting a Polyline into a Terrain Perimeter" resource in the [Related Articles](#) section to learn more.

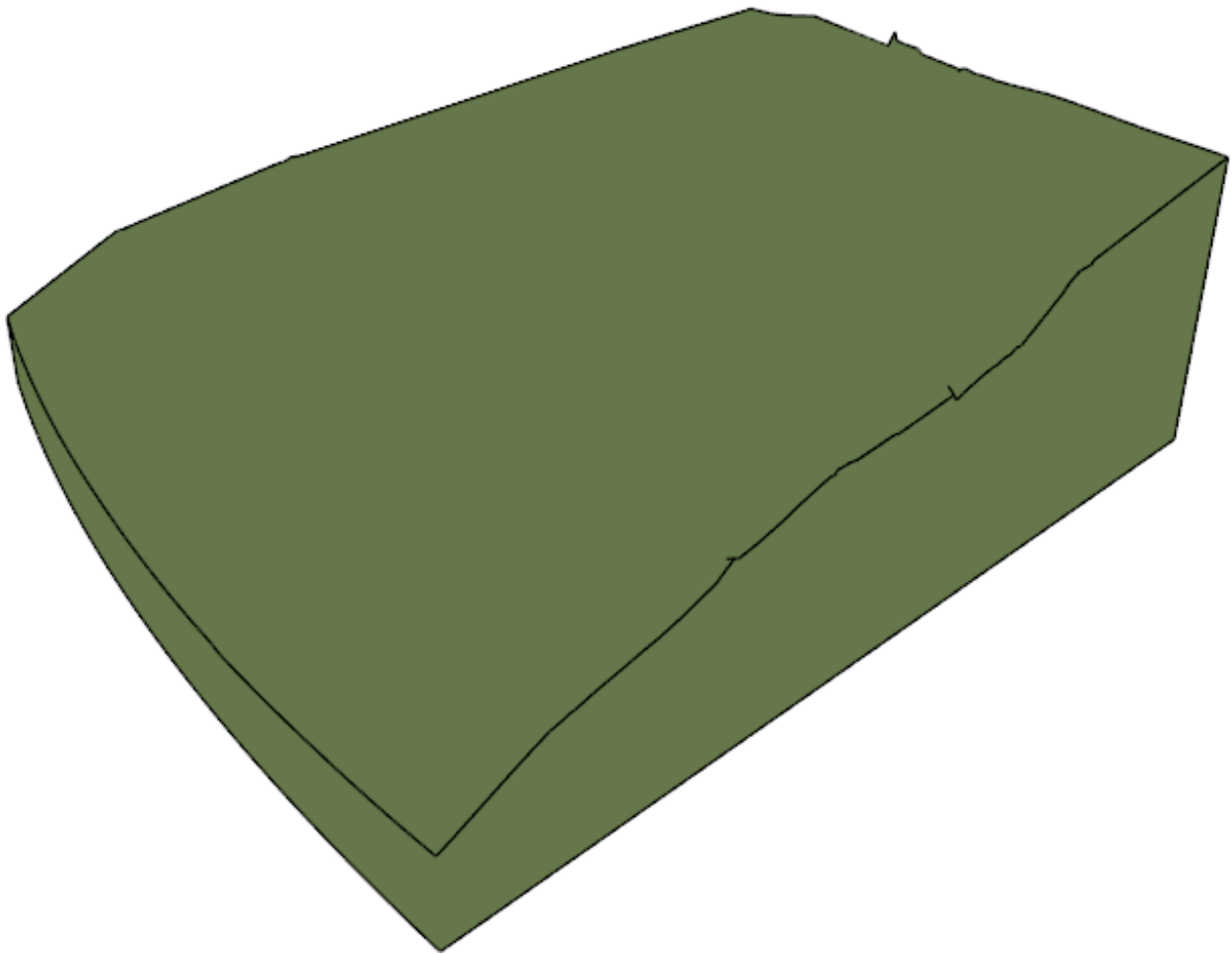
7. You should now see the drawing in the plan. If you do not, select **Window> Fill Window**  from the menu to center it in the drawing area.

If you still do not see the drawing, please refer to the [ADDITIONAL INFORMATION](#) section at the end of this article.




8. Additional changes to the terrain perimeter and elevation data can now be made.
9. Once your desired changes are complete, navigate to **Terrain> Build Terrain**  from the menu, then take a **Camera**  view to see the results.

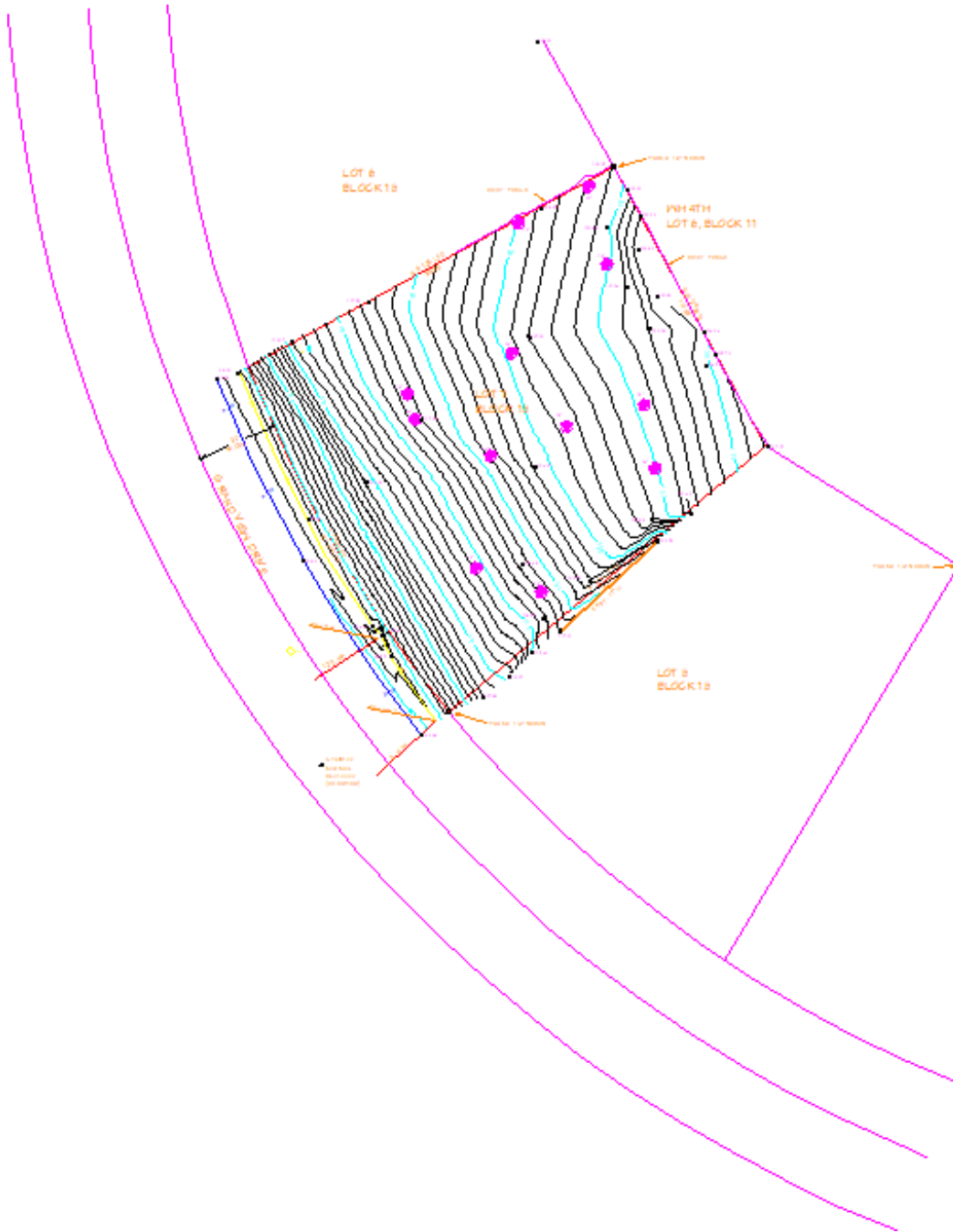
Note: In some circumstances, you may receive a message stating: "The terrain interpolation will take a long time to generate. Would you like to use the linear interpolator instead?" Click "Yes" to proceed.



To import other CAD data

- Navigate to **File> Import> Import Drawing (DWG, DXF)**  from the menu to open the **Import Drawing Assistant**, then click **Next/Continue**.
 - On the **Select File** page, click the **Browse** button to open the **Import Drawing File** dialog, select the desired DWG or DXF file saved on your computer, then click **Next/Continue**.
1. On the **Select Layers** page, select layers not containing perimeter or elevation data by unchecking the layers that were already imported, then click **Next/Continue**.
 2. Choose your desired options on the **Layer Mapping** page, then click **Next/Continue**.


3. On the **Drawing Unit** page, select the unit of measurement, click **Next/Continue**, and finally, **Finish/Done**. You should now see the additional data in your plan.




ADDITIONAL INFORMATION

- Drawings imported into Chief Architect should be created in Model Space in AutoCAD®. If a drawing was created on Page 1 in Paper Space, it will be imported as it's own CAD block.
- Chief Architect does not recognize layers that are frozen in AutoCAD®. You can see if

any layers in your drawing file are frozen on the **Select Layers** page of the **Import Drawing Assistant**.




- Chief Architect is able to import layers that have been turned off in AutoCAD®; however, the 2D display of these layers will be turned off in Chief Architect, as well, so you will not see them when the drawing is first imported.
- Elevation data saved in a text file format can also be imported by selecting **File> Import> Import Terrain Data**  from the menu. Elevation data that is saved in this format is usually done with the x, y, and z coordinates in mind, where x and y define the location of a point on a Cartesian grid, and z defines the elevation for the point. When using this import method, each data point must be on a separate line in the text-based file.

For more information, navigate to **Help> Launch Help**  within your program, and search: **Import Terrain Assistant**.

- GPS data in a .gpx file format can also be imported by selecting **File> Import> Import GPS Data** . GPS data may include three types of points - Way, Track and Route. Chief Architect can only import a .gpx file if it includes one or more Way Points. If a *.gpx file is imported and it contains no Way Points, no data will be imported. Route Points contained in a .gpx file will not be recognized upon importing.


For more information, navigate to **Help> Launch Help**  within your program, and search: **Import GPS Data Assistant**.

Related Articles

-  [Converting a Polyline into a Terrain Perimeter \(/support/article/KB-00324/convert-a-polyline-into-a-terrain-perimeter.html\)](/support/article/KB-00324/convert-a-polyline-into-a-terrain-perimeter.html)
-  [Converting Plan Files to DWG or DXF \(/support/article/KB-00013/convert-plan-files-to-dwg-or-dxf.html\)](/support/article/KB-00013/convert-plan-files-to-dwg-or-dxf.html)
-  [Troubleshooting DWG/DXF File Import Issues \(/support/article/KB-00283/troubleshooting-dwg-dxf-file-import-issues.html\)](/support/article/KB-00283/troubleshooting-dwg-dxf-file-import-issues.html)
-  [Using CAD to Walls from an Imported DWG/DXF \(/support/article/KB-00170/using-cad-to-walls-from-an-imported-dwg-dxf.html\)](/support/article/KB-00170/using-cad-to-walls-from-an-imported-dwg-dxf.html)



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