

Navisworks Model looks Sectioned

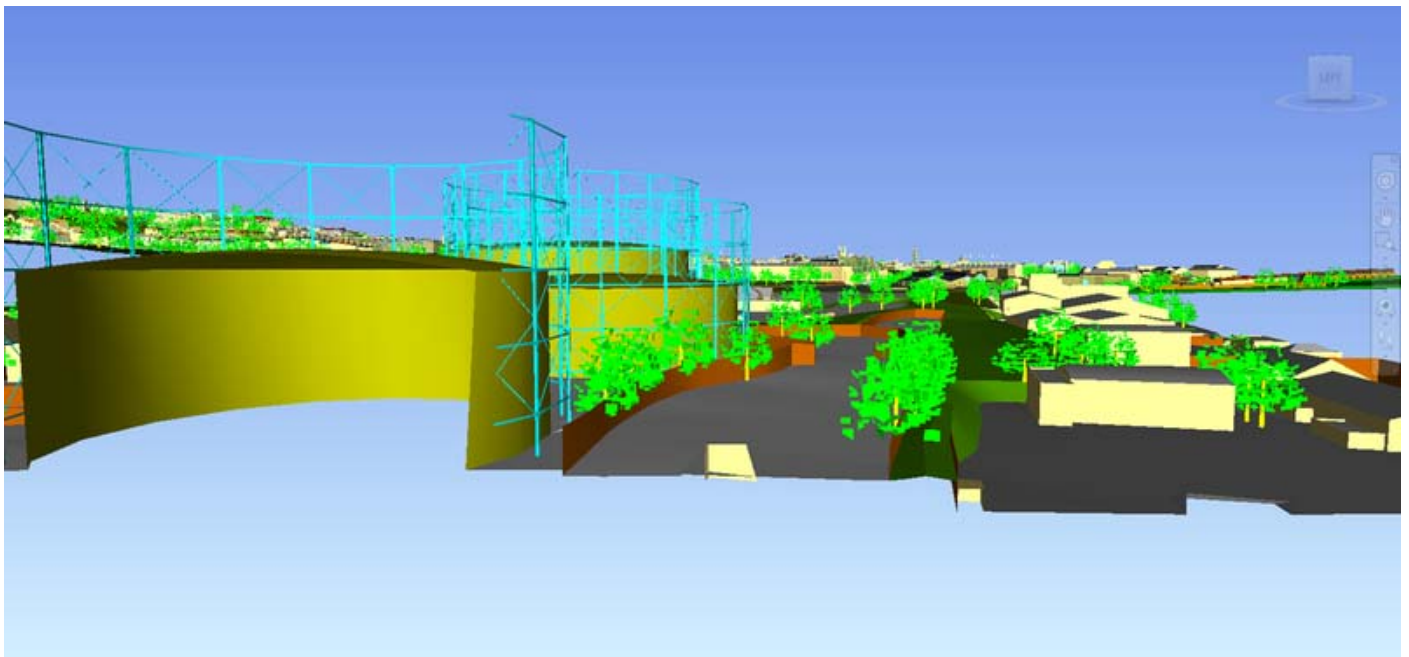
More and more people are working with big models, or models on large ground planes. On rare occasions there can be some odd behaviour where the model doesn't display as you would expect.

Navisworks users.

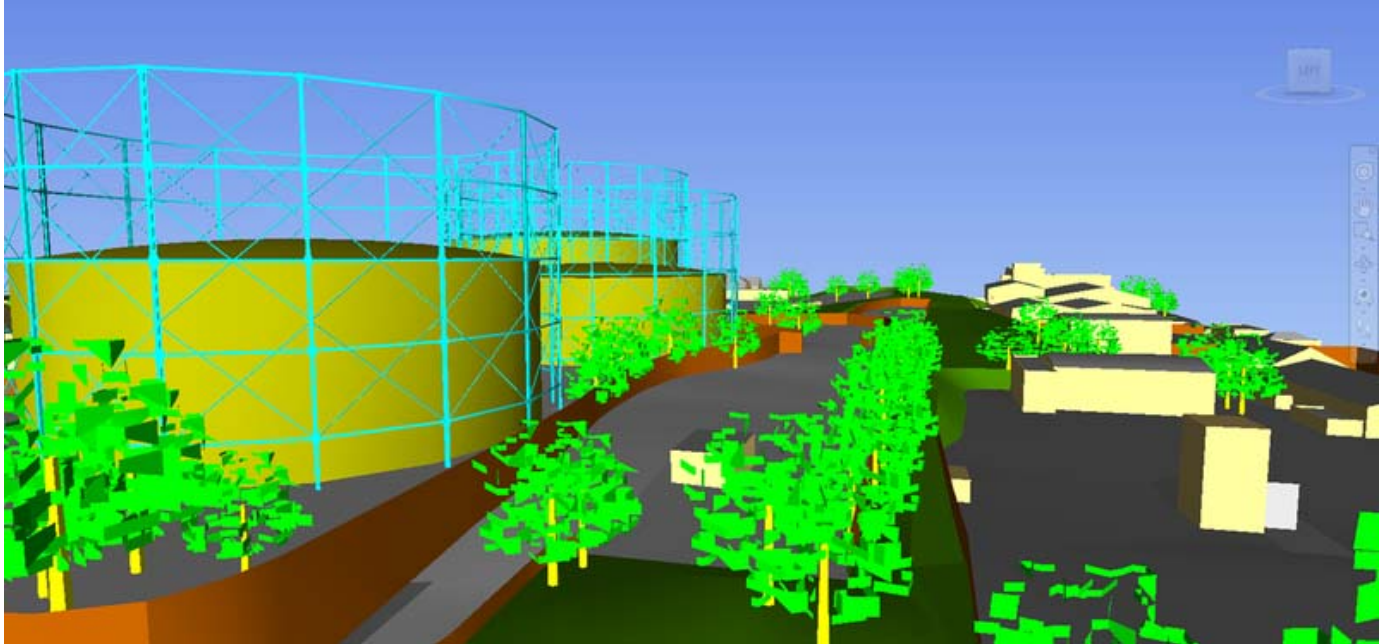
Why does my model look sectioned?

More and more people are working with big models, or models on large ground planes. On rare occasions there can be some odd behaviour where the model doesn't display as you would expect.

Sometimes it may look like the model is sectioned in front of the camera, like this.



Sometimes objects in the distance may be cut out like this.



And sometimes you may not see anything at all



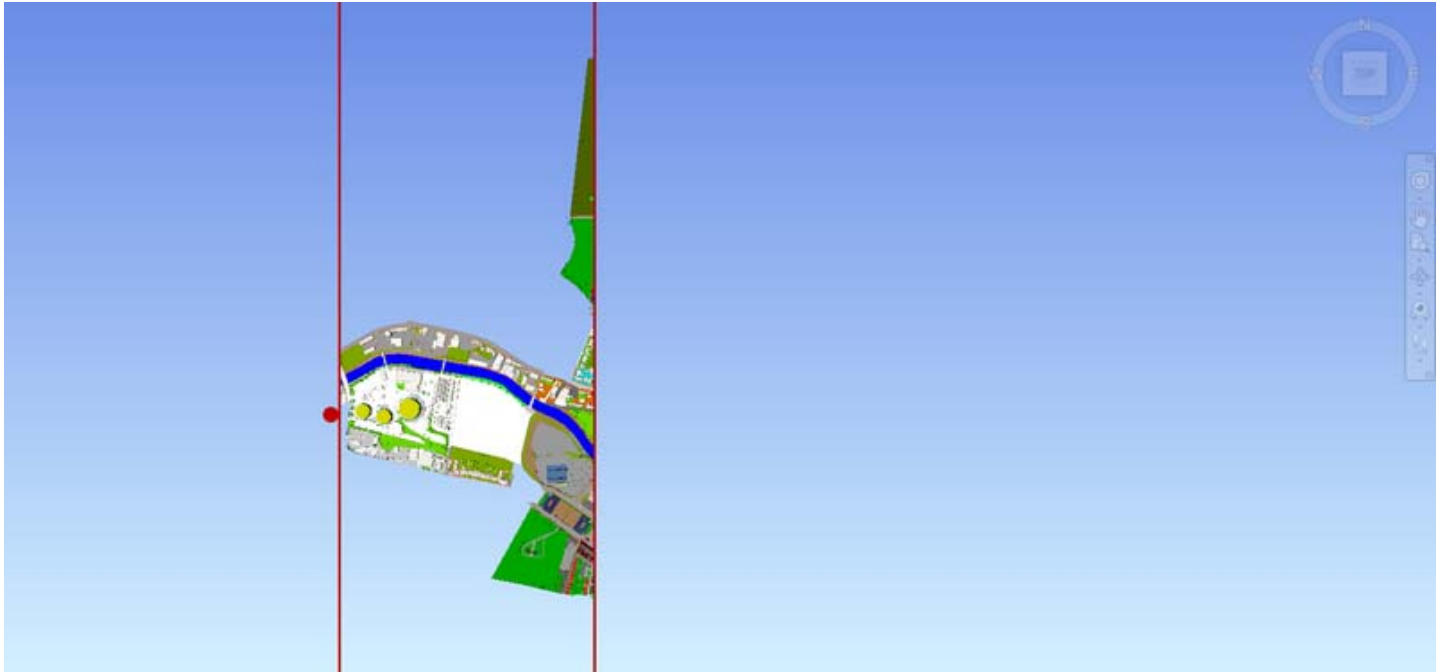
To optimize performance Navisworks doesn't draw everything at once. We will calculate how to draw as much of the model as possible needed for the view, versus not showing things you don't need to see, as they would be behind or below you.

The next image shows how we ideally draw the model, including as much as possible but clipping any objects that would be behind, below, or just in front of the camera that you would not see in your field of view, and cutting anything so far in the distance you would not see it. If you stand up and look straight ahead you would not see anything just in front of your feet, it would only be when you look down that you see the floor there.

So the model will have two clipping planes, a near one and a far one; the red dot signifies the camera position relative to the two clipping planes.



The reason why Navisworks doesn't draw everything level with your eyes is that a ratio (of 1000) is used to include as much of the model as possible, meaning if we bring the forward clipping plane closer to the camera, we also need to proportionally bring forward the far clipping plane, this results in objects in the distance not being visible. The ratio is limited to 1:1000 to prevent issues with faces displaying incorrectly.



Problems can start when there are spurious objects a long way from the model as in the next image, or there is a very large ground plane relative to the rest of the model.

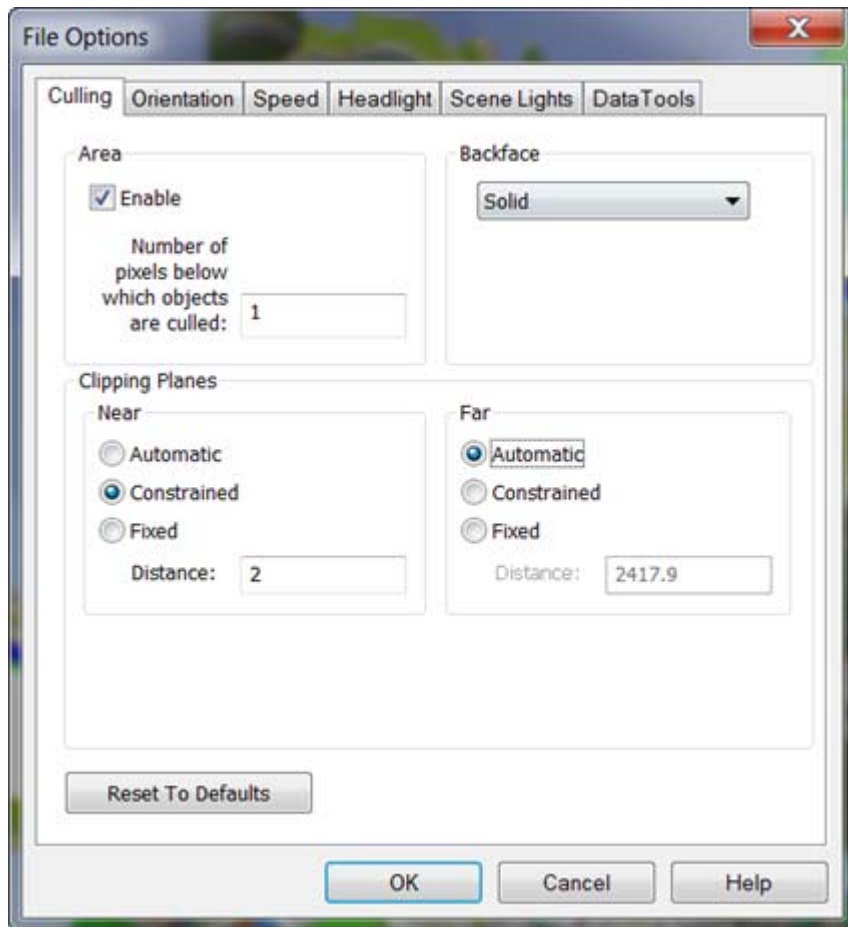


Where this happens Navisworks will have to move the far clip plane much further out, meaning the near clip plane is also dragged forwards, giving the effect of a section in front of the model. In the worst examples this can mean the entire model disappears.



The three best ways to rectify this are

- Delete the spurious object from the original CAD data and bring it through again
- Hide the spurious geometry in Navisworks, you can use Page Up to zoom to the entire model, and the Select Box to look for any items you cannot see.
- Manually modify the clipping planes, to bring forward the near clip plane, or force back the far clip plane. To access this you would need to open the File Options from the Home tab. In this example I have constrained the near clip plane to a set distance. As a general rule of thumb when I come across this, if the near clip plane looks wrong, I would divide the amount listed by 10, if the far clip plane looks wrong I would multiply it by 10, any changes you make could affect the other clip plane. We strongly recommend you only modify these if you are having problems.



In examples where a large ground plane causes this, you should look at modifying the ground plane to take account of the vanishing point, often very large planes are not necessary. Alternatively modify the clipping planes as above.

We calculate the clipping planes differently in certain situations depending on what you are doing, for example, collision detection and using an avatars. This can sometime affect the far clip plane, ensuring you are working to the correct scale, ensuring your avatar is at the correct size or modifying the clipping planes should resolve this.