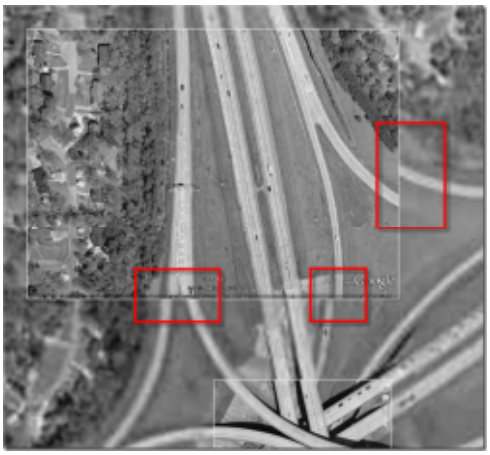
Importing Data from USGS National Map Viewer

Previous versions of AutoCAD Civil 3d have made it very simple to import image and surface from Google Earth. While the Google earth import is easy to use, it has several limitations

- Google Earth surfaces are limited in the number of points they will import. If your surface passes this limit, you will receive dumbed-down data to stay within the limit.
- Google Earth photos are not orthorectified. If you are working on a long, narrow corridor this becomes apparent quickly. The center of any image you import will be close to the correct location, but the edges can be off by quite a bit. (see below)



1-Image from Being Civil blog - See Credits

An alternative is USGS data from the **National Map Viewer**. It has many advantages including:

- Multiple data sources
- No limit of the amount of data you can download (no max point limit)

There are many different resolutions of surface information in the **National Elevation Dataset (NED)**. The NED data available comes in many resolutions depending on where you are in the country. More than one resolution is often available so be sure to choose the most appropriate based on your project. The National Elevation Dataset is replacing the previously used Digital Elevation Model (DEM). If you have imported a DEM before, importing a NED is similar.

The USGS National Map viewer can display many USGS products including:

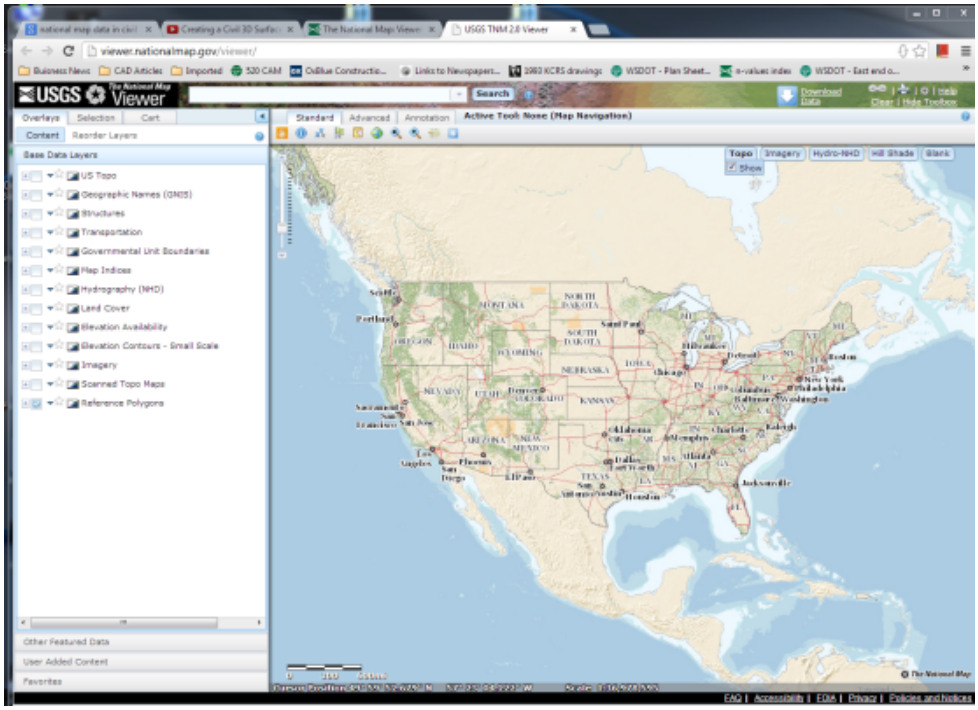
- US Topo maps
- Geographic Names
- Structures
- Transportation
- Government Boundaries
- Index maps (Map indices)
- Land Cover

- Elevation Availability (Index)
- Elevation Contours
- Imagery
- Scanned Topo Maps
- Reference Polygons

We will be working on downloading the NED Data, and Imagery.

Working With the National Map Viewer (NMV)

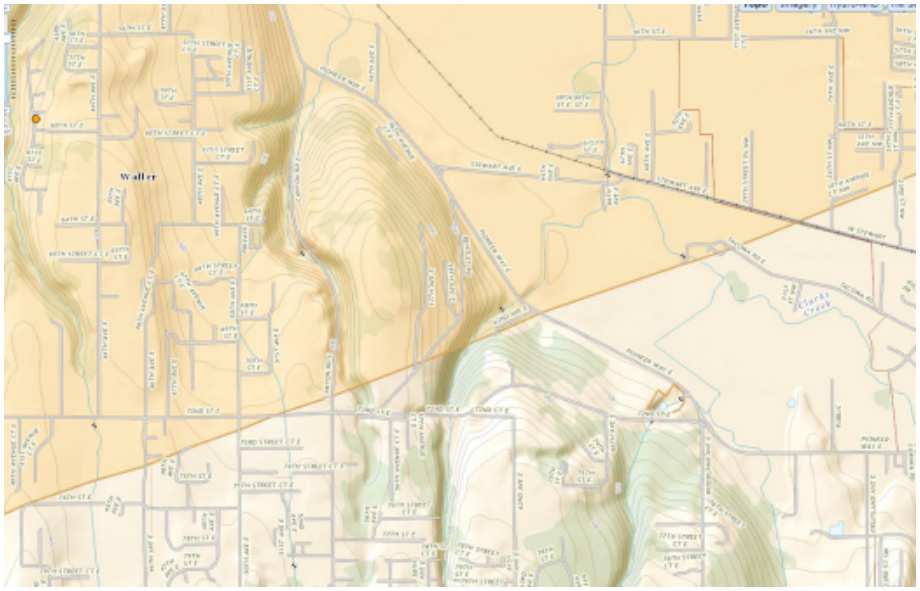
Launch the NMV in your browser. NMV works in Firefox, Chrome and Internet Explorer 7 or higher. Browse to



http://viewer.nationalmap.gov/viewer/ This will launch a window similar to Google Earth, with a view of the lower 48 states (and parts of other countries too)

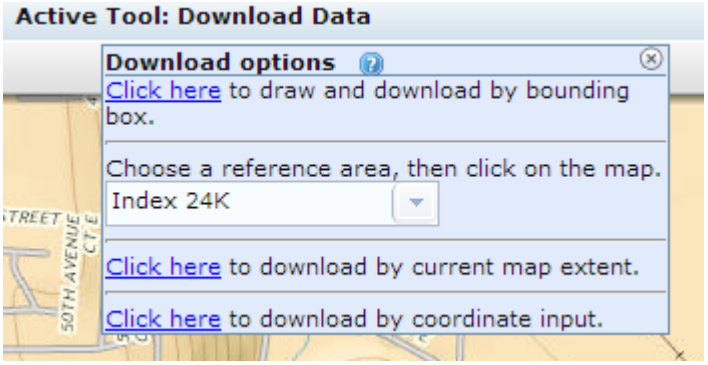
First let's zoom to our area of interest. I am going to start by typing a zip code into the search bar, in this case, 98443 and push the search button. I am then going to zoom to the area I want to download. In this case, the gravel pit at the intersection of Canyon Road E & Pioneer Way East.

These contours are cleaned up for large scale display. The data we can download will have much more information.

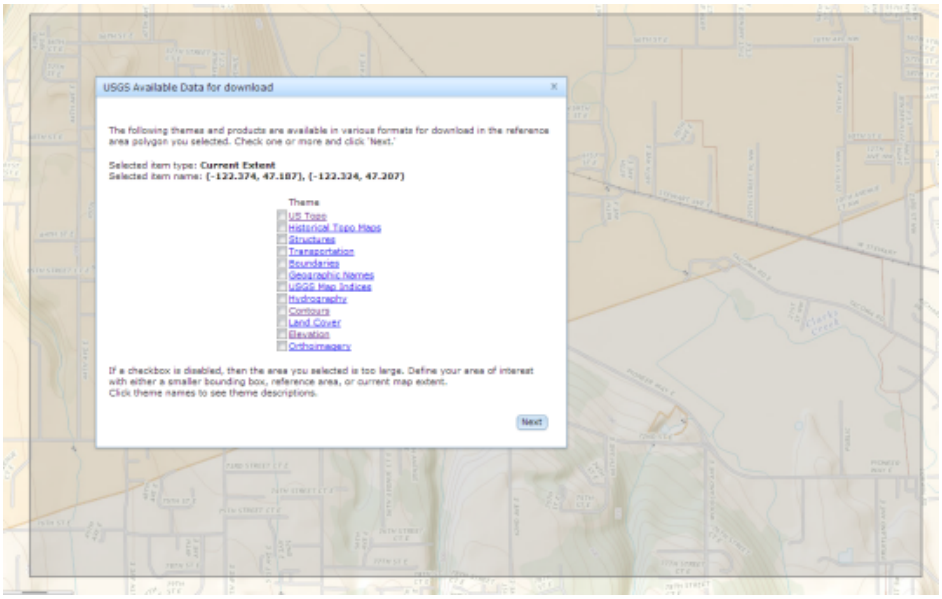


Now click on the Download Data button at the top-right of the screen.

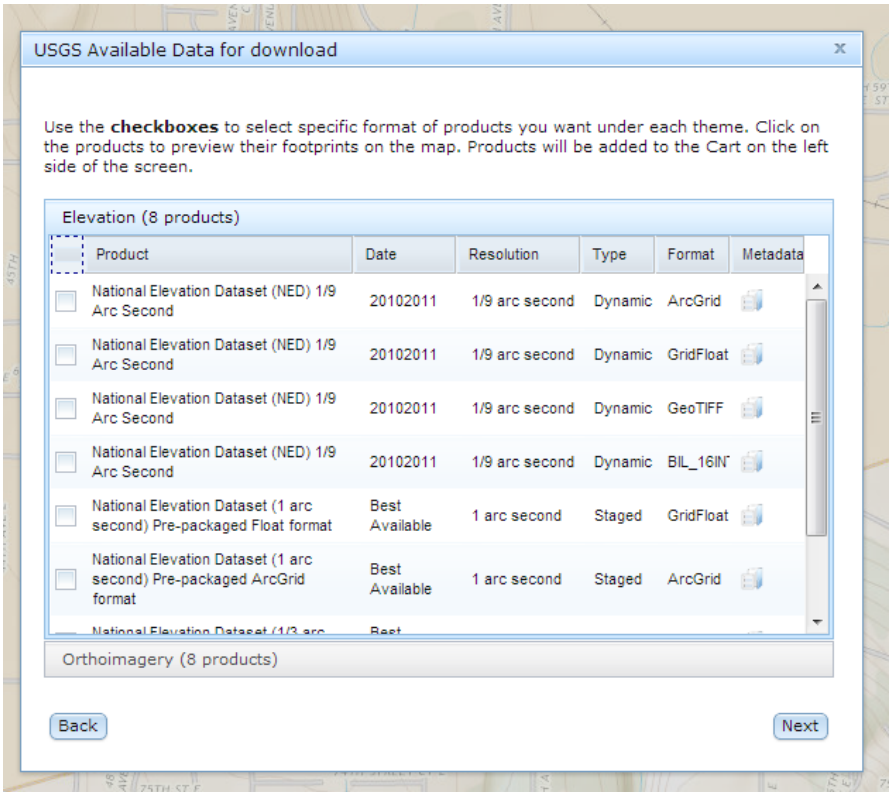
A new menu will appear. Select the Click Here and give the program a bounding box. This will define the extents of the data you wish to download.



After you finish drawing the bounding box, a new menu will appear. This is showing you the available information you can download. We will select Elevation and Orthoimagery.



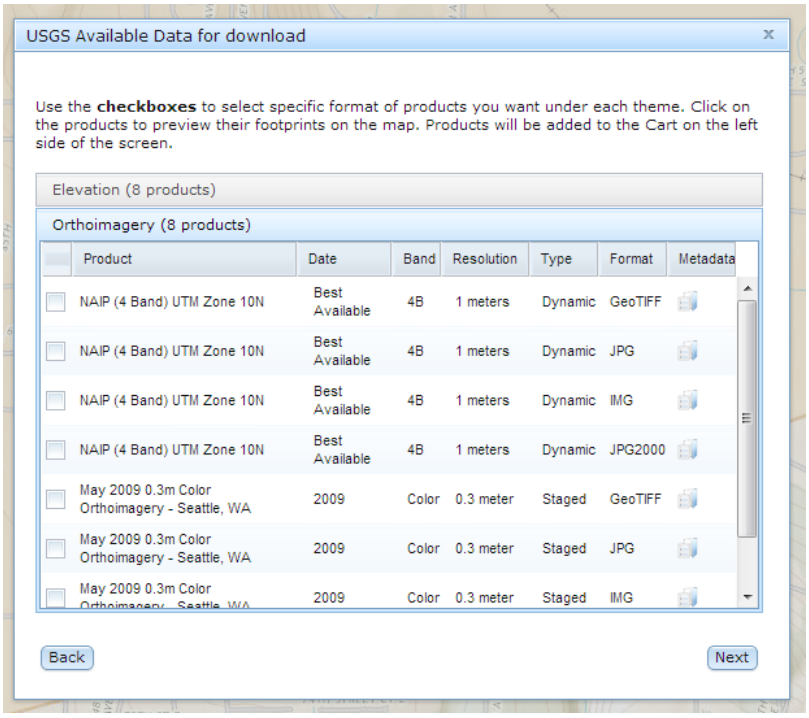
This shows the Available Elevation Data for download. Keep in mind the NED Data comes in several resolutions, and formats. We will download the 1/9th arc second data in Arc Grid format.



Click on the Orthoimagery tile, and we can select the imagery data set to download.

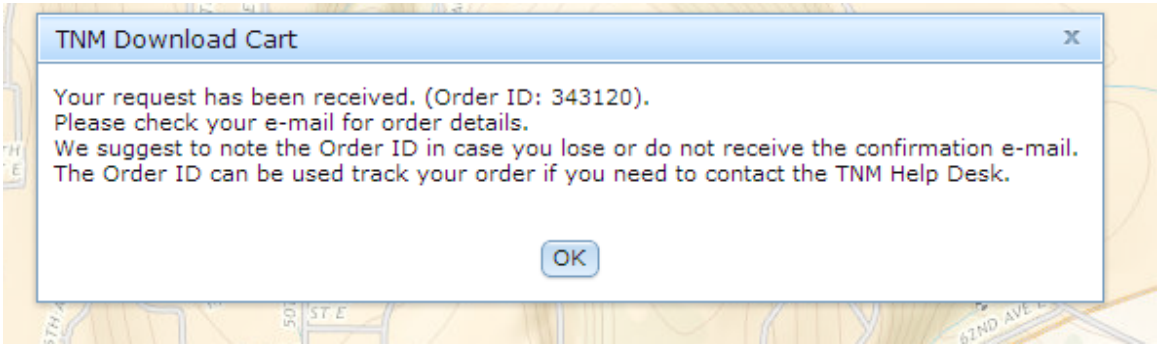
In the case as you can see on the right, it is your choice if a more recent photo outweighs a higher resolution photo.

We will select the NAIP (4 band) UTM Zone 10N in the GeoTIFF format, and then press next.



The USGS is using a virtual shopping cart model for shipping their products. While it calls it a shopping cart, the downloads from the site are 100% free. This delivery method is expected to change in 2013 to a straight downloading of products. After you checkout, and enter your email address (twice), click the place order button.

You will then get order ID #. You will receive a download link in your inbox.



Received Email:

USGS The National Map

Thank you for your recent data order placed with The National Map Viewer. Below are the details of your order with specific instructions.

Order ID: 343120

Elevation - Below are the links to download the data you requested. Due to the size of raster data, your request may have been broken into chunks. The chunks are listed below, and in the near future, this message will include a map to locate the chunks.

Product	Extracted by	Format	Download Link
National Elevation Dataset (NED) 1/9 Arc Second 1/1	Current Extent/(-122.374, 47.187), (-122.324, 47.207)	ArcGrid	Click here to download

Orthoimagery - Below are the links to download the data you requested. Due to the size of raster data, your request may have been broken into chunks. The chunks are listed below, and in the near future, this message will include a map to locate the chunks.

Product	Extracted by	Format	Download Link
NAIP (4 Band) UTM Zone 10N 1/1	Current Extent/(-122.374, 47.187), (-122.324, 47.207)	GeoTIFF	Click here to download

Download footprint data: KML

NOTE: Your order has been processed by the The National Map 2.0 Viewer and Download toolset. Please contact the Service Desk at tnm_help@usgs.gov with comments or issues. If you have a problem with any of the products, forward this e-mail to the Service Desk and indicate which product did not work as expected.

Kindest Regards,
The National Map Viewer and Download Team
tnm_help@usgs.gov
http://nationalmap.gov

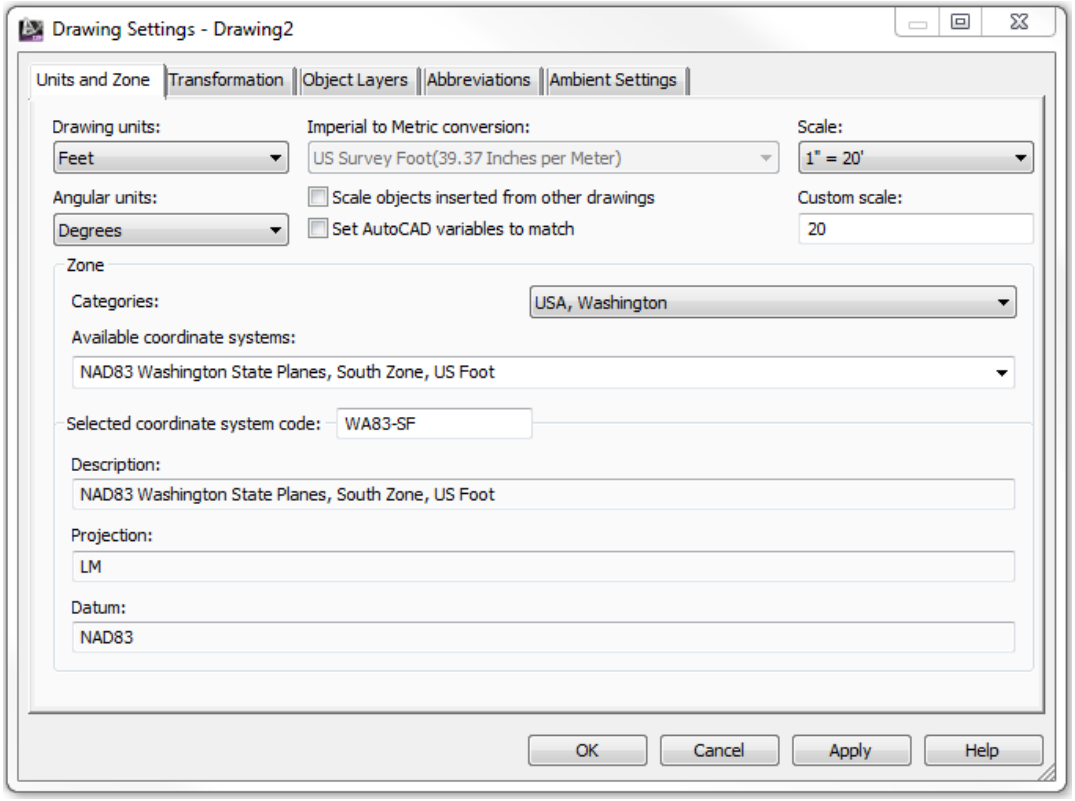
After receiving your delivery e-mail, you can download the desired products. We are going to start with the NED data. Click on the download link. The program will route you to an 'extractor' web page. Wait a minute or so for the computer to do its work. Then it should download the requested NED Data. Keep in mind the order will refer to the NED data as Raster data. We are used to seeing raster used to describe an image. In this case raster is referring to information created on a grid.

After the data extraction is complete, save the ZIP file on your computer.

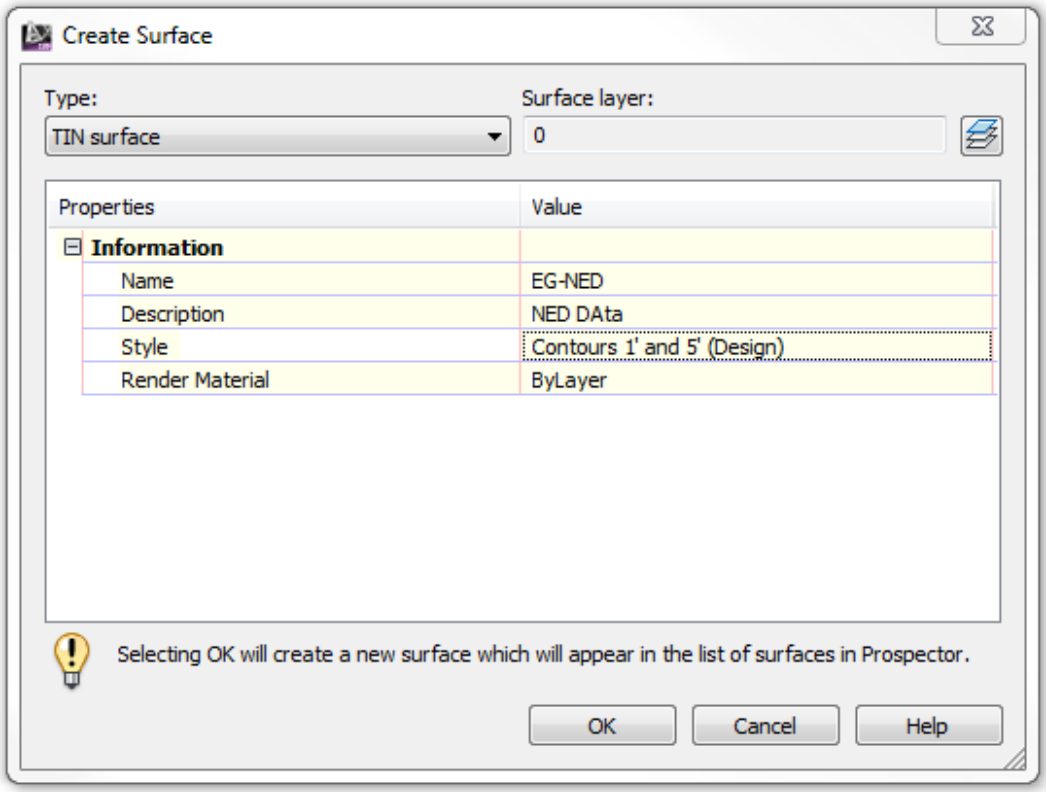
Importing NED Data into Civil 3d

In Civil 3d, begin a new drawing. Start with a template that defines the surface styles you will wish to use.

In order to use this drawing to import our NED data, we have to define a coordinate system for the drawing. Change the Drawing Settings, Units and Zone tab, to include a coordinate system for this drawing.

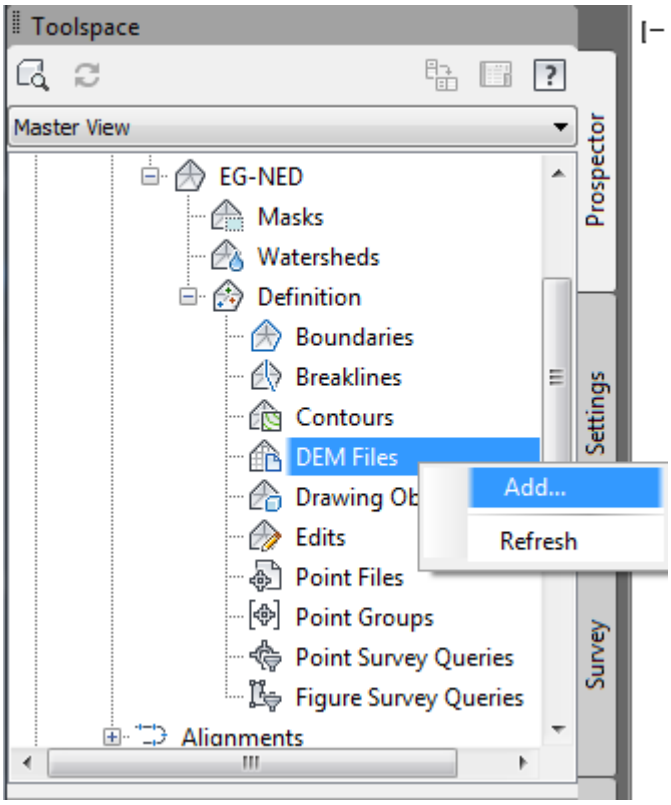


Then create a new surface to display the NED Data.



Go into the surface collection in the Toolspace, pick DEM Files and select Add…

The file you are looking for will most likely be called **w001001.adf.**



The current drawing coordinates are at the bottom of the page, you need to input the coordinate system of the NED file.