ESS DB Development From A Drawing

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1. Introduction

A. This document describes how to set up an ESS database when no imagery or GIS-based facility data is available. This option has been a highly requested capability by multi-service personnel for the last 9 years. Despite it being a valuable tool; there are some limitations that you need to be aware of when utilizing this particular ESS option:

1. The accuracy will not be as good as if you had obtained quality GIS and RPI data.
2. The accuracy will only be as good as the effort you apply to the process.
3. Probably the most important fact to remember is this process is not even close to the regular database generation process.

B. In this process you will be required to gain all of your data and imagery. You will be required to input, classify, and define all of the parameters associated with this option.

C. Lets briefly review the steps for this ESS option.

1. Acquire a drawing or image, make a drawing, or obtain a digitally scanned image or drawing.
2. Create a new ESS database.
3. Scale the image and add it to the database. Fourth: Create new GIS layer(s) and then add the facilities to the database.

2. Acquire a Drawing or Image

A. Acquire a background image that represents the installation feature. The image can be obtained via a number of sources as identified below:

(1) Google Earth: https://www.google.com/earth/

(2) Bing Maps: http://www.bing.com/maps/

(3) Army Mapper: https://mapper.army.mil/

(4) US Army Corp of Engineers, Geospatial Center: http://www.agc.army.mil/

(5) USGS Geospatial Data Sources: http://education.usgs.gov/lessons/geospatialwebsites.html

NOTE: This site has a very large compilation of sources where you can access free GIS imagery.

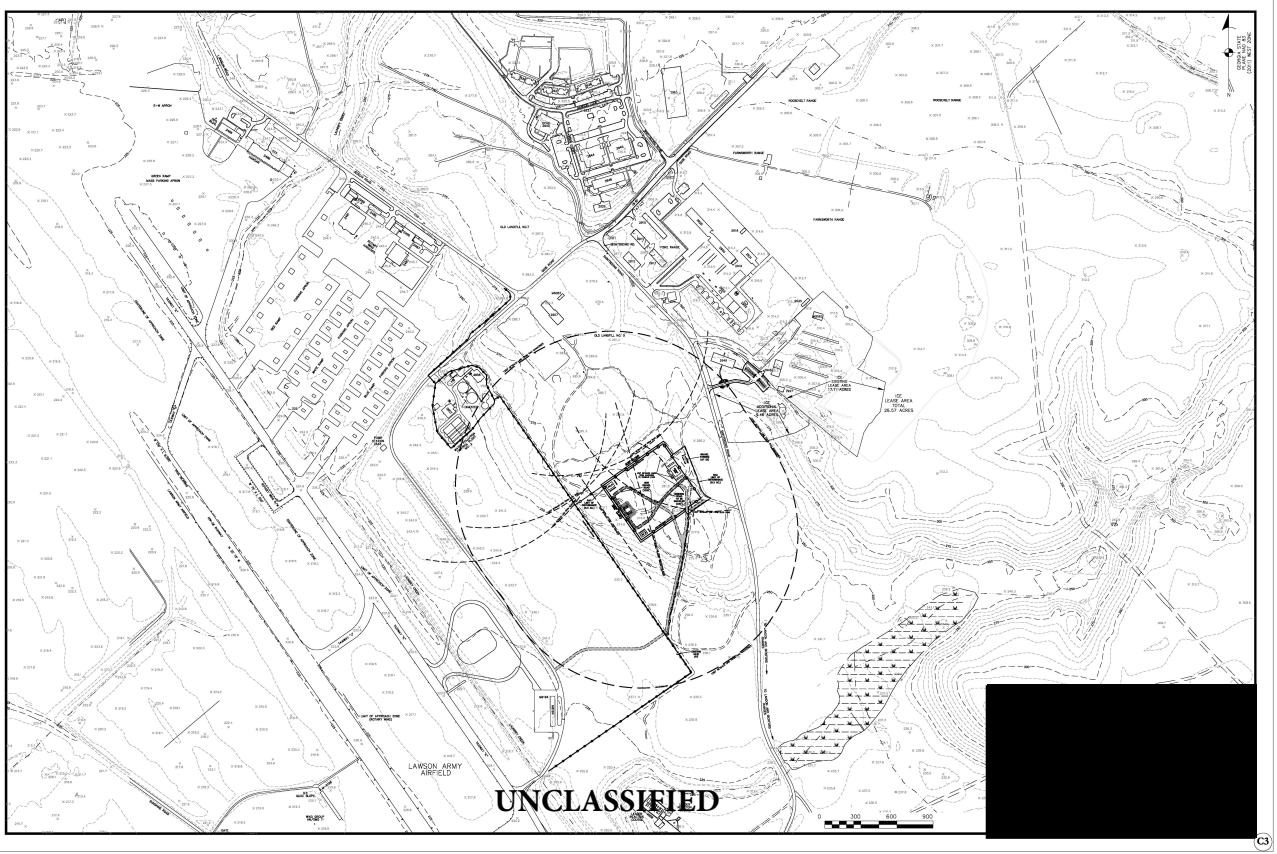
(6) Your Command GIS POC's

B. ESS will accept files in the following formats:

ESS Accepted Image or Graphic Formats	
Image/Graphic Format Type:	File Extension:
Seamless Image Database	*.SID
Tagged Image File Format	*.TIFF
Bitmap image file format	*.BMP
Joint Photographic Experts Group	*.JPG/*.JPEG

C. Below are some examples of images that you can use. The first image is what this guide will be based on for simplistic reasons.

(1) Fort XZY Area:



NOTE: With drawings like this you need to have someone with boots on the ground to gain as much information as possible. The following items as a minimum need to be obtained:

-Facility number

-Size of facilities

-Distances between PES and ESs

-Types of operations performed at each location

-Each HC/D assigned to each facility

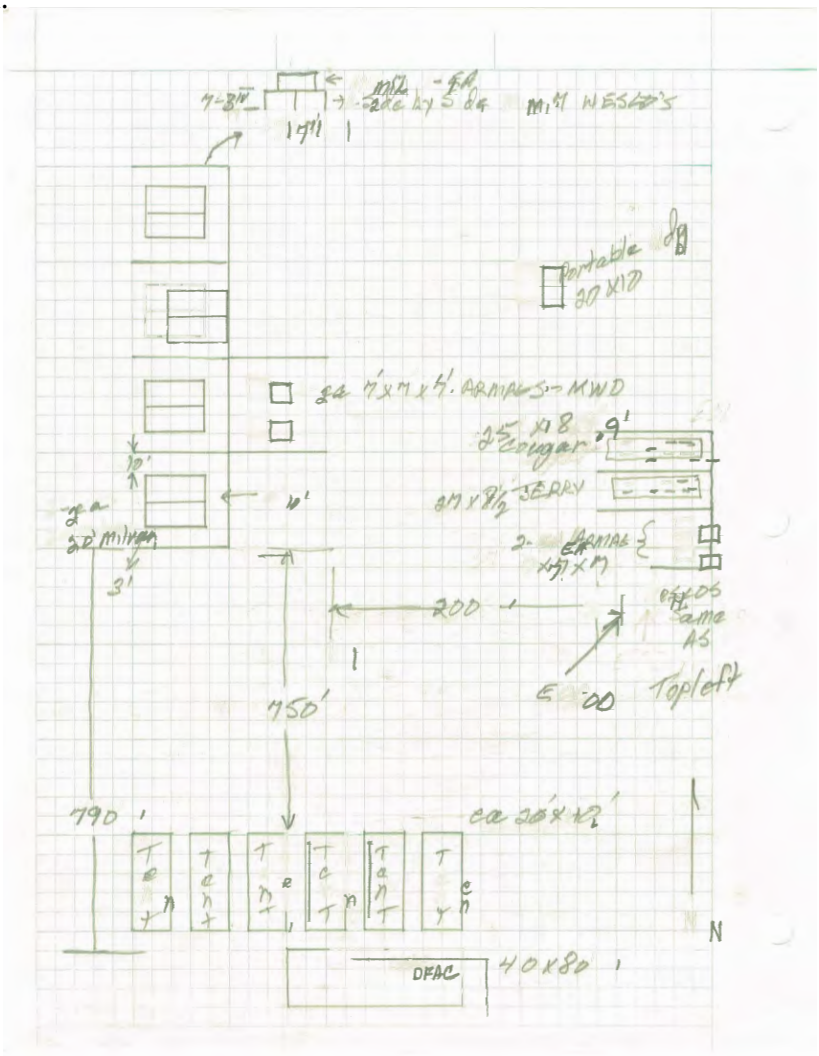
-NEW assigned to each facility

-Personnel assigned to each facility

-Critical utilities within the area

-Asset preservation related facilities identified

(2) Hand Drawn:

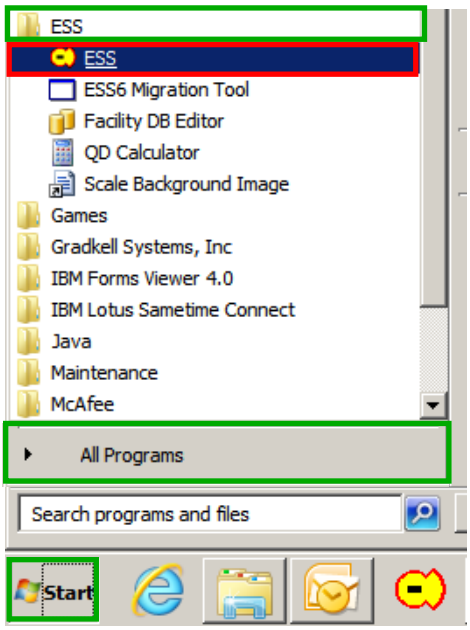


(3) Satellite Image:

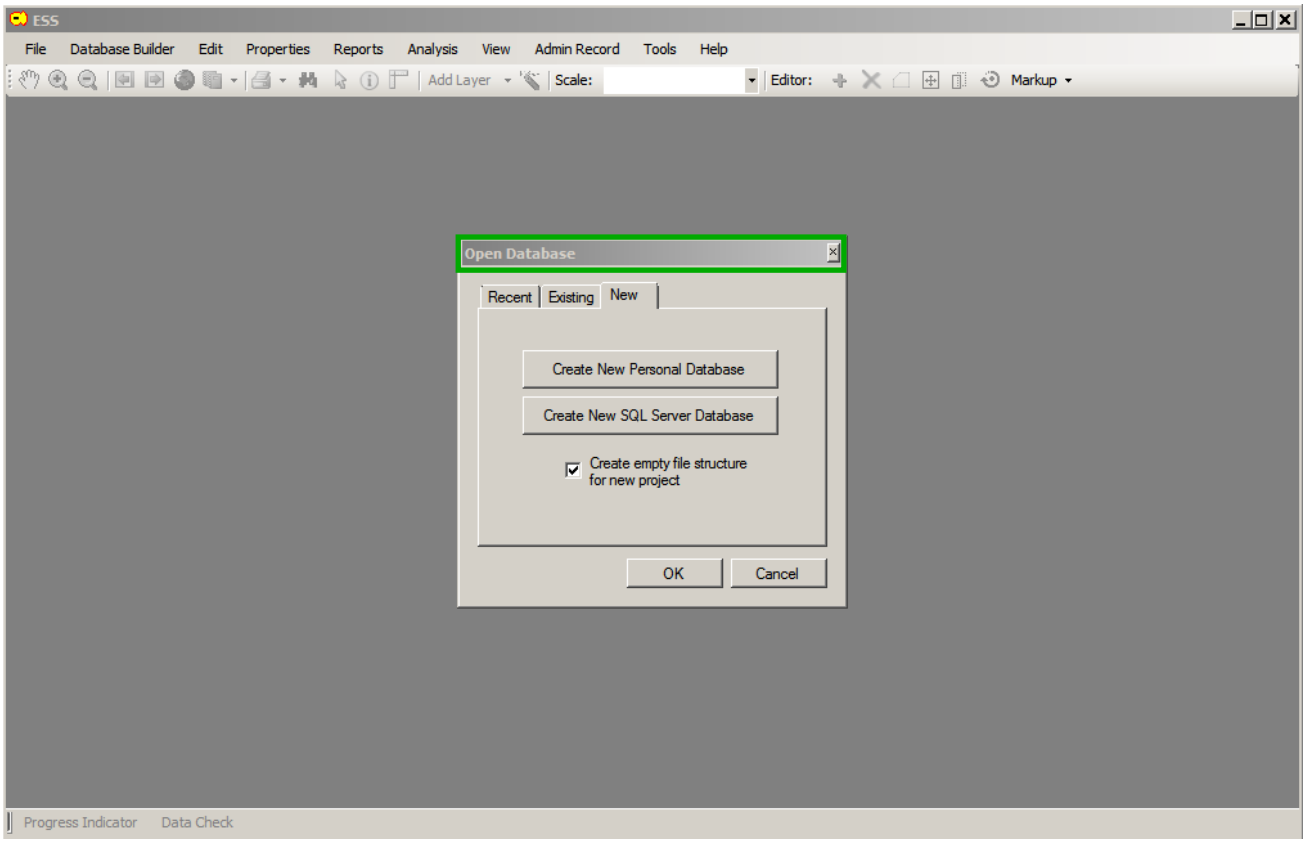
CAUTION: Make sure that images obtained while deployed forward are not secret or have sensitive data identified. Coordinate images with the Geo-Spatial Intelligence unit or your security manager prior to published use.

3. Create a New ESS Database

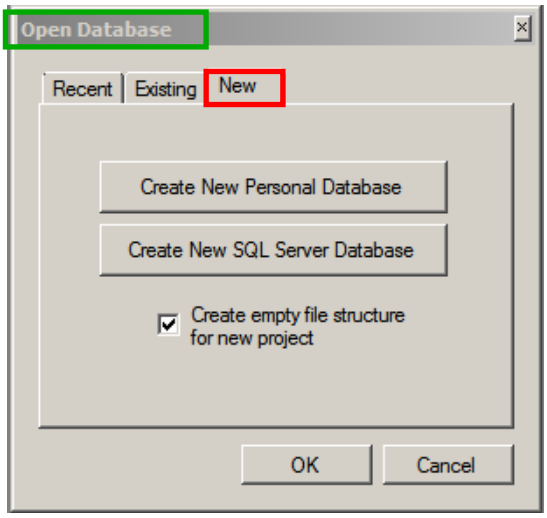
A. Launch ESS, go to **Start > All Programs > ESS >** Click on ***ESS***



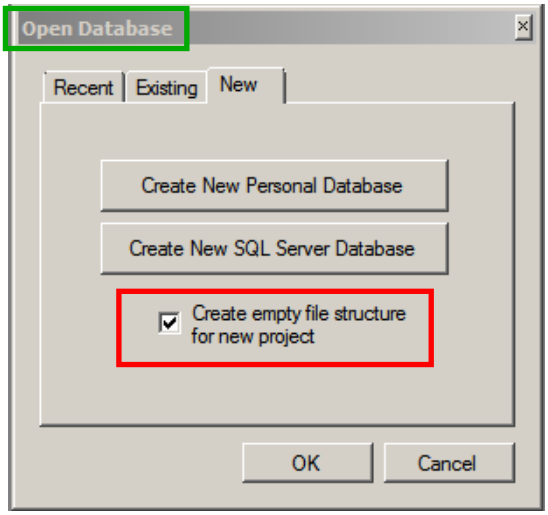
B. ESS is now loaded and the **Open Database** window will open.



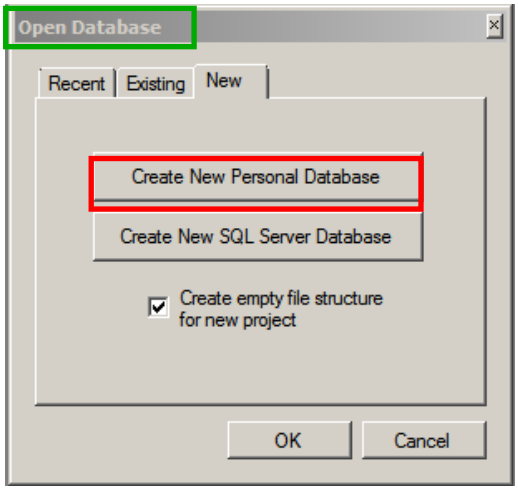
C. In the **Open Database** window below, click on the **New** tab

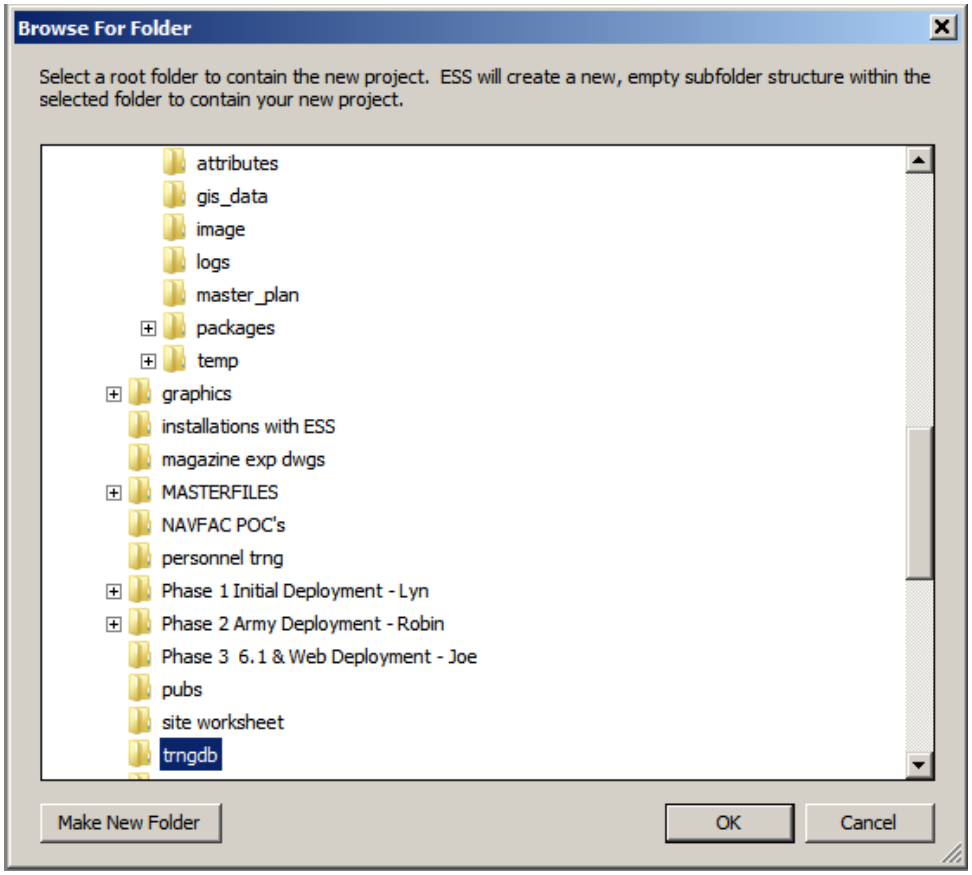


D. In the **Open Database** window below, check the **Create empty file structure for new project** box.



E. In the **Open Database** window below, click the **Create New Personal Database** button



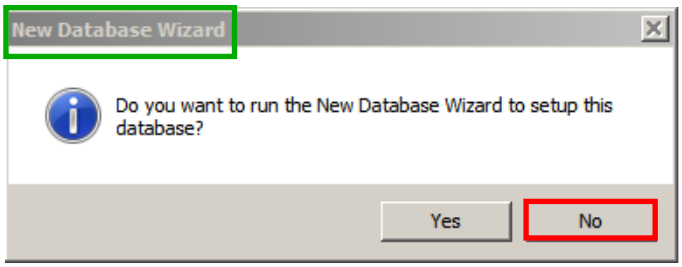


F. In the **Browse For Folder** window select a folder or create a new folder to contain the new database. In this guide, I will use **C:\00-ESS\TRNGDB. (NOTE: This folder location is only for the purposes of you following the procedural steps assisting you in the ESS DB development.)**

IMPORTANT NOTE: The ESS folder path can only be 256 characters or less. Any characters greater than 256 total will render errors and a lot of headaches for you.

G. In the **New Project Name** window, enter a name in the **Enter a name for your new project**.

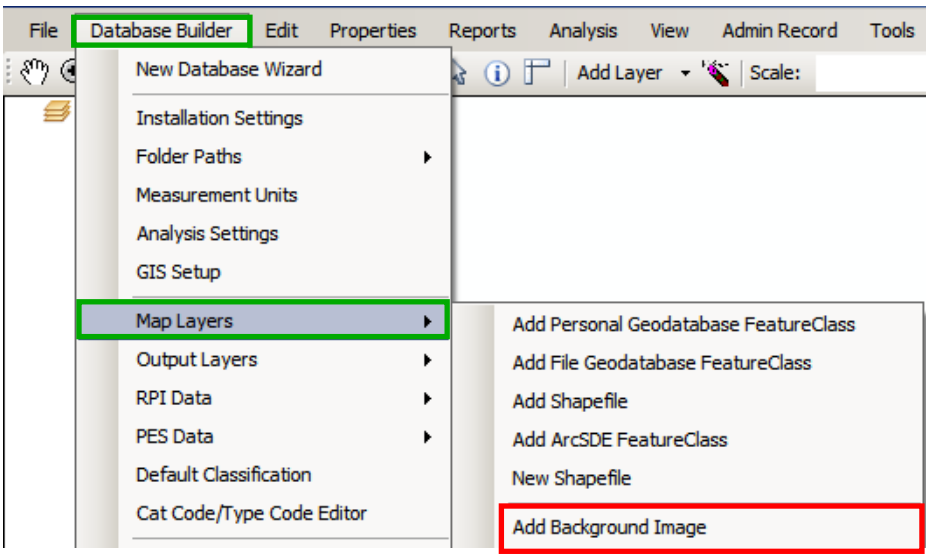
H. When done, click on **OK**.



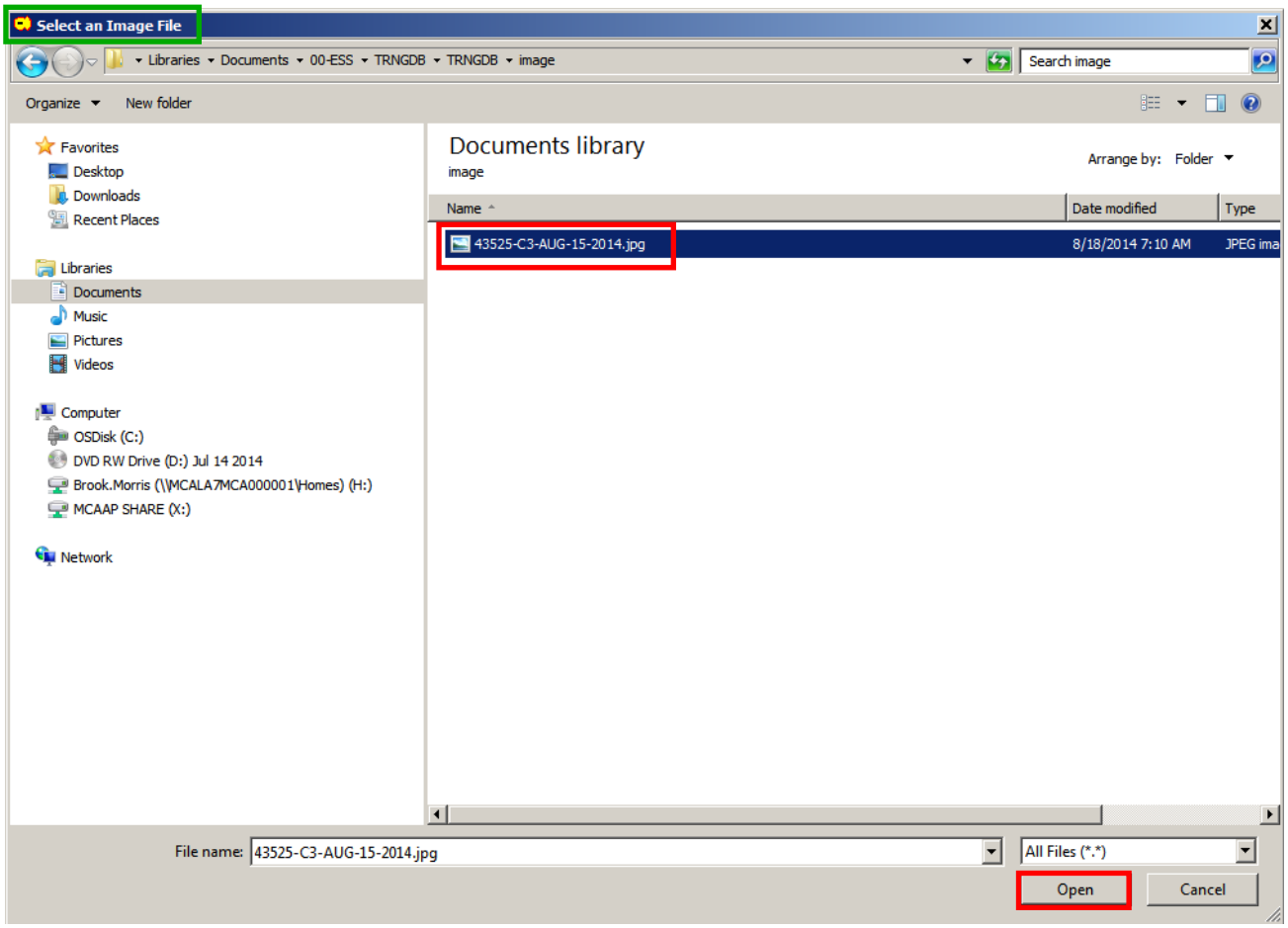
I. The ESS main screen will open, and the **New Database Wizard** dialogue will appear asking you, Do you want to run the New Database wizard to setup this database? Click the **No** button.

4. Add and Scale the Image

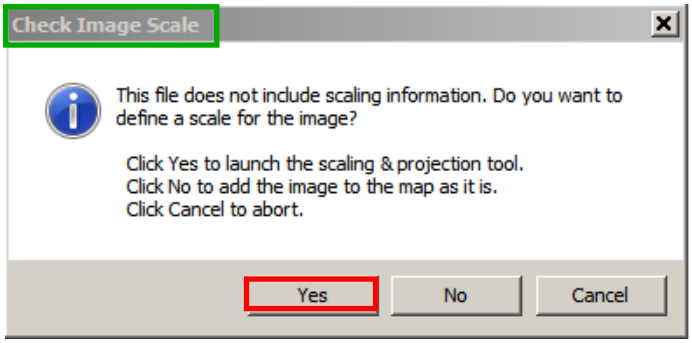
A. In the **Main ESS Toolbar** as seen below; Go to **Database Builder > Map Layers** > click on **Add Background Image**



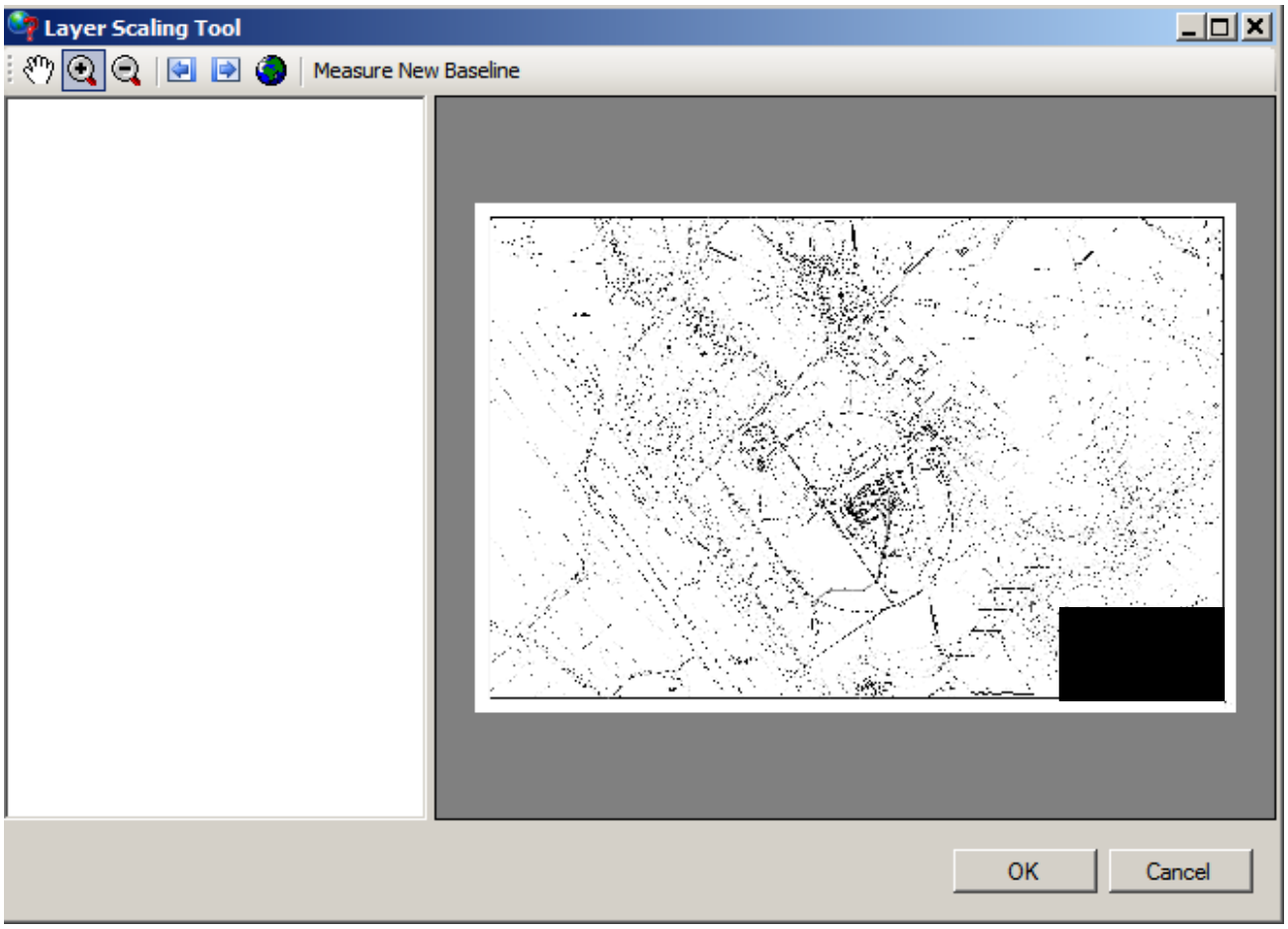
B. This will open the **Select an image File** window as seen below. If you don't see your file, you may need to change the file type or the folder location. Select the **image**, then click on **Open.**



C. A **Check Image Scale** dialog box as seen below will open letting you know there is no scaling information. Click on **Yes** to launch the Scaling Tool.



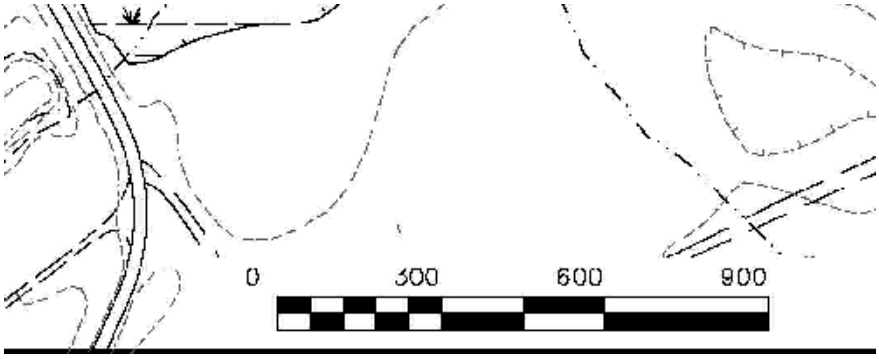
D. This will open the **Layer Scaling Tool** window seen below. I recommend expanding this window to its fullest extent. You can do this by simply clicking one time in the upper right corner on the  .



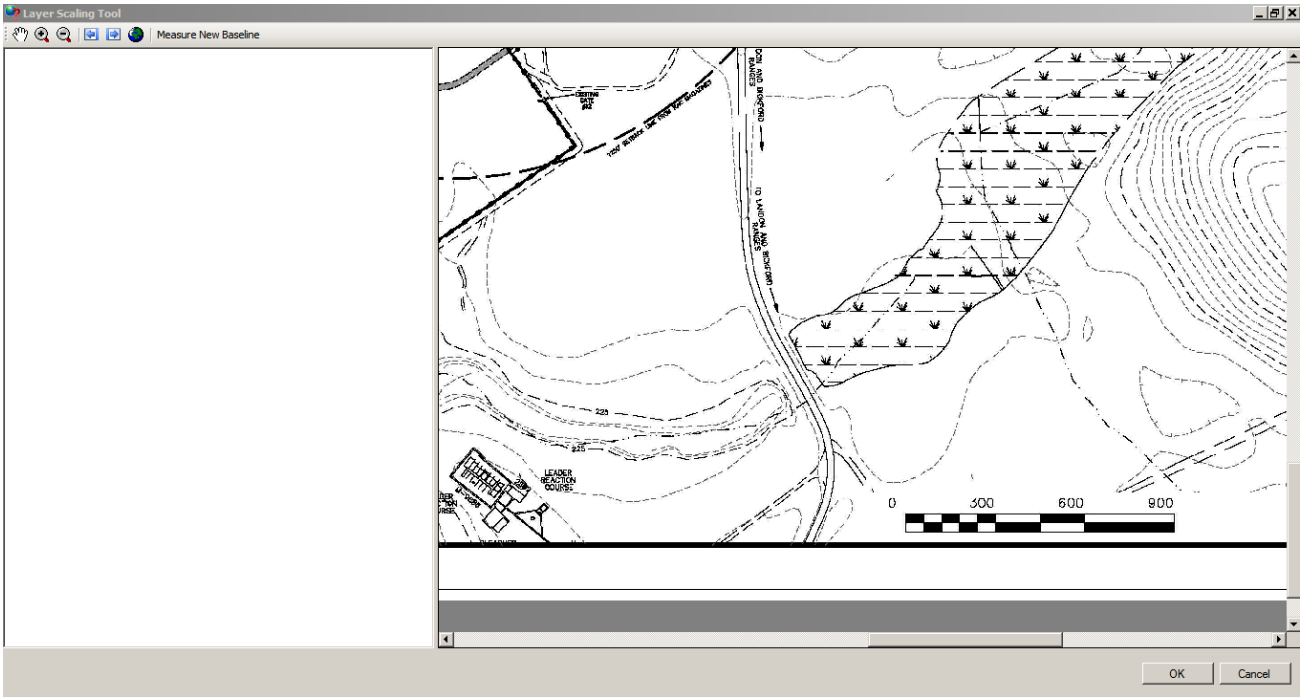
E. You are required to set two distances: one going North-South and the other going East-West. It is highly recommended that you actually insert more than the two minimal distances. This will increase your accuracy as the program will evaluate all distances you input and average them for the scaling.

Note: There is additional menu option available allowing you to scale an image. It is simply a different route to access it. It is located at: **Database Builder > Map Layers > Scale Background Image**.

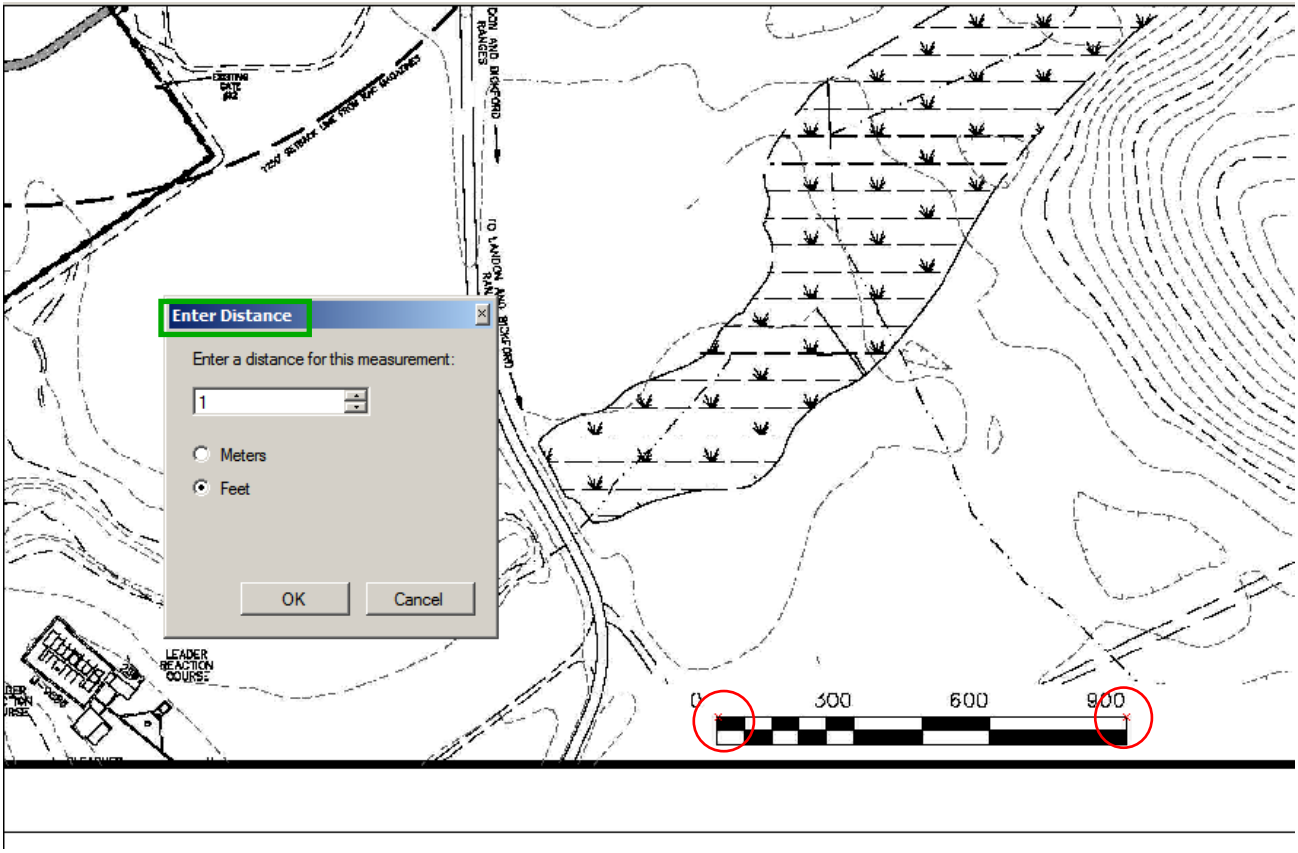
F. You will need to find a known distance going East-West. For simplistic reasons, use the scale bar found in the bottom right corner of the map. Use the navigation tools to zoom in close enough to view the scale bar. Reference the image on the next page.



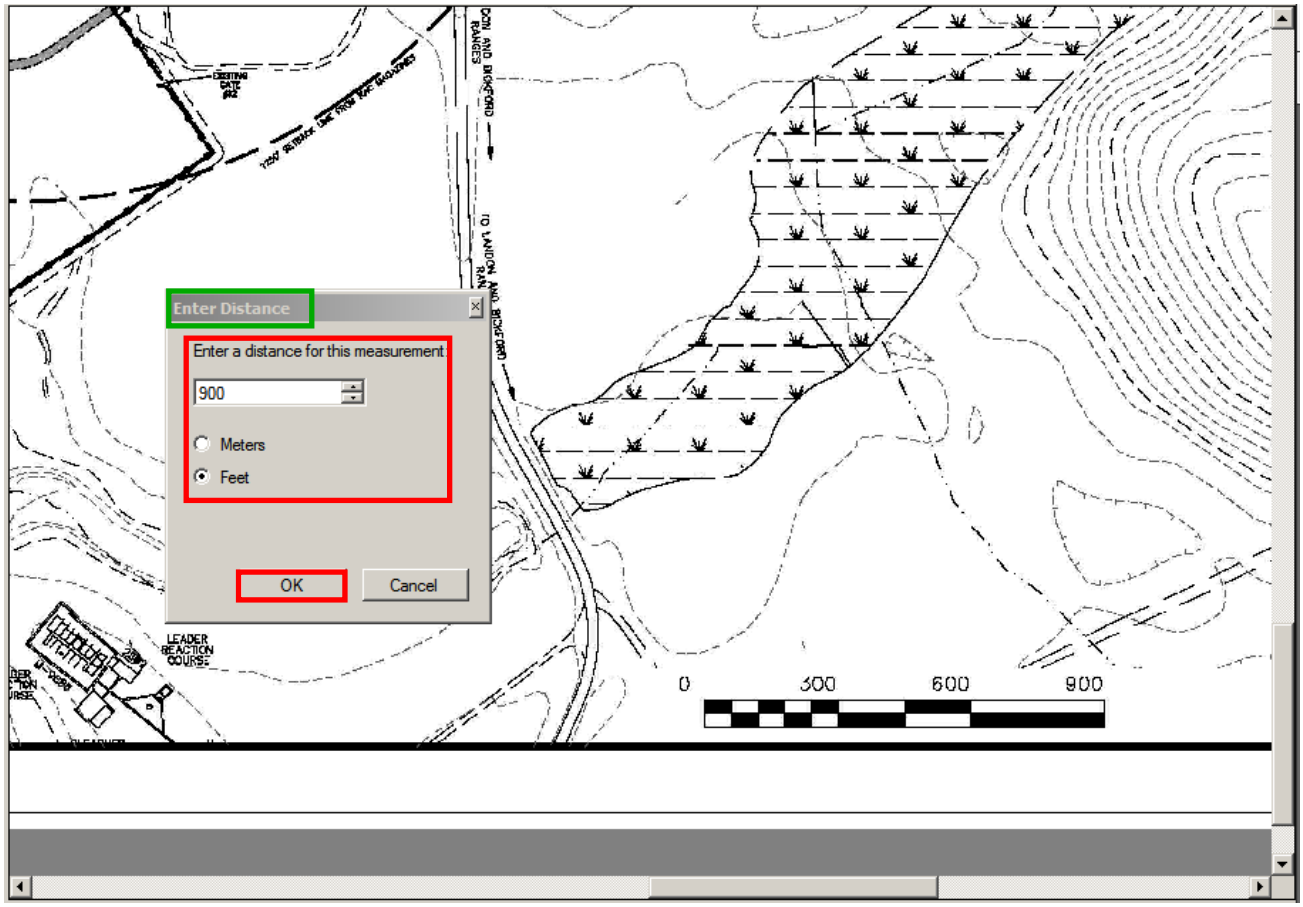
G. Now that you have zeroed in on the tool bar. Go back to the tool bar at the top of the **Layer Scaling Tool**. Click on the **Measure New Baseline**.



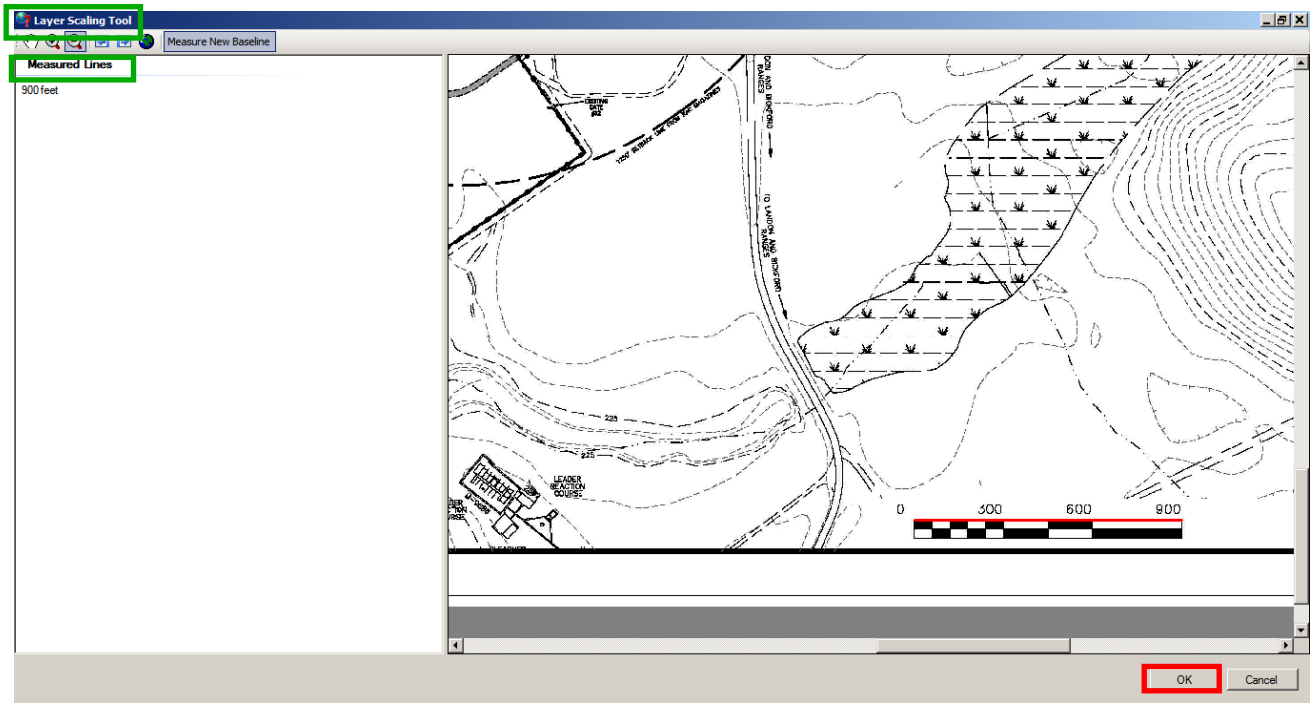
H. Take the cursor and click on the 0 end of the scale bar, hold down your left mouse button and drag the cursor to the end of the scale in this image which is 900 feet. You will notice that two red **X**'s are at either end of the scale bar as seen in the image below. You will also have an **Enter Distance** dialogue box come up on the screen. This Enter distance box will appear for each distance you enter.


Enter Distance
Enter a distance for this measurement:
1
Meters
Feet
OK
Cancel
300
600
900

I. In the **Enter Distance** dialogue box below, you will see a box named **Enter a Distance for this Measurement**. Enter the measurement for your first distance which in this case will be **900** feet. Click **OK** when done.



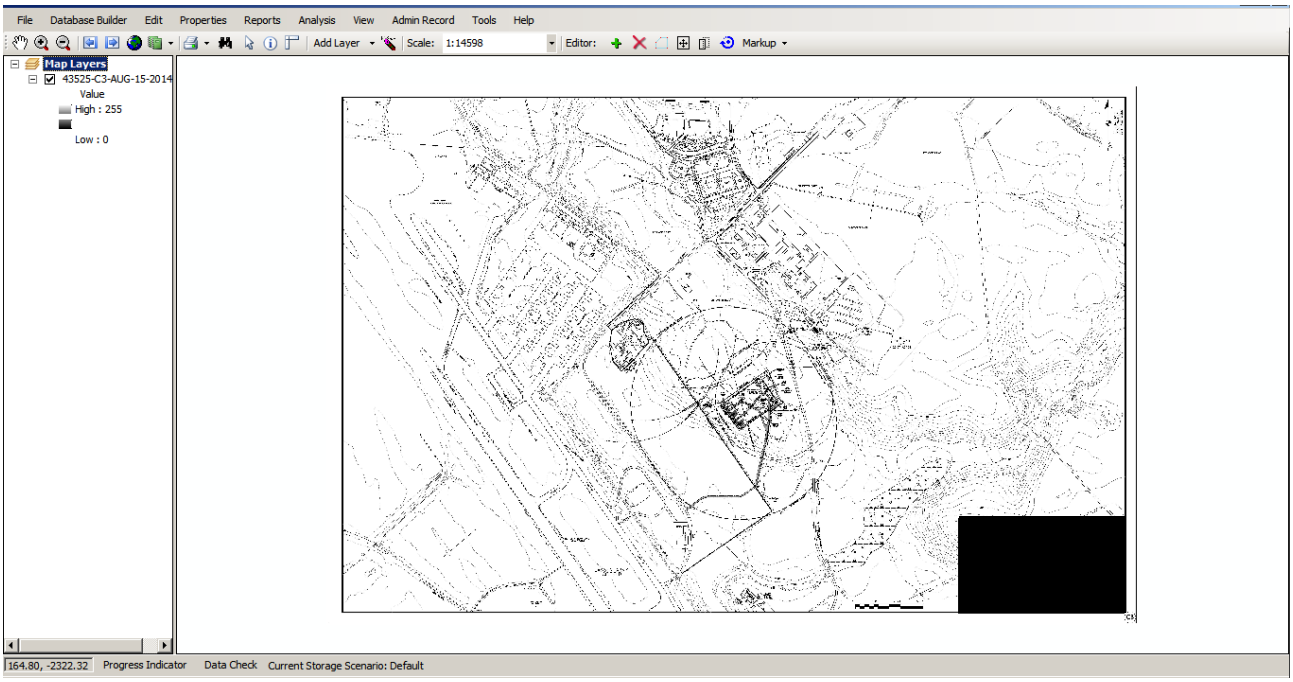
NOTE: The 900' was added to the left side of the **Layer scaling Tool** Window in a box called **Measured Lines**. You will note the red line created by the program along the top of the scale bar.



J. You will perform steps 5G thru 5I as many times as you feel necessary. When done click the **OK** button.

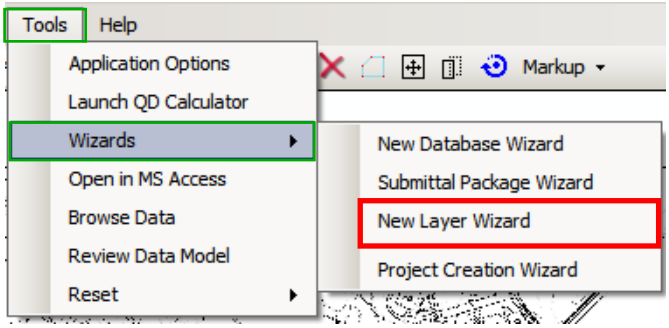
TIPs:
- You need at least one baseline to scale the drawing or image.
- Baselines must be at least 1/2 inch in length when digitized on the screen. Zoom in on the image to digitize lines smaller than 1/2 inch at the current map scale.
- If multiple lines have been digitized, the application will take an average of the measurements when deciding upon a scale.

K. Upon clicking OK you will be returned to the ESS Main screen as seen below.

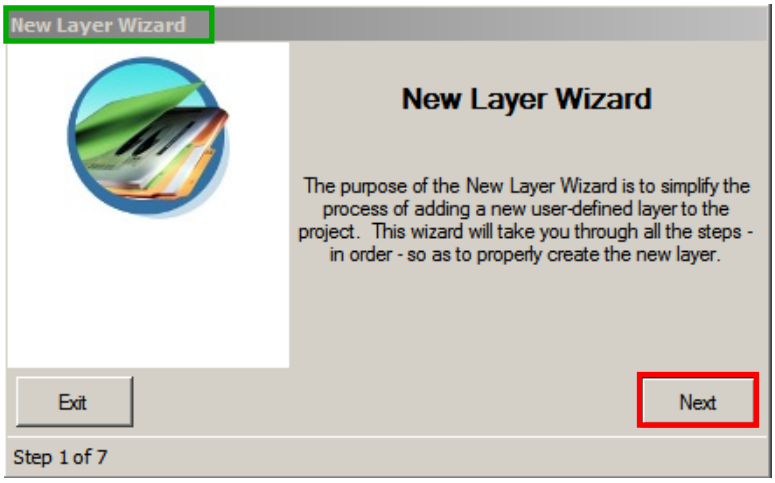


5. Create a New Map Layer

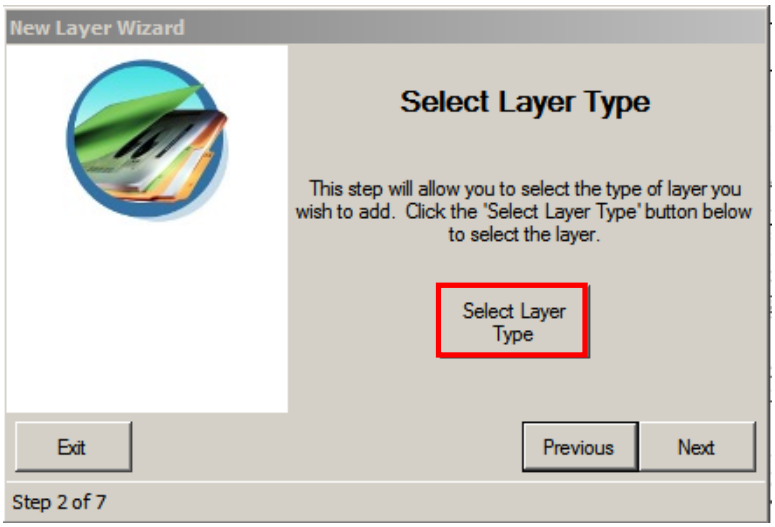
A. On the ESS Main Tool Bar, go to **Tools > Wizards > New Layer Wizard**



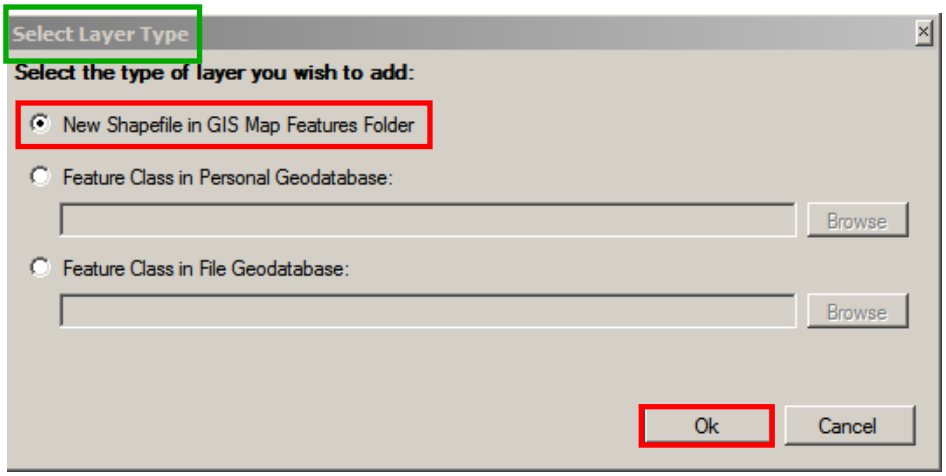
B. The **New Layer Wizard** dialogue will open as seen below. Click on **Next** to start…



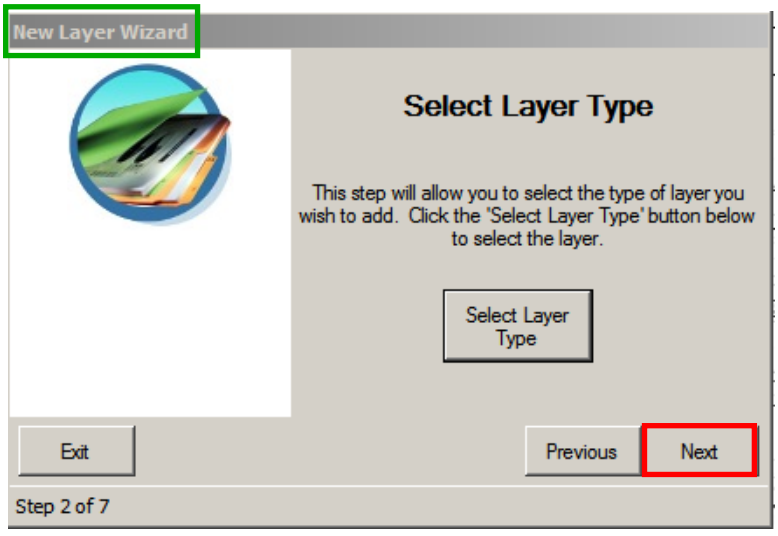
C. Click on the **Select Layer Type** button.



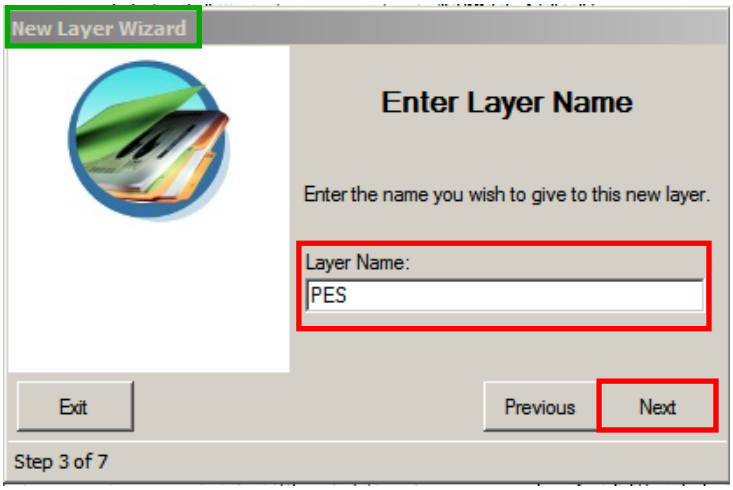
D. In the Select layer Type window, you can create either a Shapefile, or a Feature Class in a Personal Geodatabase, or a Feature Class in a File Geodatabase. If selecting either the Feature Class in a Personal or File Geodatabase, you will need to have an existing Geodatabase . In this guide, the **New Shapefile in GIS Map Features Folder** is selected. When done, click **OK**.



E. You have returned to the **New Layer Wizard**. Click the **Next** button as seen below.

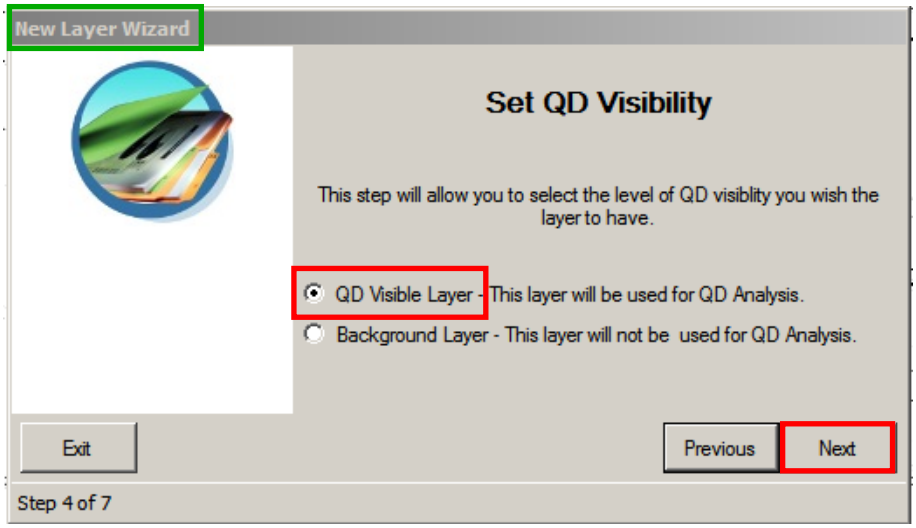


F. The **New Layer Wizard** has opened up the Enter Layer Name dialogue. Enter the Layer Name of your choice. For the purposes of this example, I will input **PES** as the layer name.

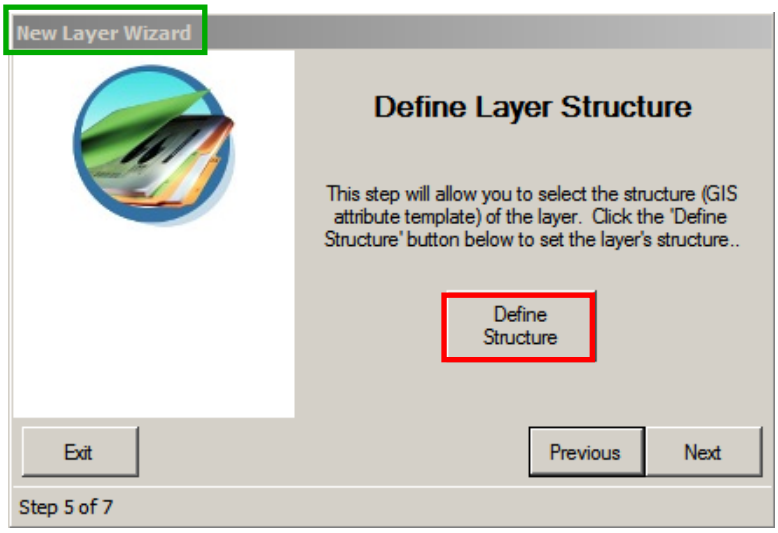


G. Click **Next**.

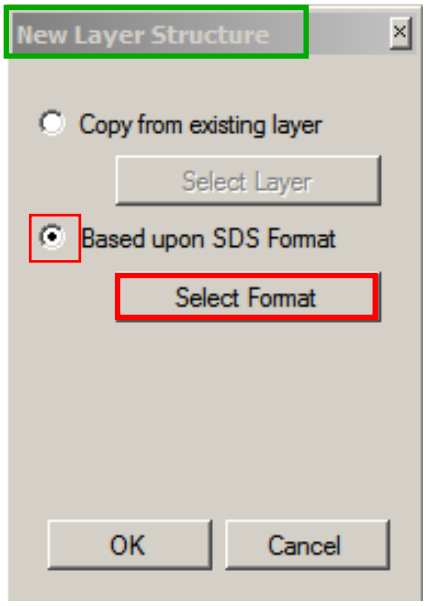
H. The **New Layer Wizard** is asking you to Set the layer to be added as either a QD Visible Layer or a Background Layer. If the features on this layer need to be included in the analysis, such as an inhabited building or a PES, then select QD Visible Layer. In this guide, we will select **QD Visible Layer**, then click on **Next**.



I. The **New Layer wizard** returns and you need to click the **Define Structure** button in the image below.



J. After clicking the Define Structure button above, you will see the **New Layer Structure** dialogue open as seen below. You have two options at this point: One, choose to copy a layer structure from an existing GIS layer; Two, select a format from a list of SDS Formats. In this guide, click the option for **Based upon SDS Format**, then click on the button, **Select Format**

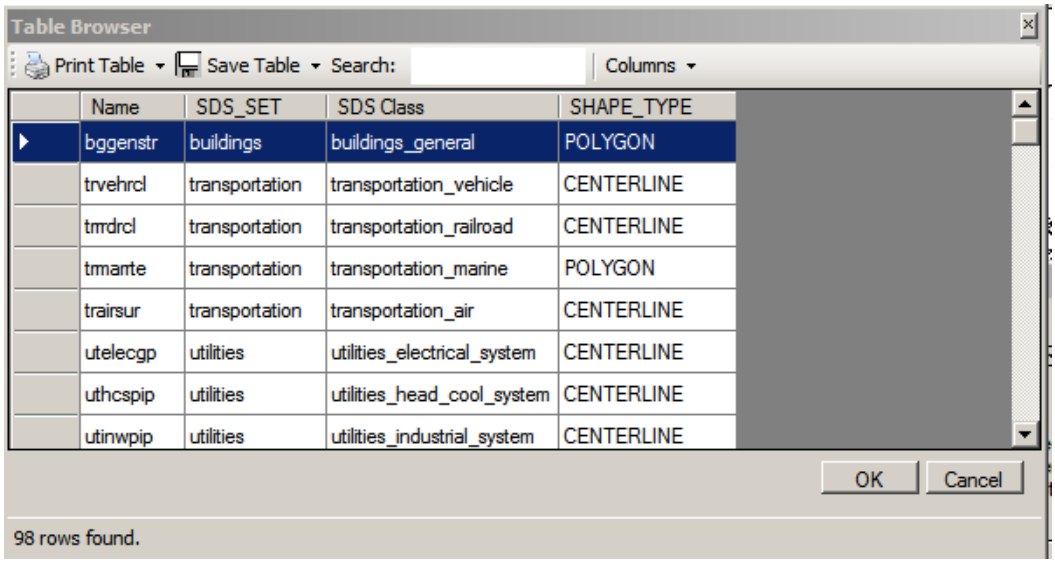


REFERENCE: For a listing of layers based on the SDS Format see Section 14.

NOTE: *SDSFIE* = The Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) is the single Department of Defense (DoD) spatial standard that supports common implementation and maximizes interoperability for installation, environment, and civil work missions.

K. The Table Browser is now open. To make this easier to read you need to do a couple of things:

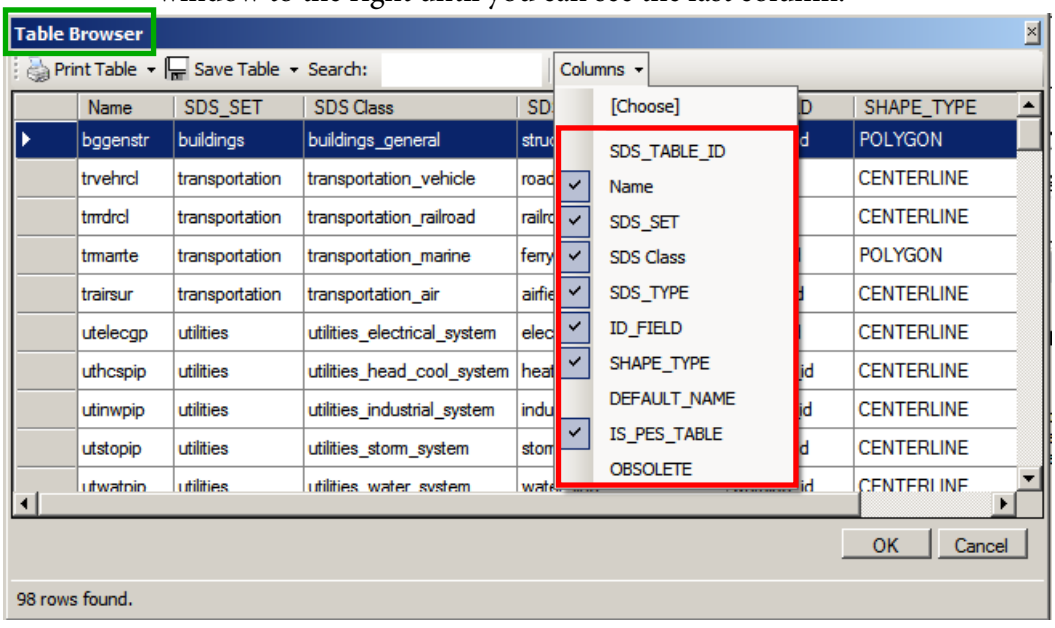
(1) Take your mouse cursor and place it in the top portion of the Table Browser and while holding down your left mouse key pull the Table Browser upward and to the left.



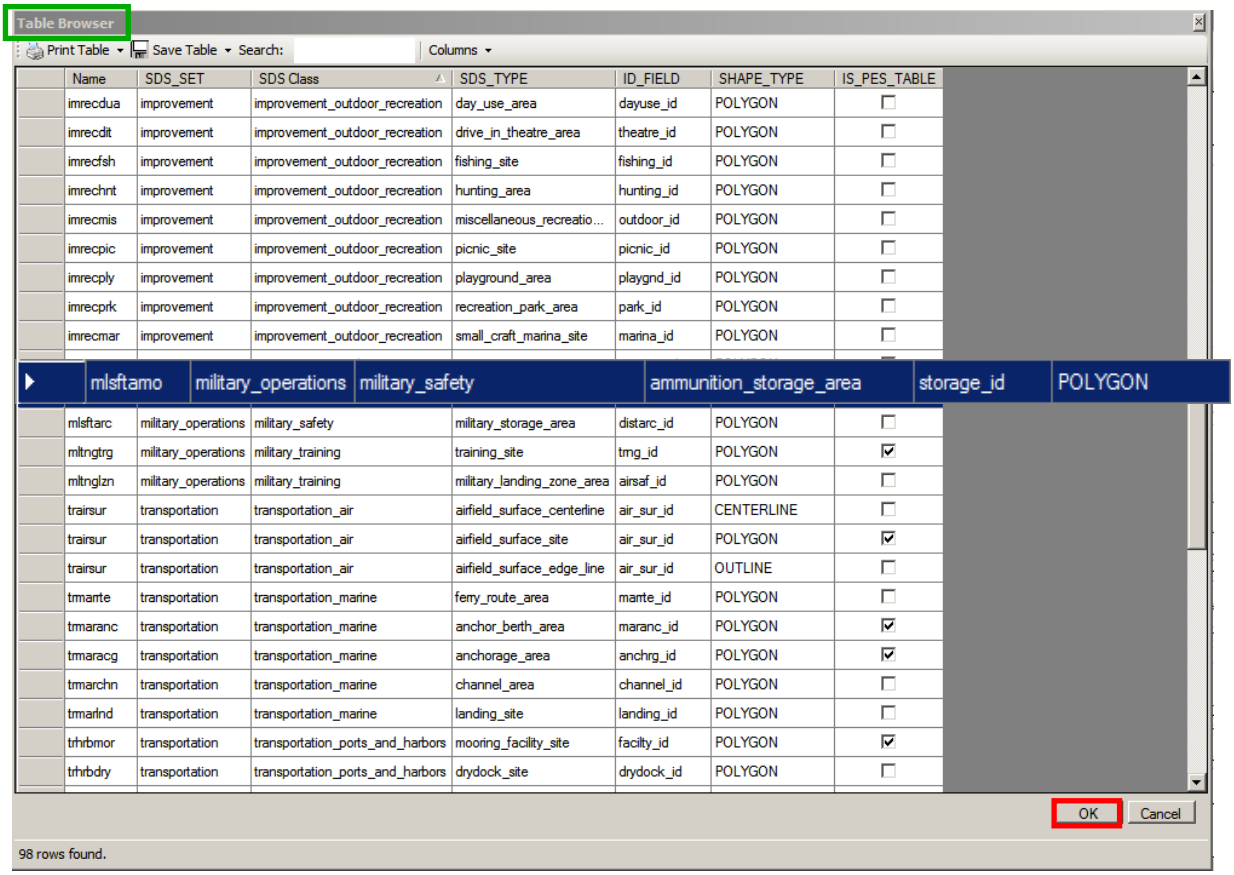
(2) Click on the **Columns** drop down menu as seen above.

(3) In the **Table Browser**, click on the following **column names** as seen below--Some will already be checked: SDS Type, ID_Field and IS_PES_Table as seen below. This will assist you in seeing exactly what you are choosing.

(4) After selecting the columns you will need to adjust your windows view to see all of them. Simply move your mouse cursor over the left border of the window and it will change to this image  and while holding down your left mouse button drag the window to the right until you can see the last column.



(5) In the **Table Browser** below, we want to identify the PESs on this image. You are going to click on the row that holds your respective data format. Since this is PES related the SDS format selected can be seen below. Click **OK** when done.



NOTES: In the **Table Browser** window above, pay close attention to the SDS_TYPE column.
-For all PESs utilize the following:

Name	SDS_SET	SDS Class	SDS_TYPE	ID_FIELD	SHAPE_TYPE
mlsftamo	military_operations	military_safety	ammunition_storage_area	storage_id	POLYGON

-For all structures other than PESs utilize the following:

Name	SDS_SET	SDS Class	SDS_TYPE	ID_FIELD	SHAPE_TYPE
bggenstr	buildings	buildings_general	structure_existing_site	buildng_id	POLYGON

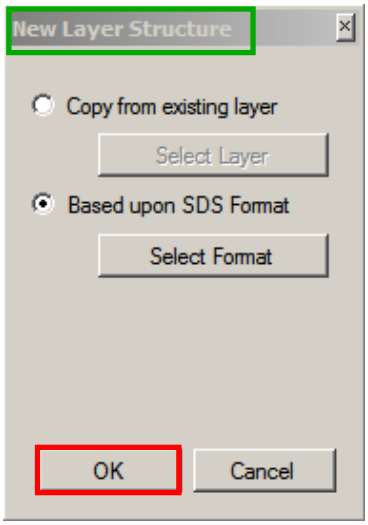
-For all Roadways utilize the following:

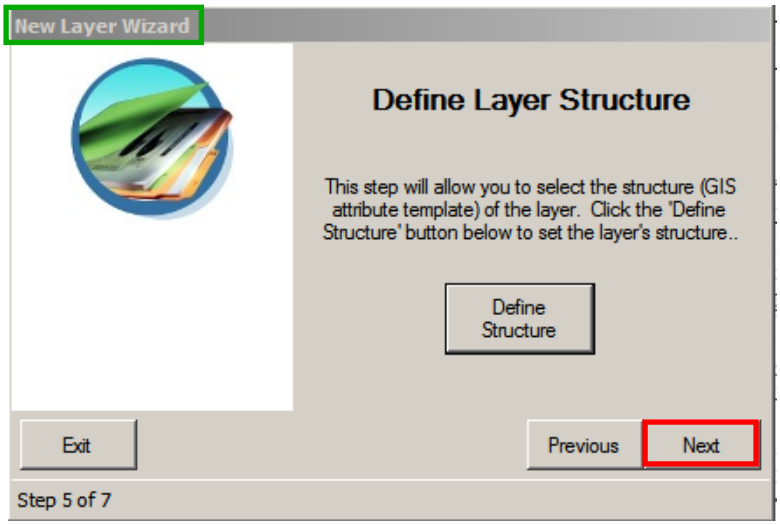
Name	SDS_SET	SDS Class	SDS_TYPE	ID_FIELD	SHAPE_TYPE
trvehrcl	transportation	transportation_vehicle	road_centerline	cline_id	CENTERLINE

-For all Railways utilize the following:

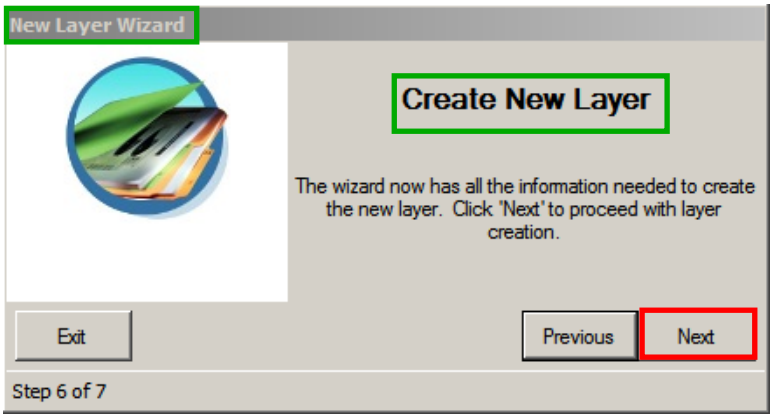
Name	SDS_SET	SDS Class	SDS_TYPE	ID_FIELD	SHAPE_TYPE
trrdrcl	transportation	transportation_railroad	railroad_centerline	railrd_id	CENTERLINE

6. You are now returned to the **New Layer Structure** window seen below. Clicking **OK** will return you to the **New Layer Wizard** seen on bottom right, click **Next**.

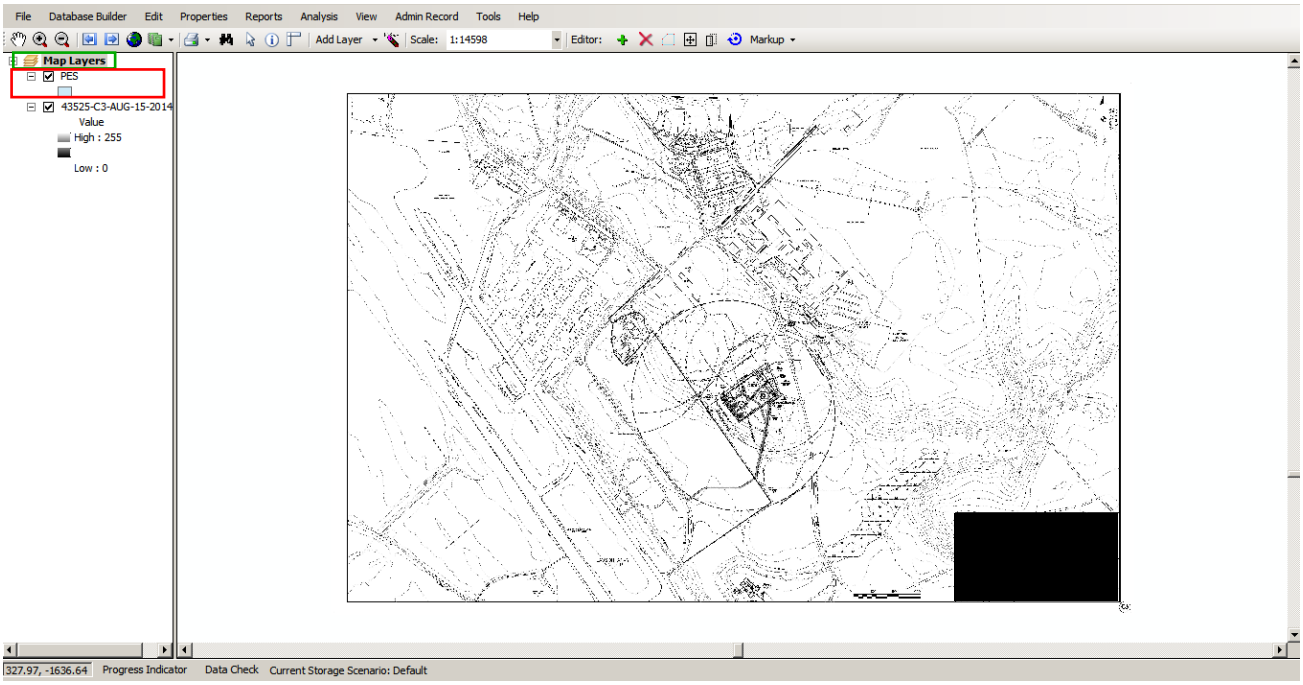




L. The **New Layer Wizard** has brought up the **Create New Layer** Dialogue seen below. Click on **Next**, this will create the blank GIS Layer.

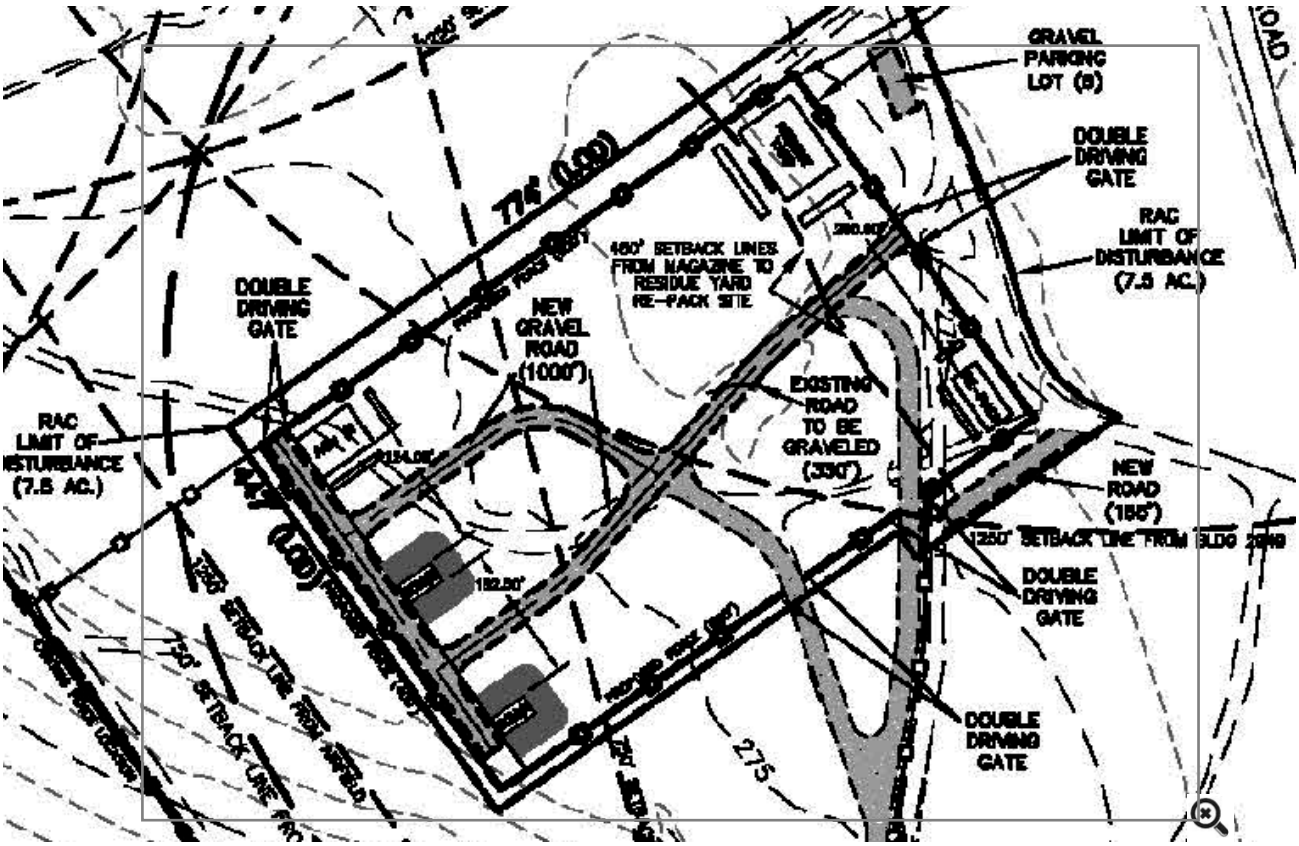


M. You are now returned to the **ESS main window** and the **PES** layer is added to the map. The PES layer is listed in the left column under **Map Layers**. That is it; you have created the basic shape file for your map. You now have the task of inputting all of the necessary features to support an effective and accurate analysis.

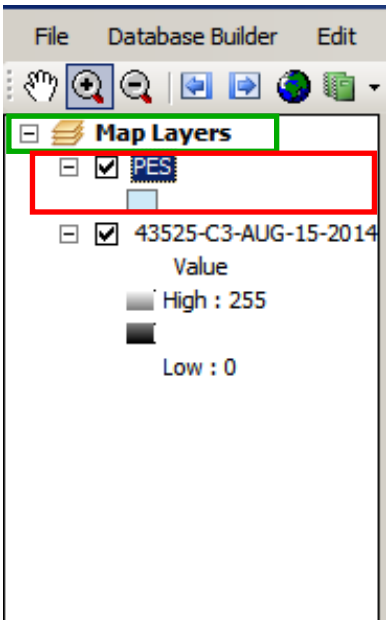


6. Add Facilities to the File Created in Step Five Above

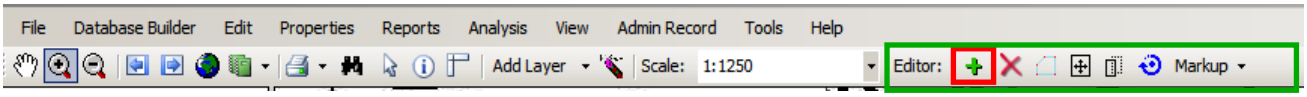
A. On your ESS main tool bar use the navigational tools  to zoom-in close on the facilities you want to add to the PES layer. When you select the zoom-in tool and move your mouse cursor over the main image it will change to a magnifying glass . Hold down your left mouse key and drag the hour glass cursor to create a box over the area you want to work on. This will enlarge the work area as seen below.



B. Now that you have your work area zoomed-in as seen above, go to the left side of the main window , under **Map Layers**, click on **PES** or whatever the name of the layer is your going to modify. If you have multiple layers such as Roads, Railroads, Airfield, PES, Structure_Existing, etc...make sure you have selected the right layer. Note the PES is now highlighted in blue.

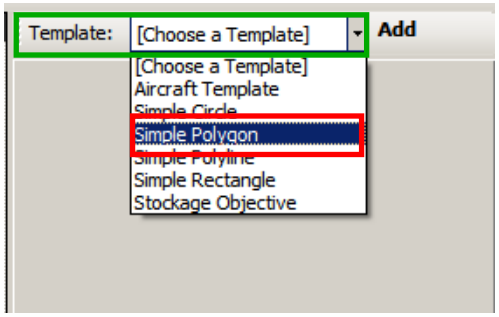


C. On the ESS Main Tool Bar, click on the green cross, **Add Map Feature** button in the **Editor toolbar**.

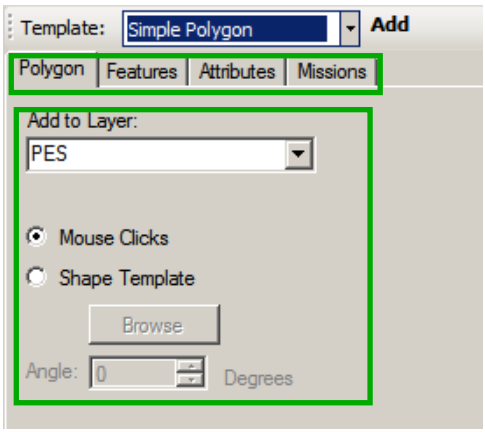


D. The **Template Panel** will open on the right of the main image.

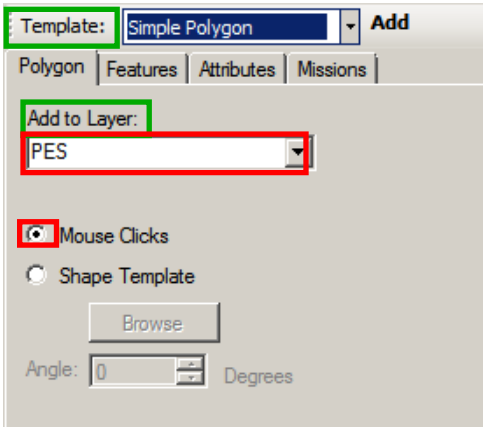
E. Click on the **Template** dropdown and select **Simple Polygon**.



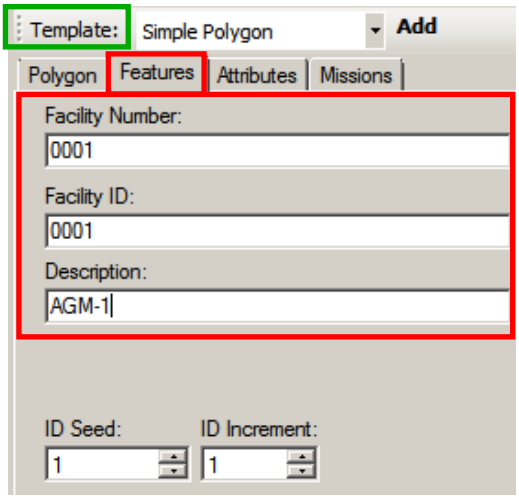
F. This will open a series of **tabs** and **dialogues** you are required to populate with information specific to each PES.....



G. In the **Template** window, make sure the layer you are about to modify is idenitfied in the **Add to Layer** drop down. If it is blank, click on the **Add to Layer** drop down and select the proper layer. In this case, I will be using the **PES** layer. I do not have any templates to use so will use the Mouse clicks for object placement.



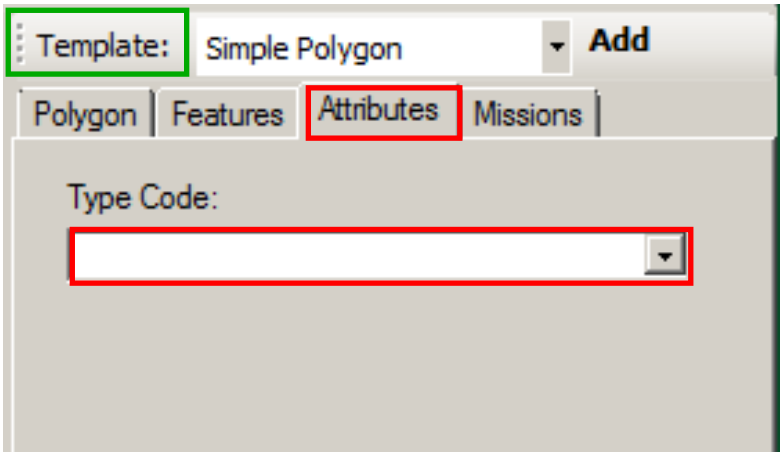
H. In the **Template** window, click on the **Features** tab, and fill out the **Facility number, Facility ID and Description**, as shown below. For simplistic reasons I will start with 0001 and progressively assign numbers for each PES. The numbers in this example will increase progressively regardless of the layer type. This may not be the case for your installation or site, bear this in mind.



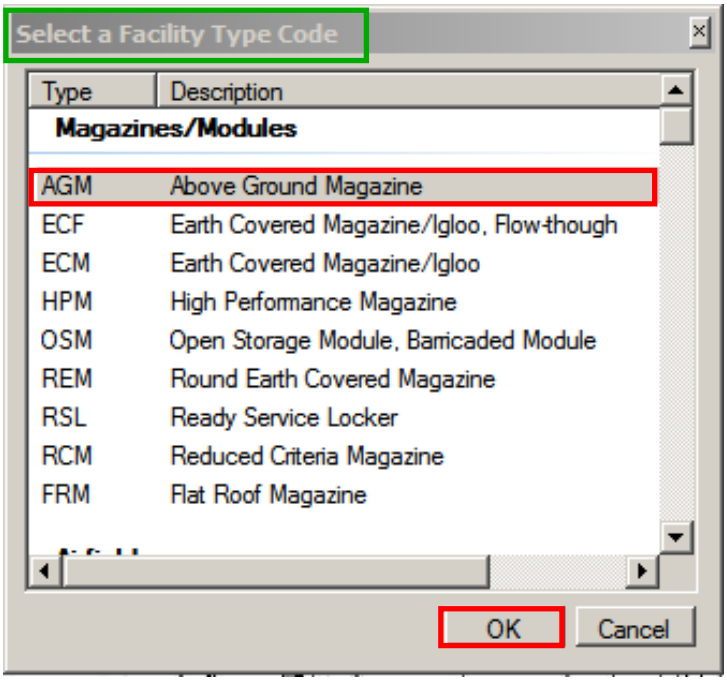
VERY IMPORTANT NOTE: If the Installation, FOB, COP or site in general has some form of facility number or identification then use those numbers. If there is any questions on the proper numbers to assign to the facilities, refer back to our Preparing Data, Folder Structure, Blank Database and Performing Data Import guide, page three of the Real Property Inventory (RPI) Data section. Be sure and add a description as it will be very helpful to subsequent users or analysts.

CAUTION: The ID Seed is in it's simplest form is an identity column that creates a numeric sequence for unique identification of your data records. The ID Increment is the amount that the identity column increases for each new row you input. **Do not mess with these two boxes.**

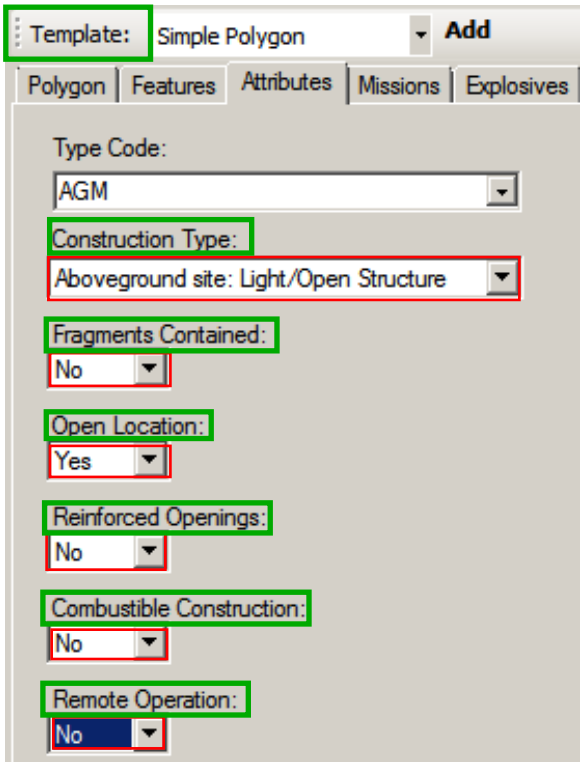
I. In the **Template** window, click on the **Attributes** tab and then click on the **Type Code** drop down button as seen below.



J. In the **Select a Facility Type Code** window select the appropriate Type code. This guide will indicate the use of the **AGM** Type code. Click **OK** when done.



NOTE: There are five new drop down boxes that need to be correctly filled in. See next page.



K. In the **Construction Type** drop down box select **Aboveground Site: Light/Open Structure**.

L. In the **Fragments Contained** drop down box select **No** or other type as required.

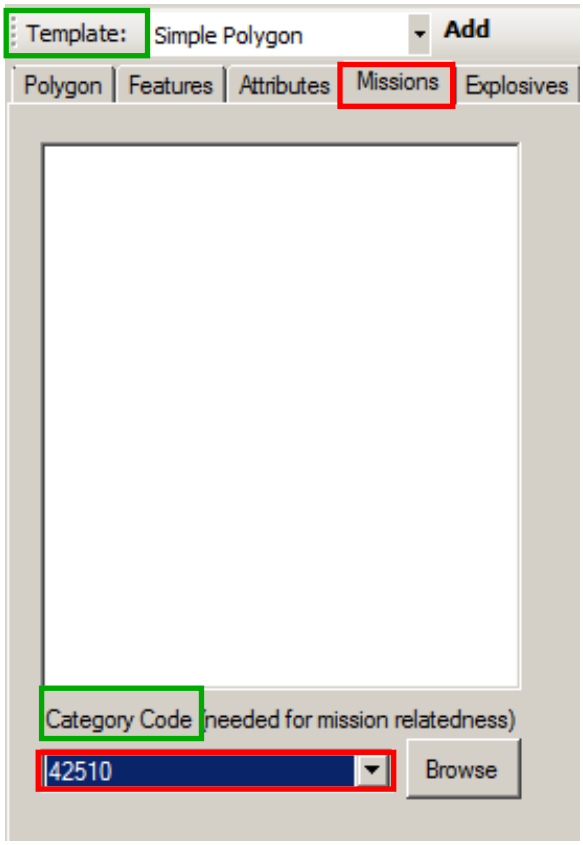
M. In the **Open Location** drop down box select **Yes**.

N. In the **Reinforced Openings** drop down box select **No**.

O. In the **Combustible Construction** drop down box select **No**.

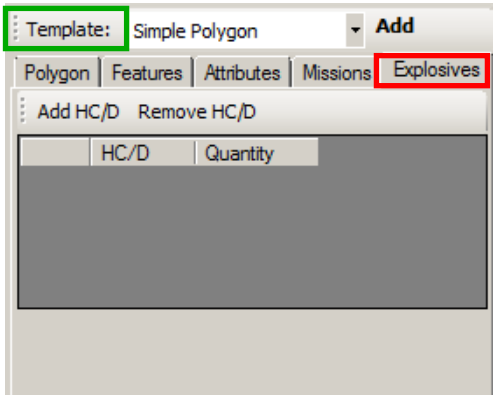
P. In the **Remote Operation** drop down box select **No**.

Q. In the **Template** window below click on the tab called **Missions**.

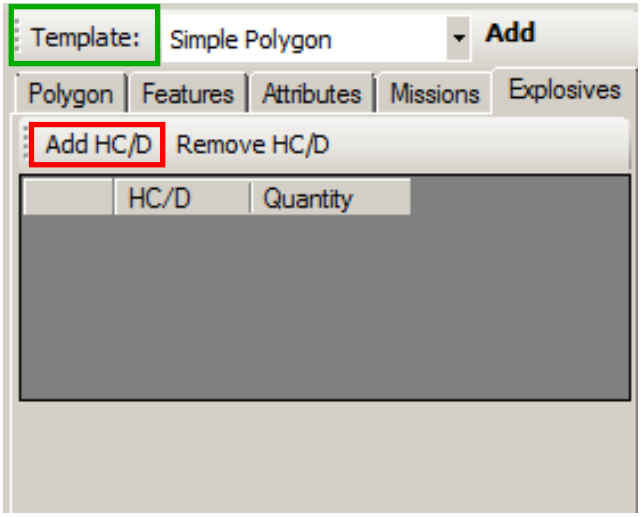


R. In the **Template** window click on the **Category Code** drop down box and select **42510** for above ground magazines.

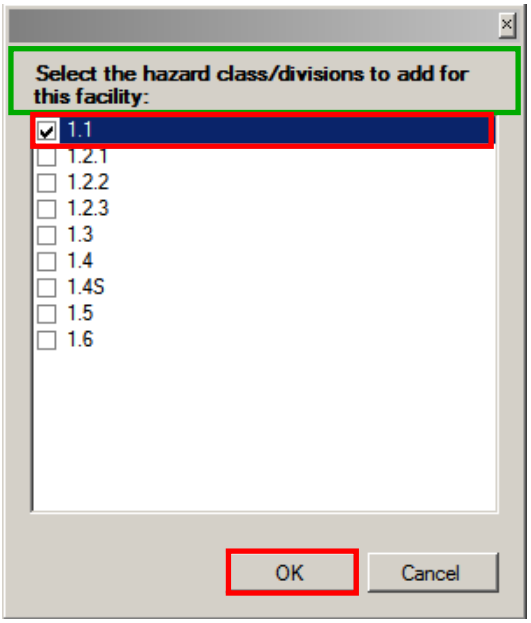
S. In the **Template** window below click on the **Explosives** tab.



T. In the **Template** window below click on **Add HC/D**.

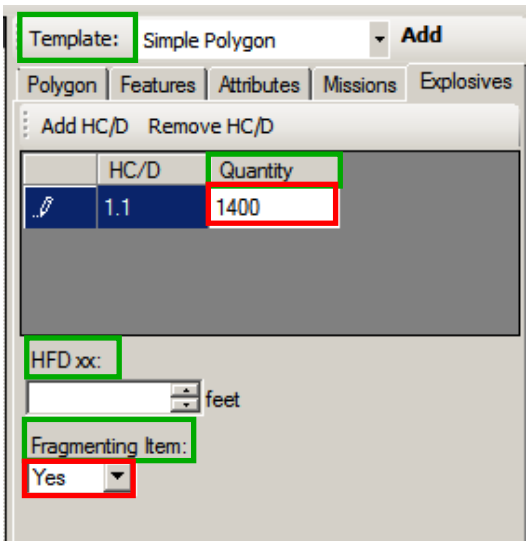


U. In the **Select the Hazard class/divisions to add for this facility** window seen below click each **HC/D** required for this facility. Click **OK** when done.



V. In the **Template** dialogue seen below and under the **Quantity** column enter your NEW **quantity**.

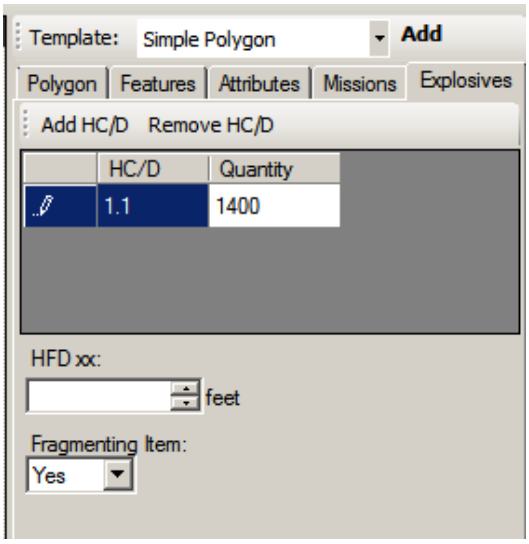
NOTE: At 30,481 lbs of HD 1.1 your blast over pressure distance will become the same or greater than your hazardous fragment distance.



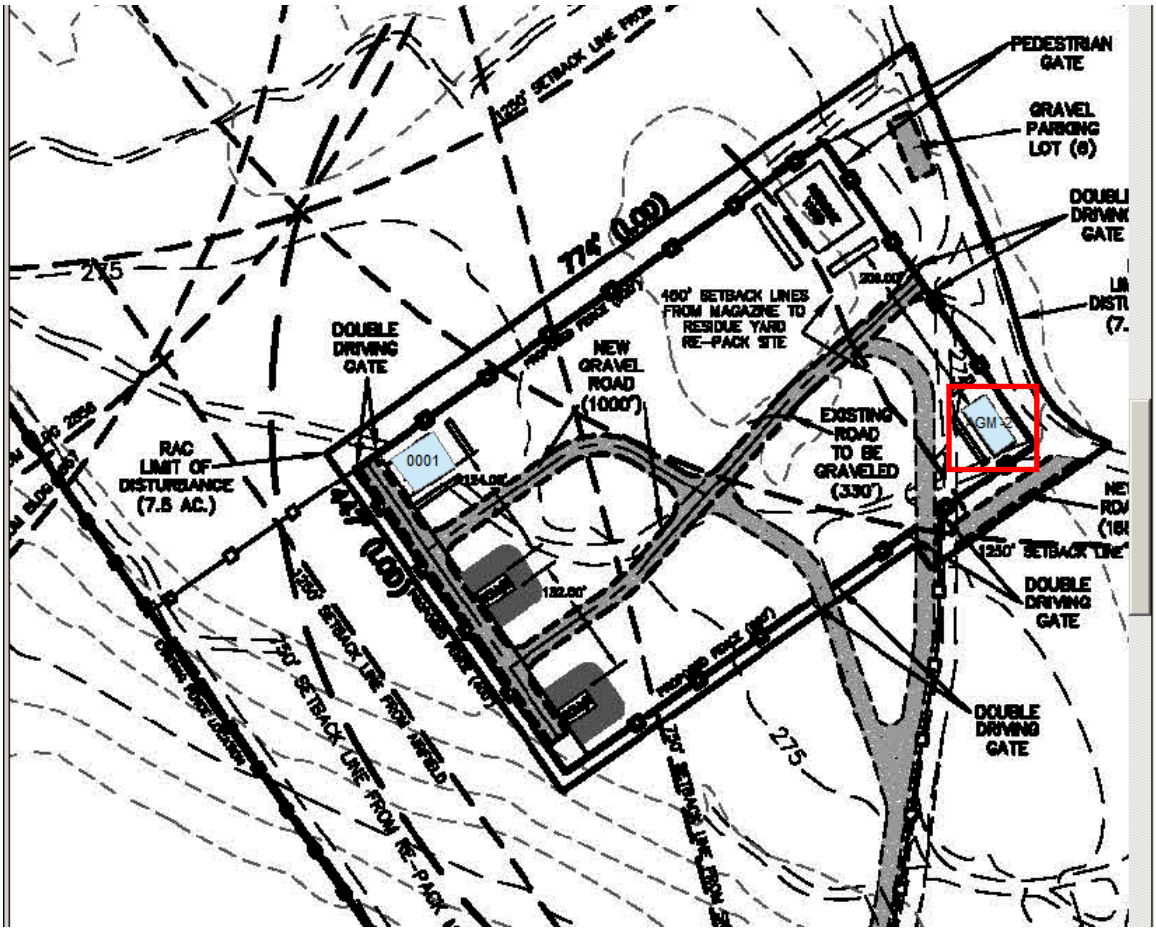
NOTE: Do not input a hazardous fragment distance in the **HFD xx:** block unless you are dealing with a weapon system specifically requiring it. Refer to DA PAM 385-64, Table 8-15.

W. In the **Template** dialogue to the left, enter **Yes or No** in the **Fragmenting Item** drop down.

X. In the Template dialogue below, click on the **Add** button, you will see the cursor change to a tiny red star as seen below right.



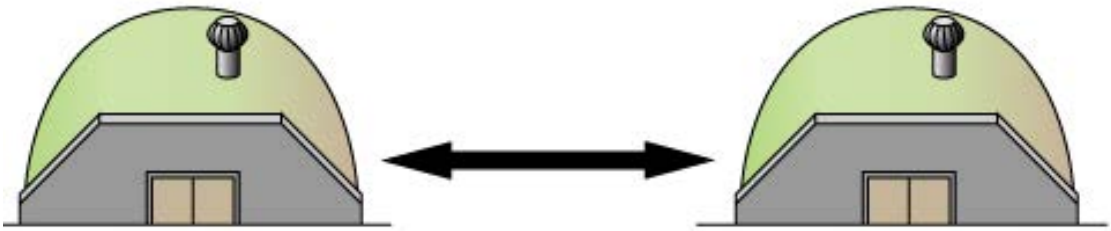
Y. Go to the drawing and trace the facility by clicking at each corner, then double-clicking on the last corner to finish. The **polygon** will be added as seen below.

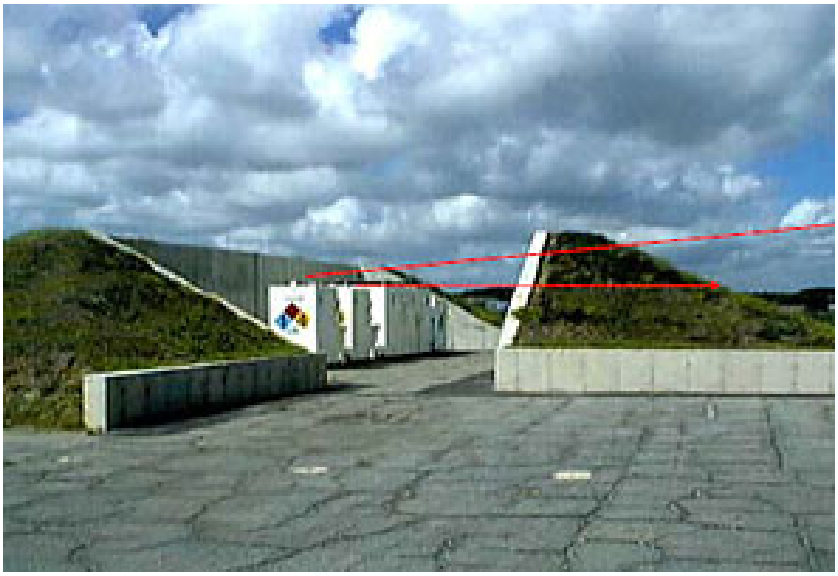


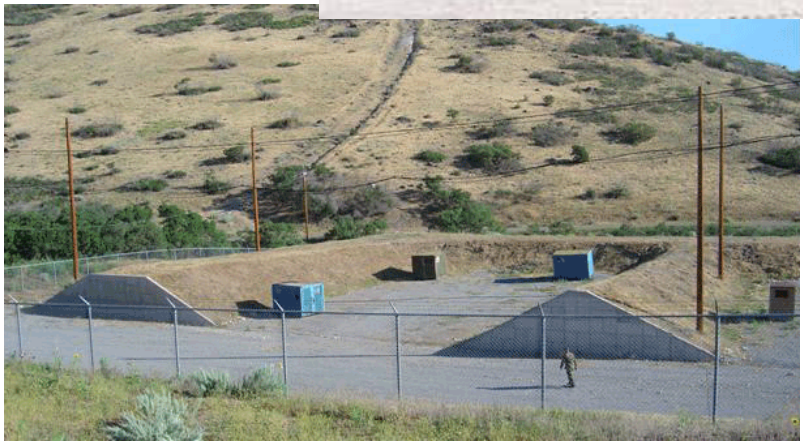
Z. Repeat steps 6A - Y to add more facilities to the map. If you have multiple layers such as Roads, Railroads, Airfield, PES, Structure_Existing, etc...make sure to make seperate shape files, (*.SHP) to make things easier to modify and track.

NOTE: After you have added all the polygons to the map, you need to set the fronts to the earth covered magazines and establish your PES and ES relationships. Lets proceed with these two processes in the following pages.

Setting Barricades Utilizing GIS Data or Manually







Setting Barricades Utilizing GIS Data or Manually

7. Introduction

After the ESS database has been developed and GIS, RPI, and PES data sets have been imported, the next step is to setup barricades that exist between PES and ES facilities. If the GIS data contains a layer with features representing barricades, ESS can use this GIS layer to automatically detect were barricades occur between the PES and ES facilities. As an alternative, barricades can be manually setup without the use of barricades in the GIS data. This first section of this guide describes the procedures for using existing GIS data (Shape files or geodatabase) to automatically detect barricades between PES and ES facilities. The second section of this guide describes procedures for manually setting barricades where necessary.

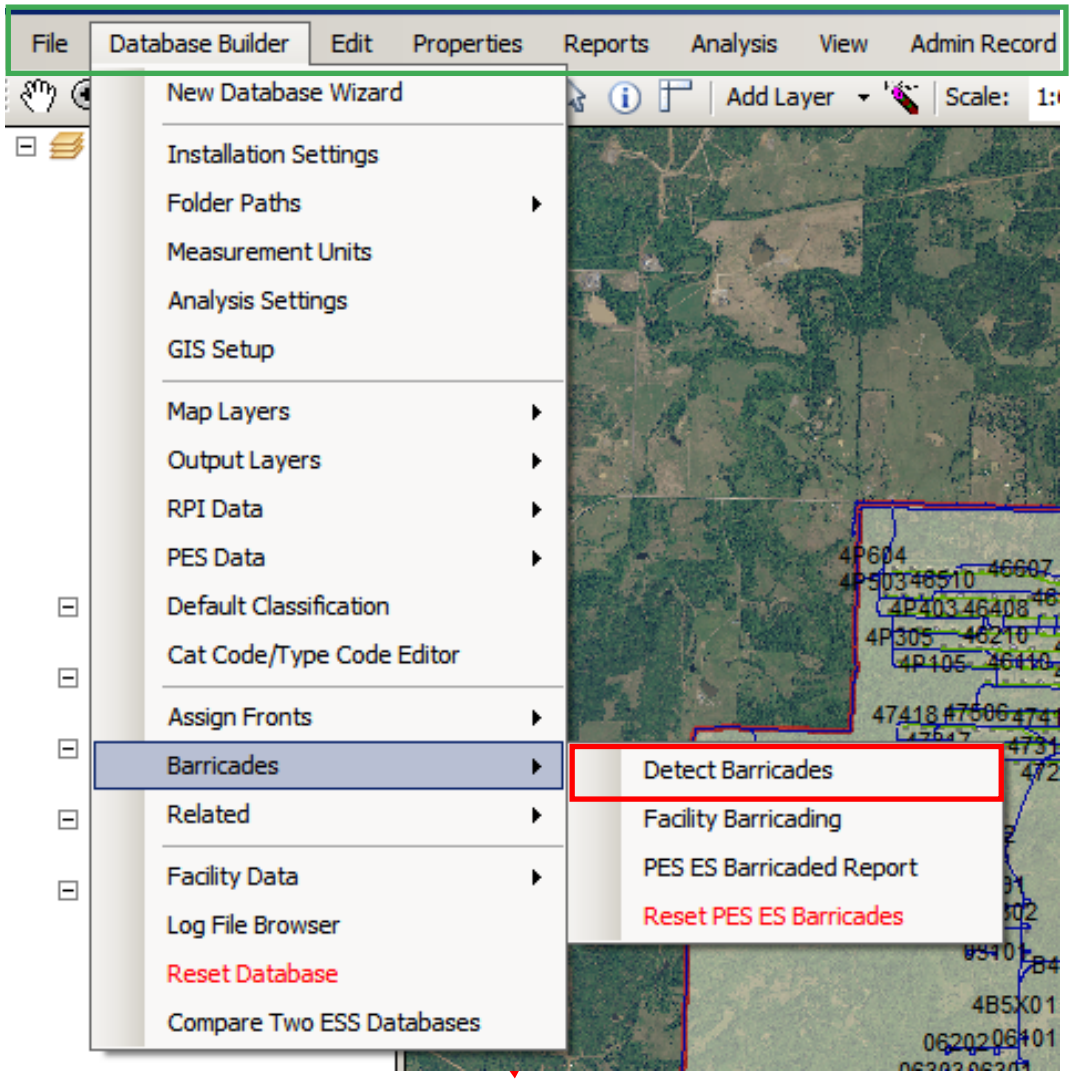
A. Refer to DA PAM 385-64, Ammunition and Explosives Safety Standards, 16-25. Barricades and Earth Cover for Magazines

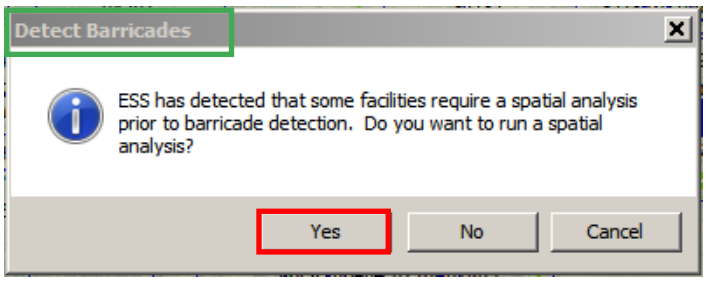
B. REMINDER: Barricades are effective in protecting ammunition or explosives, structures, or operations against high-velocity, low-angle fragments although the barricades may be destroyed in the process. Since such fragments move along ballistic trajectories rather than straight lines, reasonable margins in barricade height and length must be provided beyond the minimum dimensions that block lines of sight. Barricades also provide limited protection against blast in the immediate vicinity. They do not protect against high angle fragments and are ineffective in reducing the blast pressure in the far field (IBD or PTRD).

8. Detect Barricades & Perform Spatial Analysis

Note: ESS uses a spatial analysis to detect barricades between PES and ES facilities. Up to this point in the guide, a spatial analysis has not been run. When we run the Detect Barricades menu option, it will run a spatial analysis before going through the procedure of detecting any barricades.

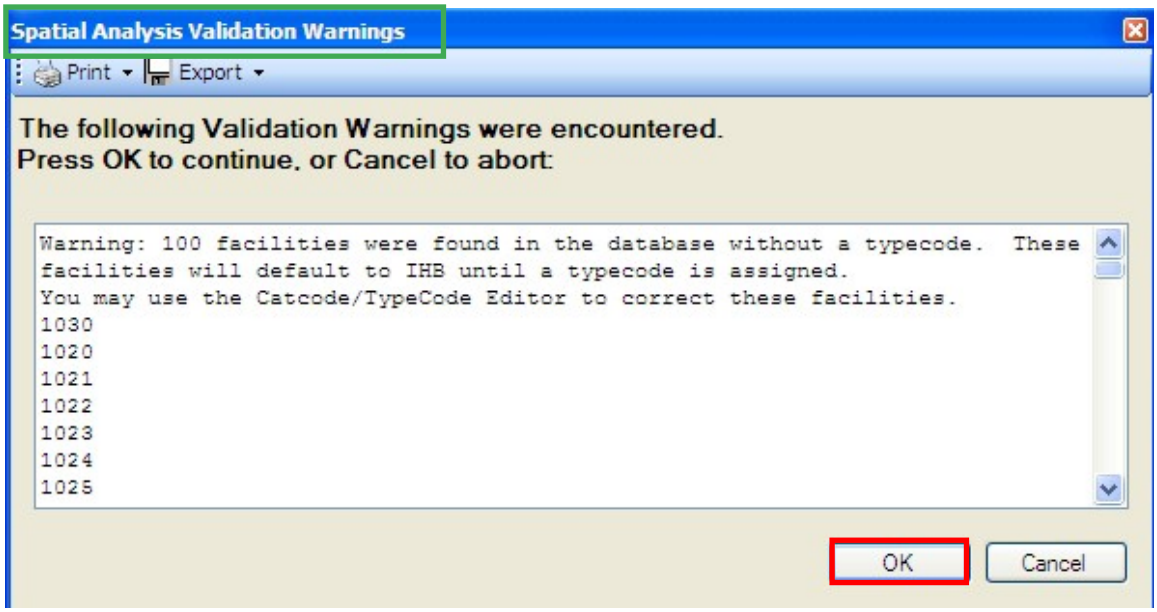
A. Go to the **ESS Main Tool Bar** then click on **Database Builder > Barricades > Detect Barricades** as seen in the image below.



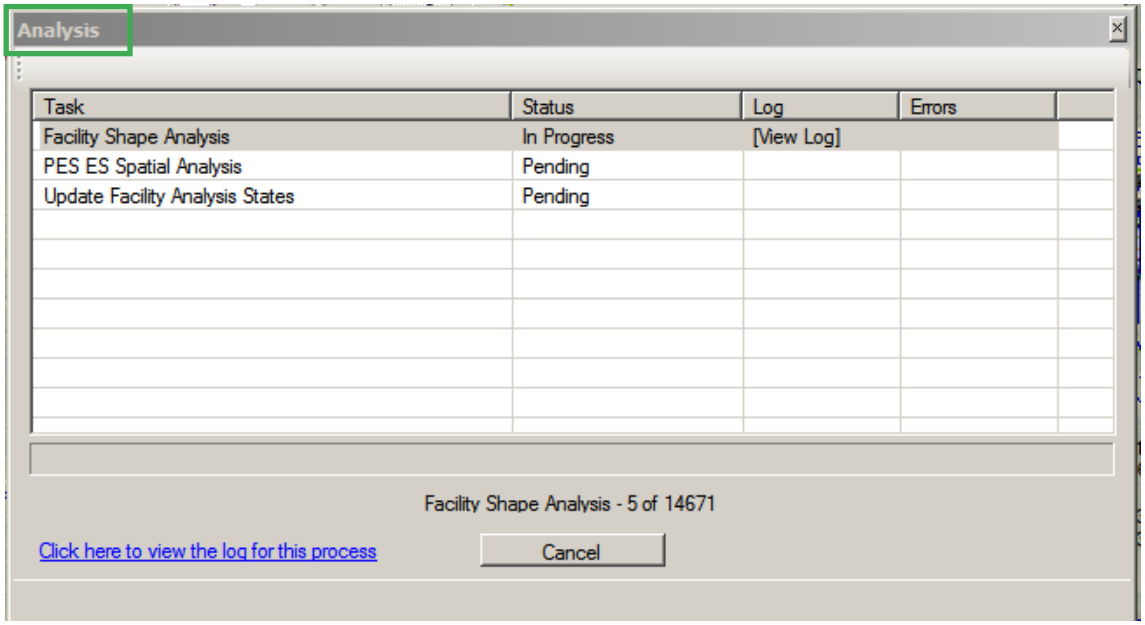


B. On the **Detect Barricades** window, click on **YES** to continue:

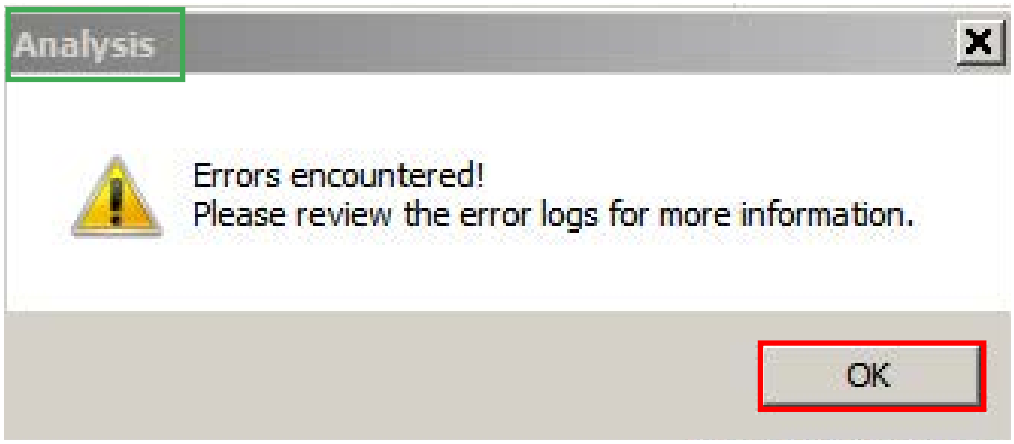
C. You may get a warning message in the **Spatial Analysis Validation Warning** window indicating there are facilities missing a Type Code, and will automatically assign them the IHB (inhabited building) type code. Do not worry about this at this point. You can review the logs and it will identify which facilities were assigned the IHB type code and after the analysis is completed you can go back in and change the facilities to the desired type code. Click on **OK** to continue:



D. You will now see a progress window called **Analysis**. The Spatial Analysis is in progress. Be patient as this may take a while. (If it is a big base...a long while) As the process is ongoing, it will show a status for each task under the status column as seen below.

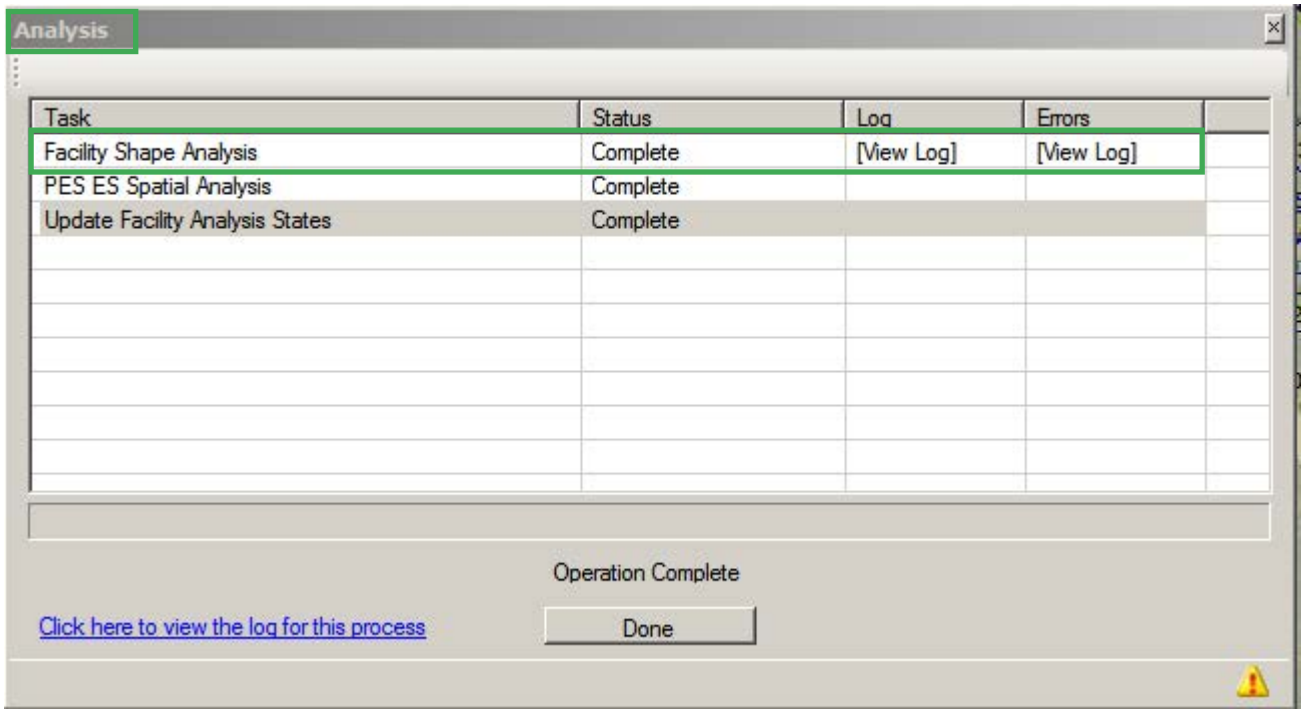


E. Upon completion of the analysis you may see this **Analysis** dialogue box, click **OK**.

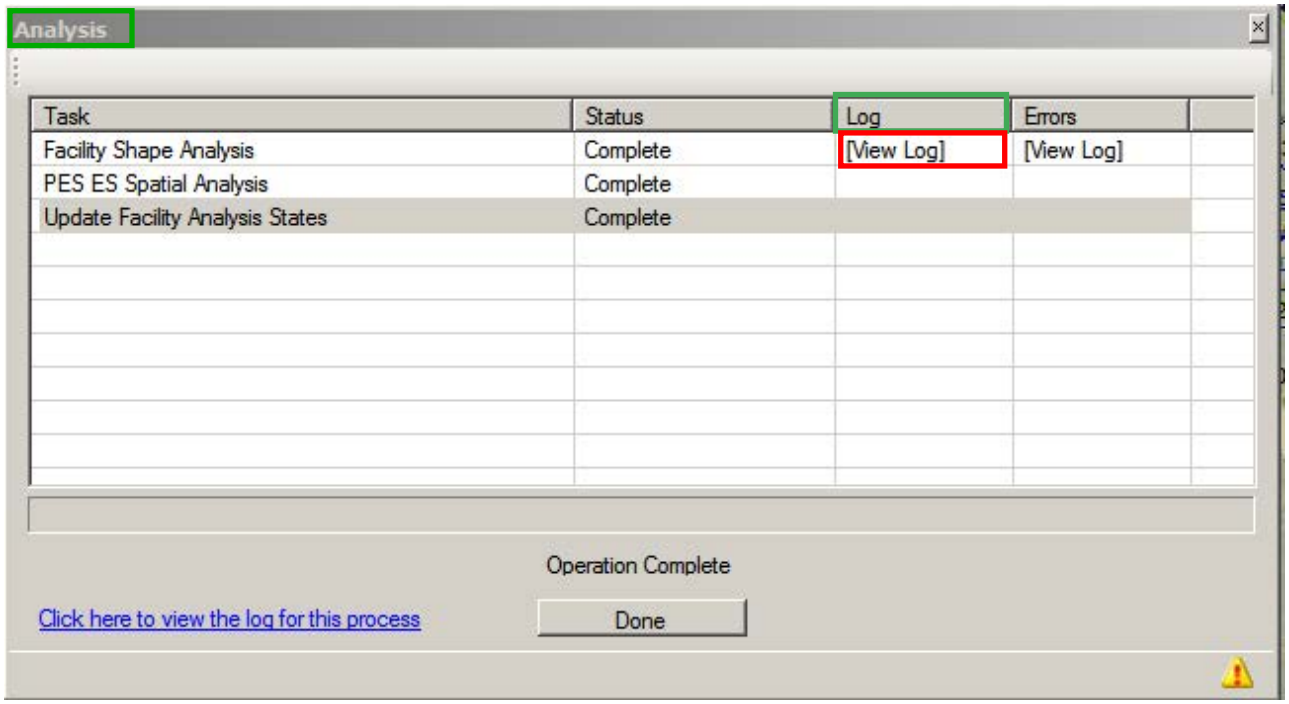


F. When the process is complete, you will see several links to view three different, but important logs in the **Analysis** window. Any of the rows could have these logs depending on errors encountered.

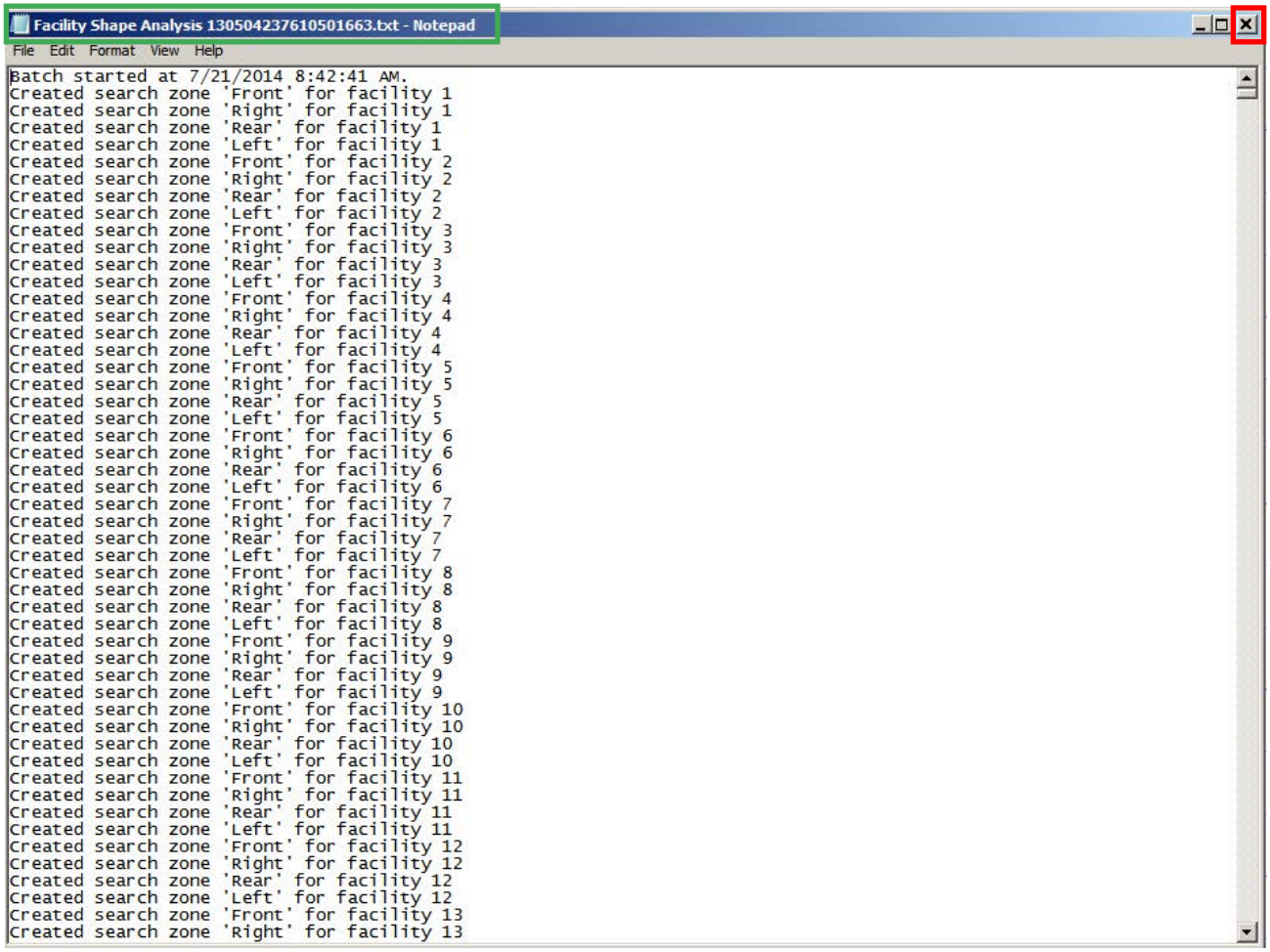
1. Note the **Facility Shape Analysis** row: There are two logs. The third log is located in thebottom left corner of the Analysis window highlighted in blue. Lets review these three logs in the pages to follow.



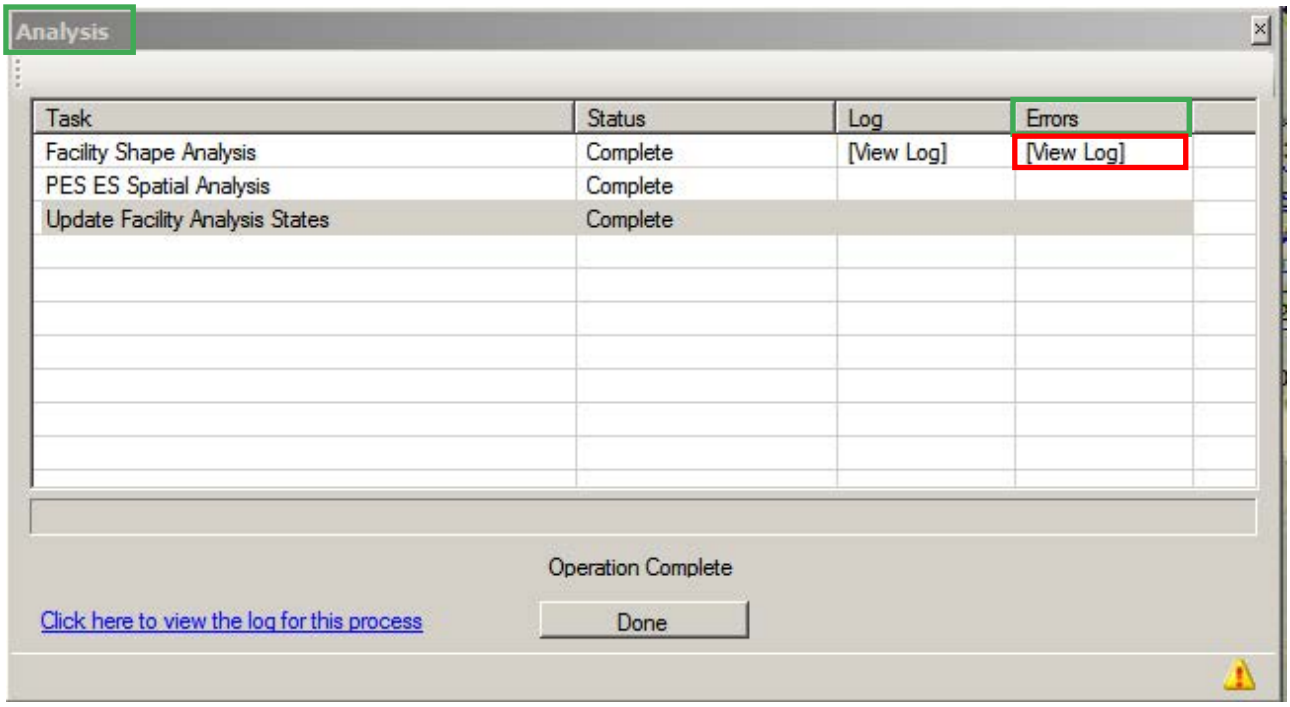
2. In the **Analysis** window under the **Log** column click on the link, **View Log**. See next page.



3. You will now see the **Facility Shape Analysis 130504237610501663.txt-notepad** log file below. This file allows you to view which facilities were evaluated for barricades. To close this file, click on the **X** in the upper right corner.

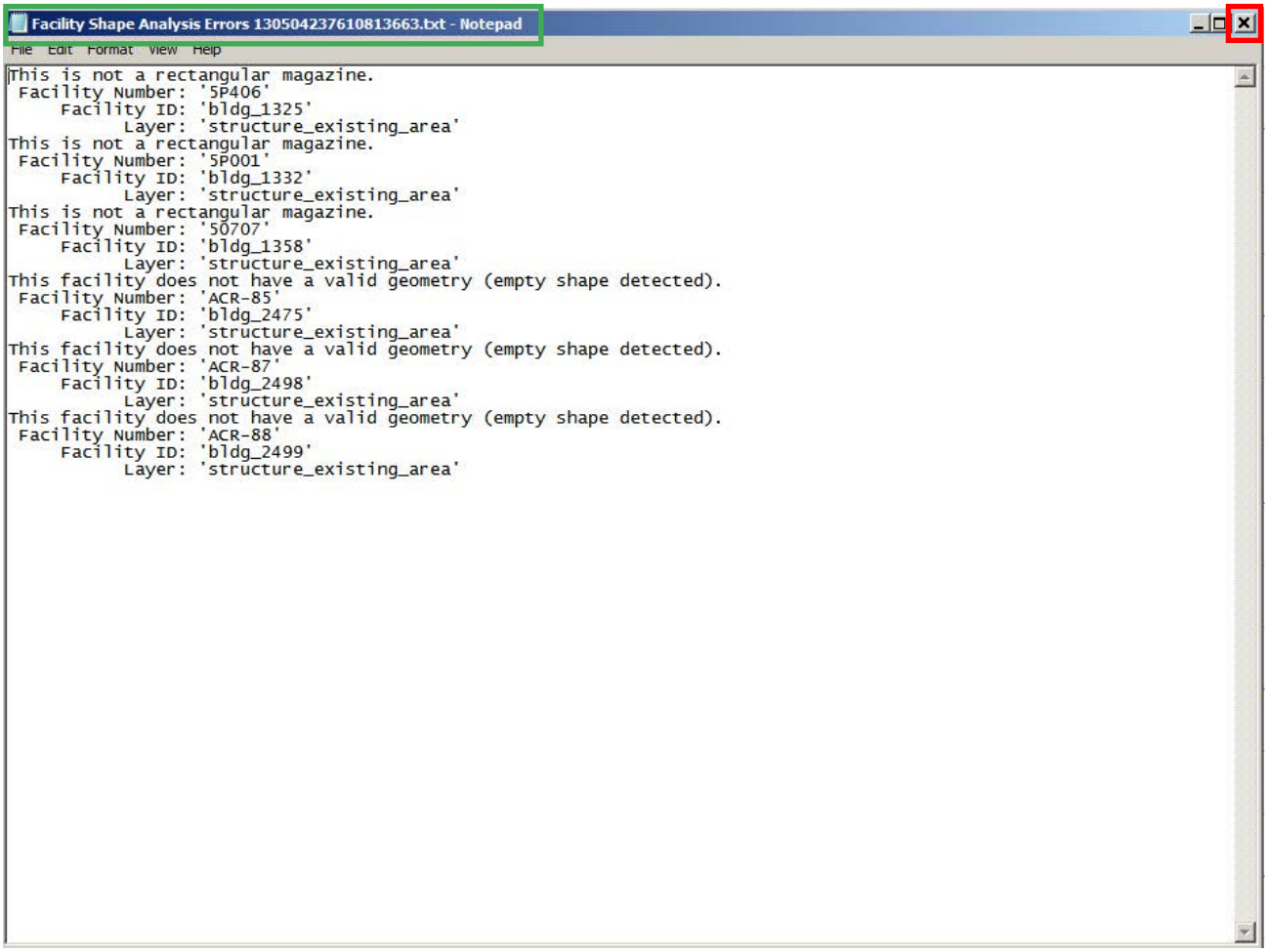


4. You are now returned to the **Analysis** window.



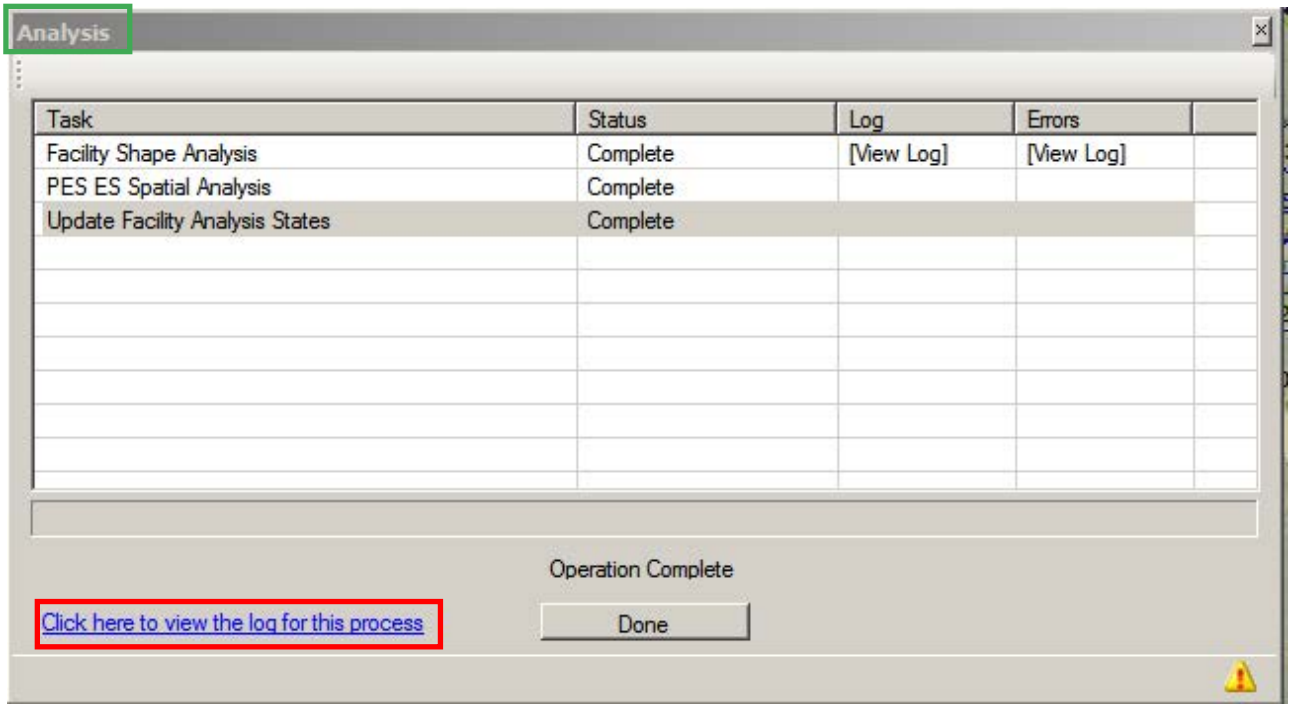
5. In the **Analysis** window above, look at the **Errors** column and click on the link called **View Log**. If you have no report in this column then you have done a good job at QC'ing your data.

6. You will now see report name **Facility Shape Analysis Errors 130504237610813663.txt-notepad**. When done with this report, click the **X** in the upper right corner.

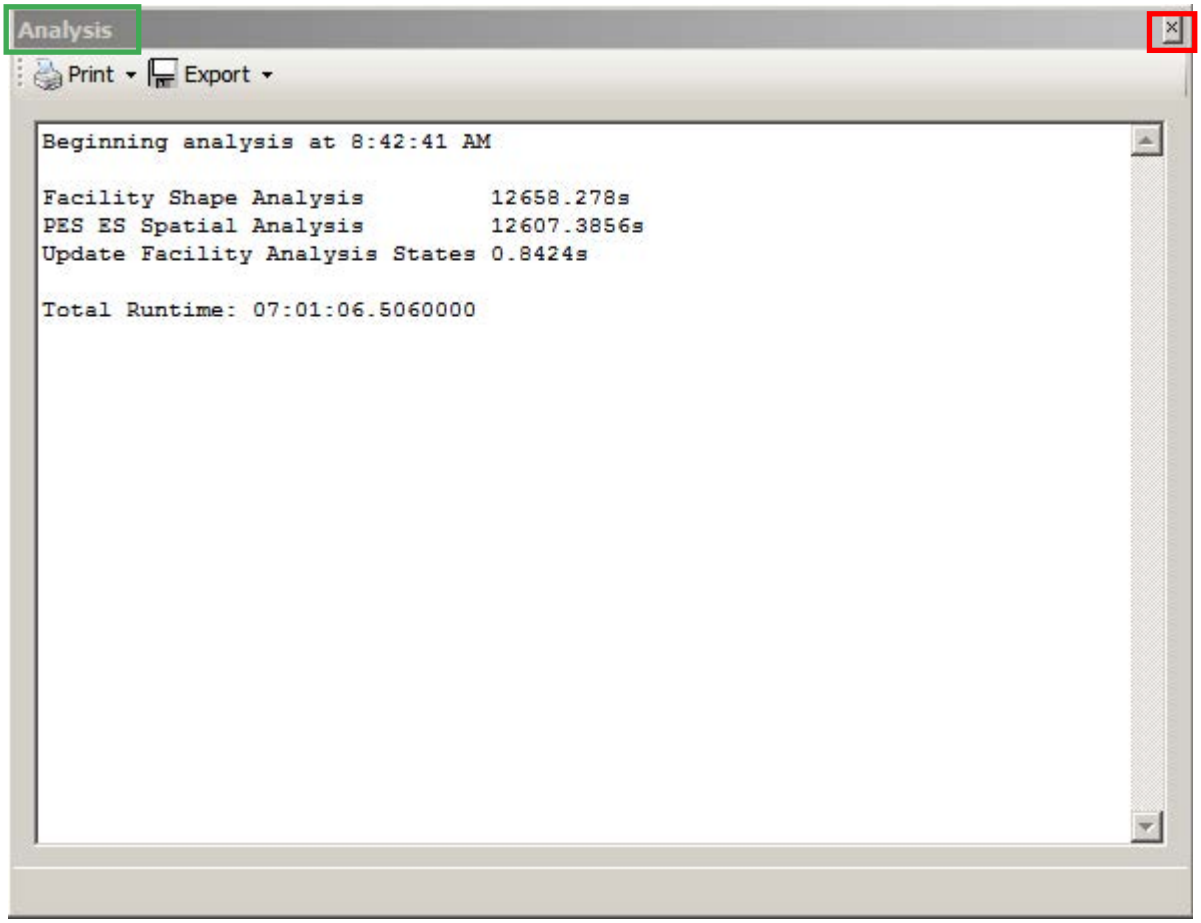


7. You are now returned to the **Analysis** window seen on the next page.

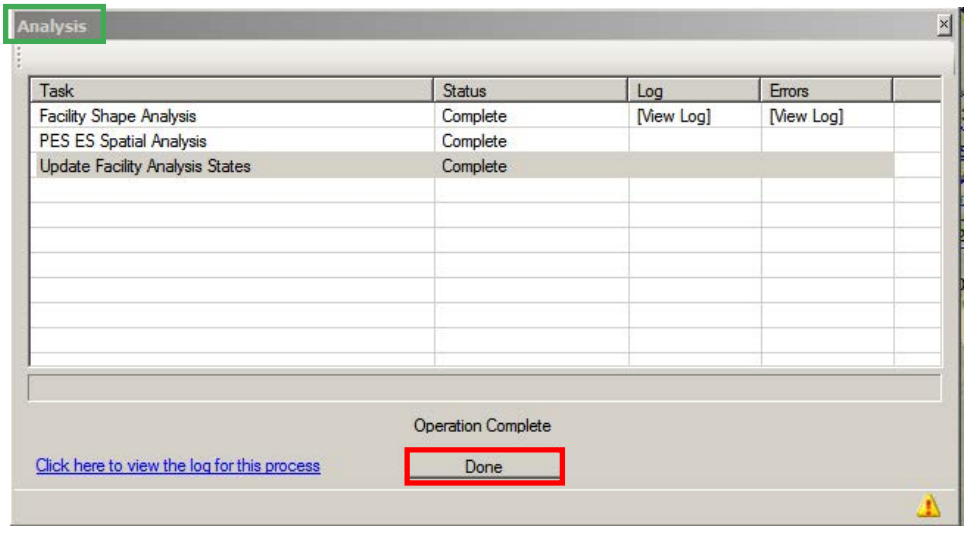
8. In the **Analysis** window below there is one more link to view yet another log. In the bottom left click on the link called **Click here to view the log for this process**. This will open up the final log as seen on the next page.



9. In the **Analysis** window below this log simply provides you a summary of the analysis run time in hours: minutes: seconds.



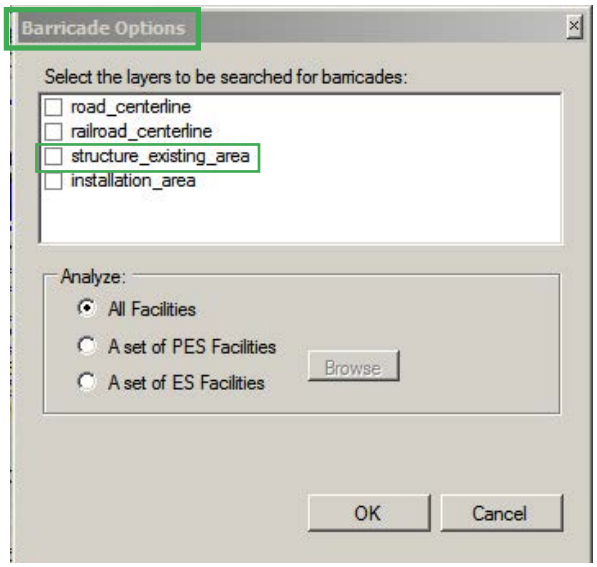
10. When done with this report, click the **X** in the upper right corner of the analysis window seen above.

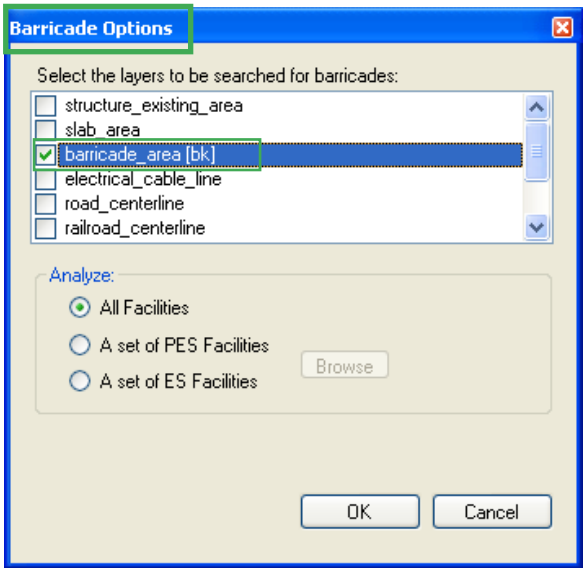


11. Upon closing the log above you are returned to the **Analysis** window. If finished click the **Done** button.

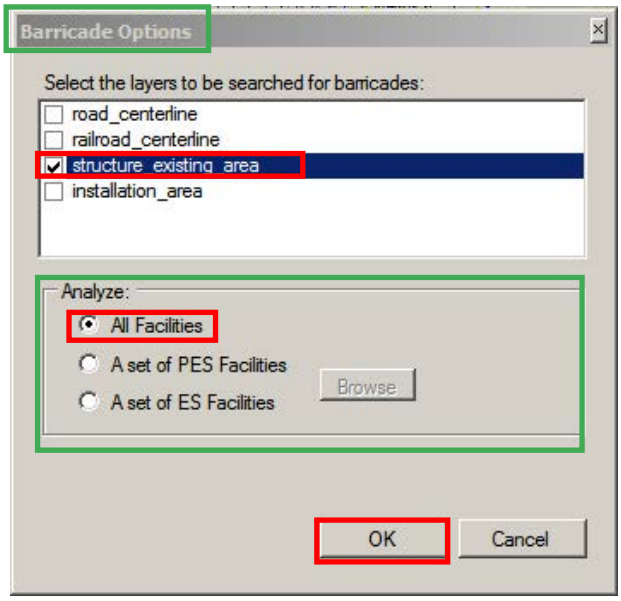
Note: Now that the spatial analysis is complete, ESS will proceed with detecting barricades.

G. Upon closing the **Analysis** window on the previous page you now have the **Barricade Options** window open. **Note:** There are two versions you might encounter: The image on the left you will encounter when the installation has no Barricade shape file. In this case, you will have to work through the structure_existing_area shape file. The image on the right you will encounter if the installation has an existing Barricade shape file.



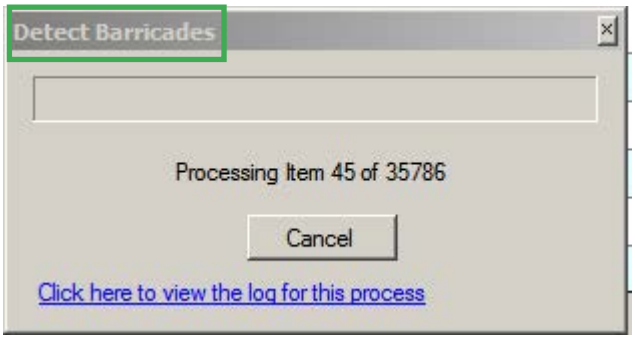


H. In the **Barricade Options** window you will select the appropriate file containing your shape file for the barricades. If you are unsure of which file it is, consult with the Installation Directorate of Engineering Division, Master Planner/GIS POC.

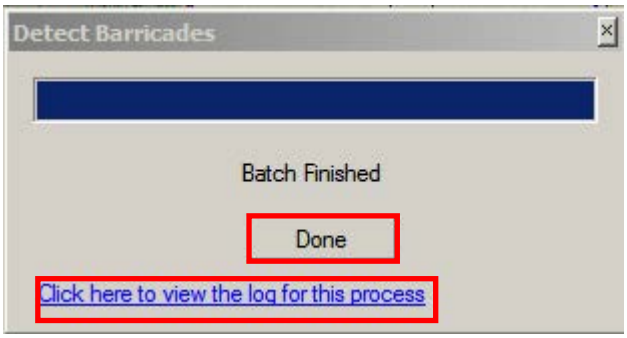


I. In the **Barricade Options** window center you will see a box called **Analyze**. Select the option called **All Facilities**. Click **OK** when done.

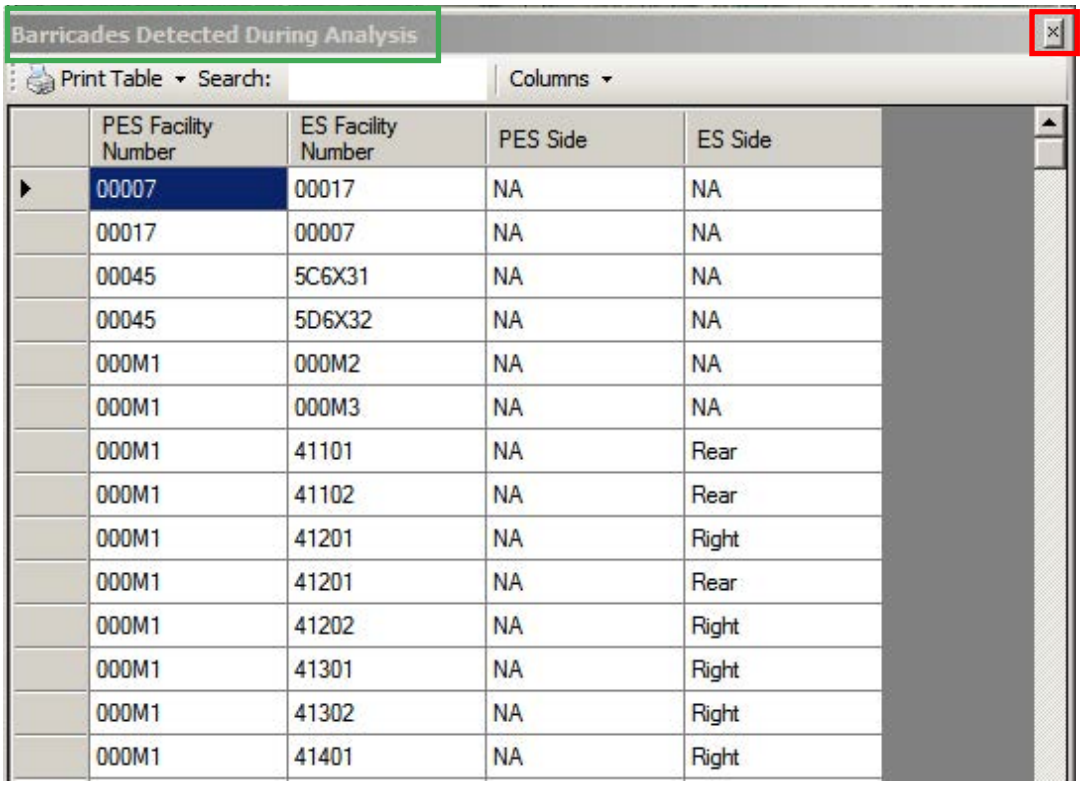
J. You will now see the **Detect Barricades** progress window open.



K. Once the detection process is complete you can either **view the log** or click **Done.**

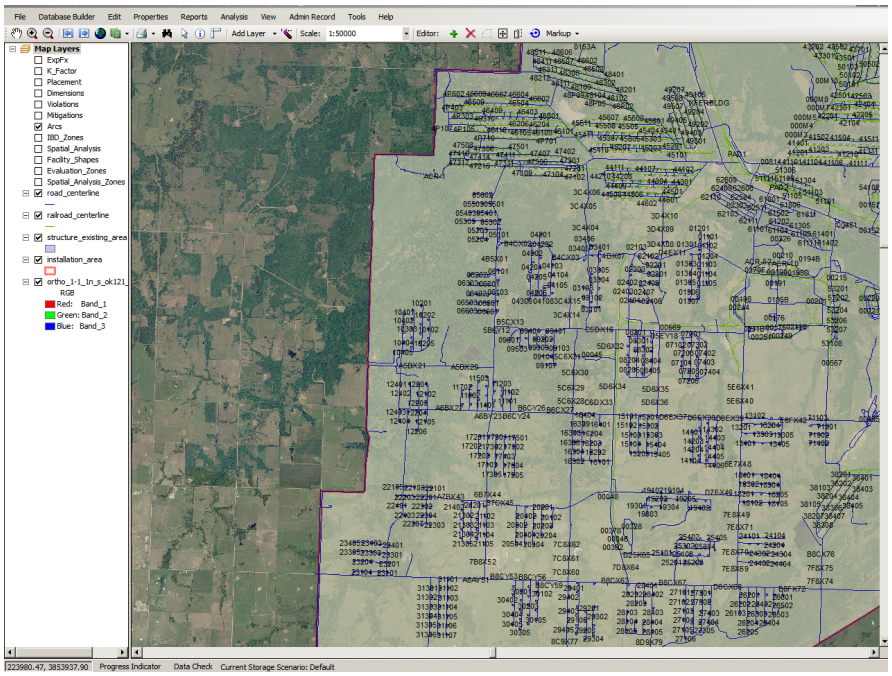


L. This will automatically open the **Barricades Detected During Analysis** window. You can view the data in this window and export it if necessary.

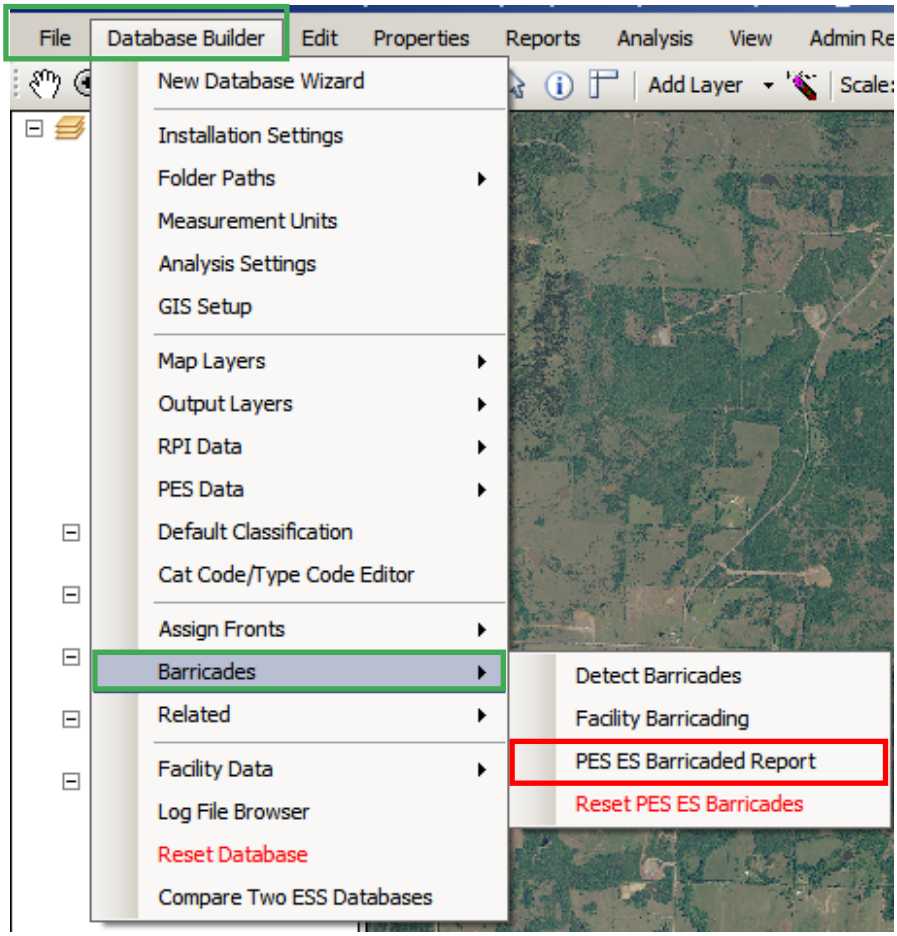


	PES Facility Number	ES Facility Number	PES Side	ES Side
▶	00007	00017	NA	NA
	00017	00007	NA	NA
	00045	5C6X31	NA	NA
	00045	5D6X32	NA	NA
	000M1	000M2	NA	NA
	000M1	000M3	NA	NA
	000M1	41101	NA	Rear
	000M1	41102	NA	Rear
	000M1	41201	NA	Right
	000M1	41201	NA	Rear
	000M1	41202	NA	Right
	000M1	41301	NA	Right
	000M1	41302	NA	Right
	000M1	41401	NA	Right

M. When done with this report, click the **X** in the upper right corner. You are now returned to the ESS main window.



N. If later in your work progression you desire to review this data you can find it in the following location: **Main Tool Bar>Database Builder > Barricades > PES ES Barricaded Report**.



9. Manually Set Barricades

NOTE: If GIS data does not exist for barricades, they can be set manually. This part of the guide will describe the process steps for setting barricades between PES and ES facilities.

A. Examples of Barricaded Buildings as you will see them in ESS versus other sources:

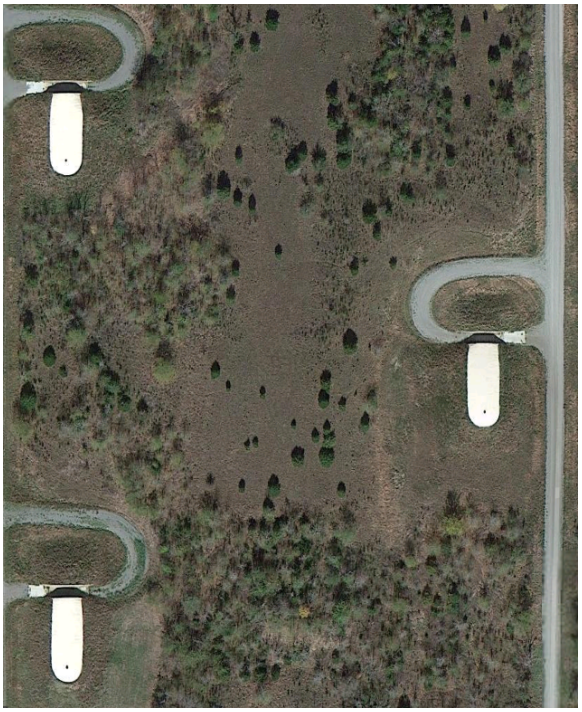
ESS Image #1 Y-Site: AGM

Google Earth Image #1 Y-Site: AGM

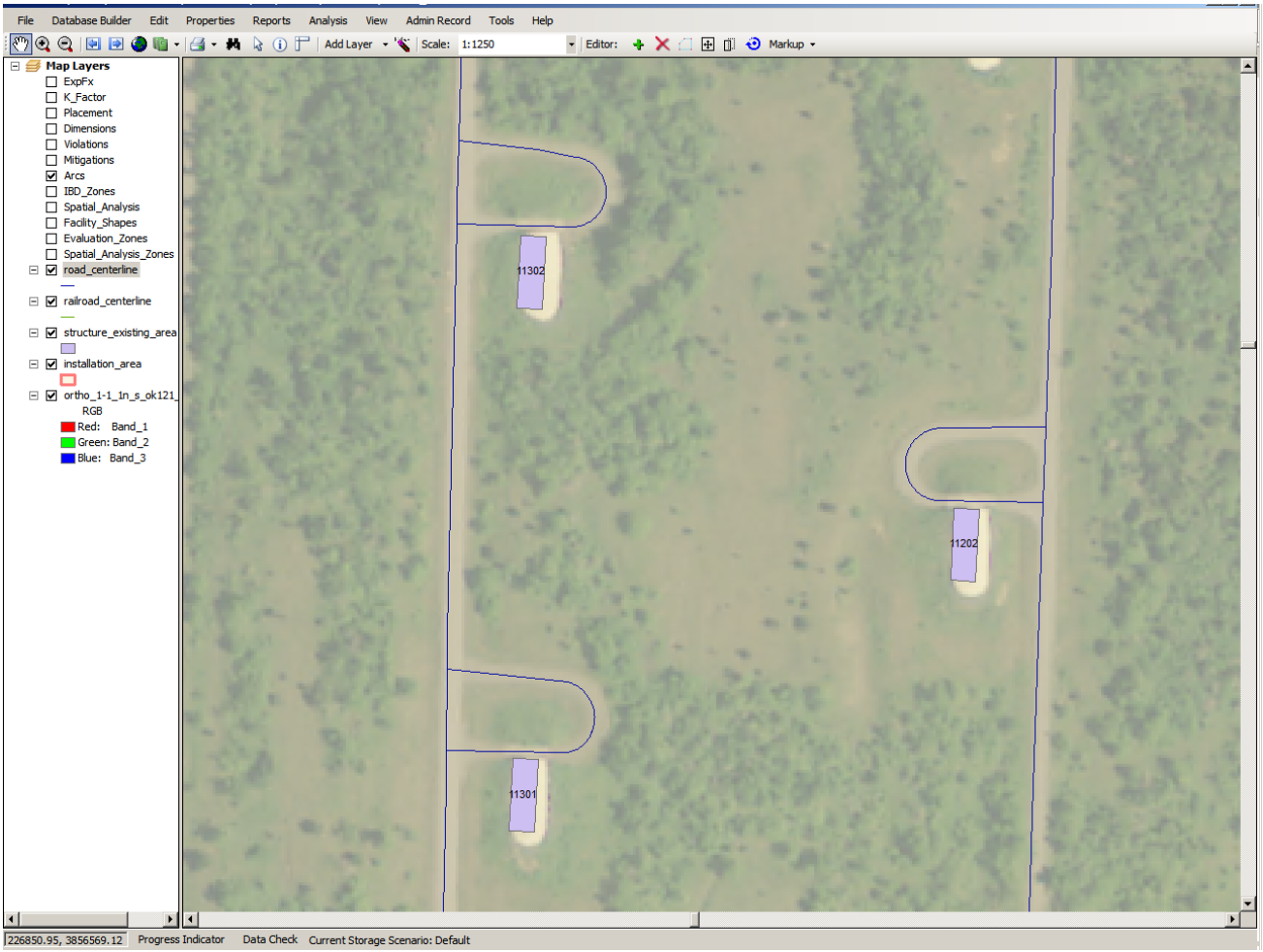
ESS Image #2 Production Building: EOL

Google Earth ESS Image #2 Production Building: EOL

ESS Image #3 ECM: Front Barricade



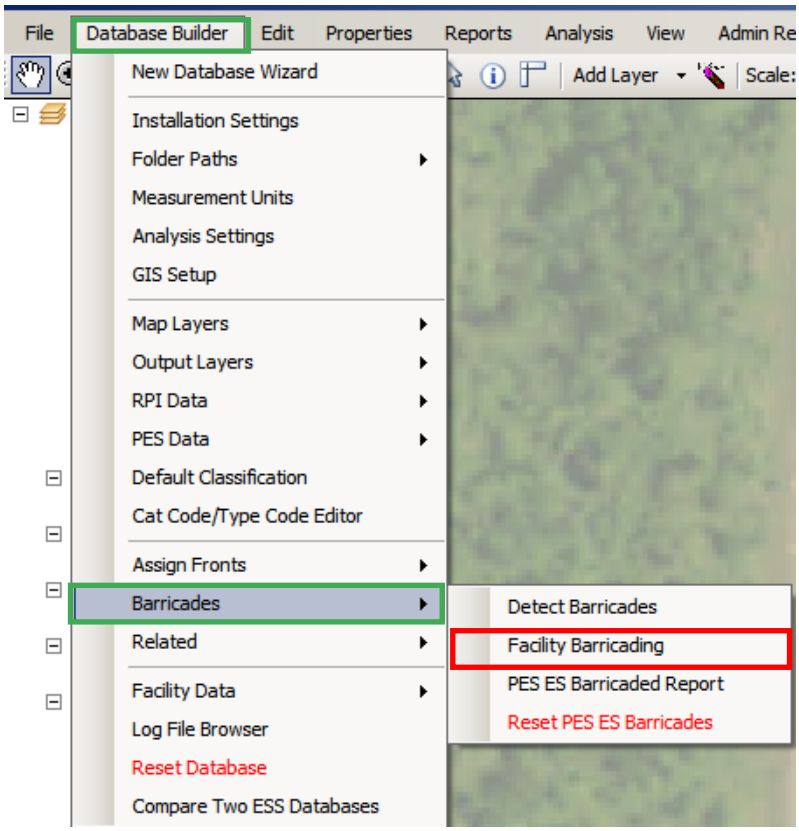
Google Earth Image #3 ECM: frontal Barricade



B. Use the ***Zoom In button*** to zoom into the area of the map that contains the barricaded facilities. In the example above, PES 11202 has a front, side and rear barricade and the surrounding ES's have a front, side and rear barricade.

NOTE: If you look at the left side of the ESS main window you will see that no Barricade shape file is available. we are having to utilize the Structure_existing_area shape file for this installation. Therefore we will manually assign the barricades to PES 11202.

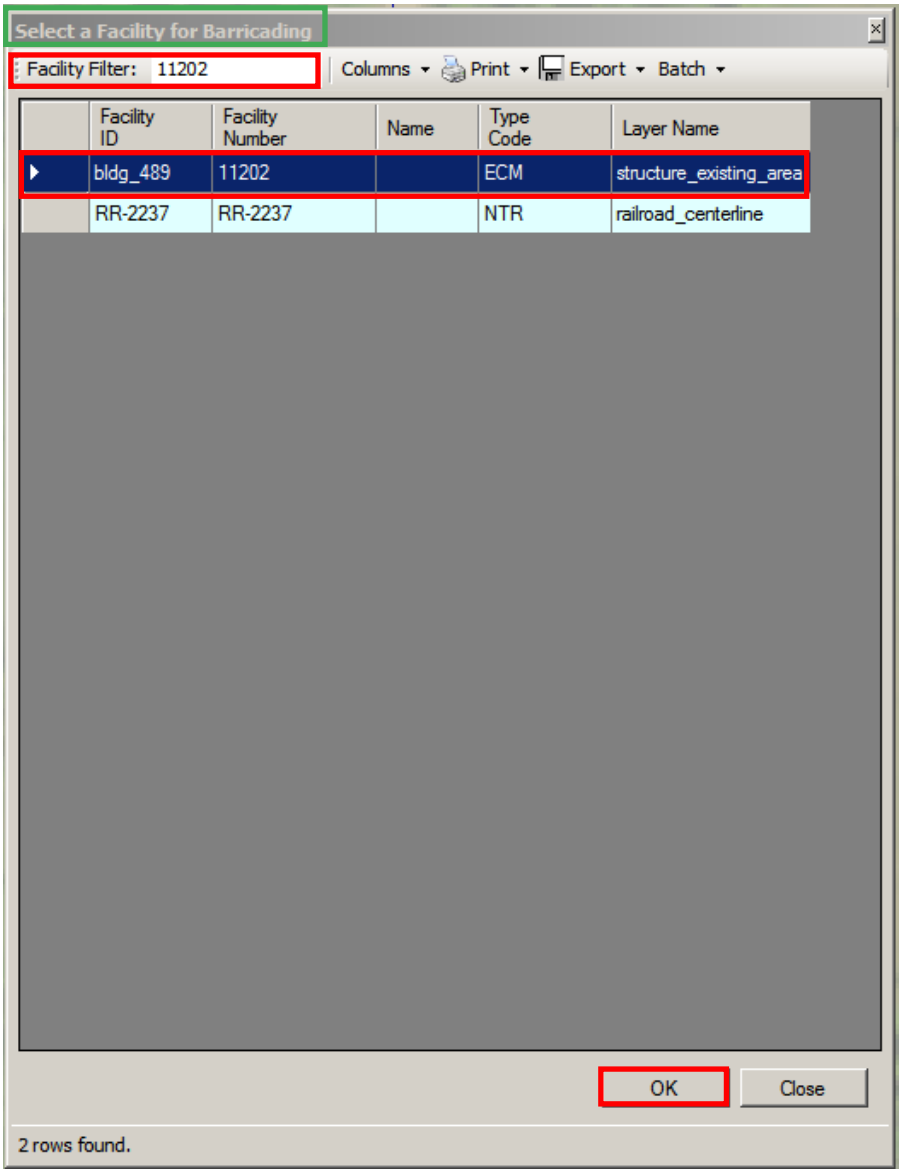
C. In the ESS main window, select the **Database Builder > Barricades > Facility Barricading** menu option.



D. The **Select a Facility for Barricading** window below is now open.

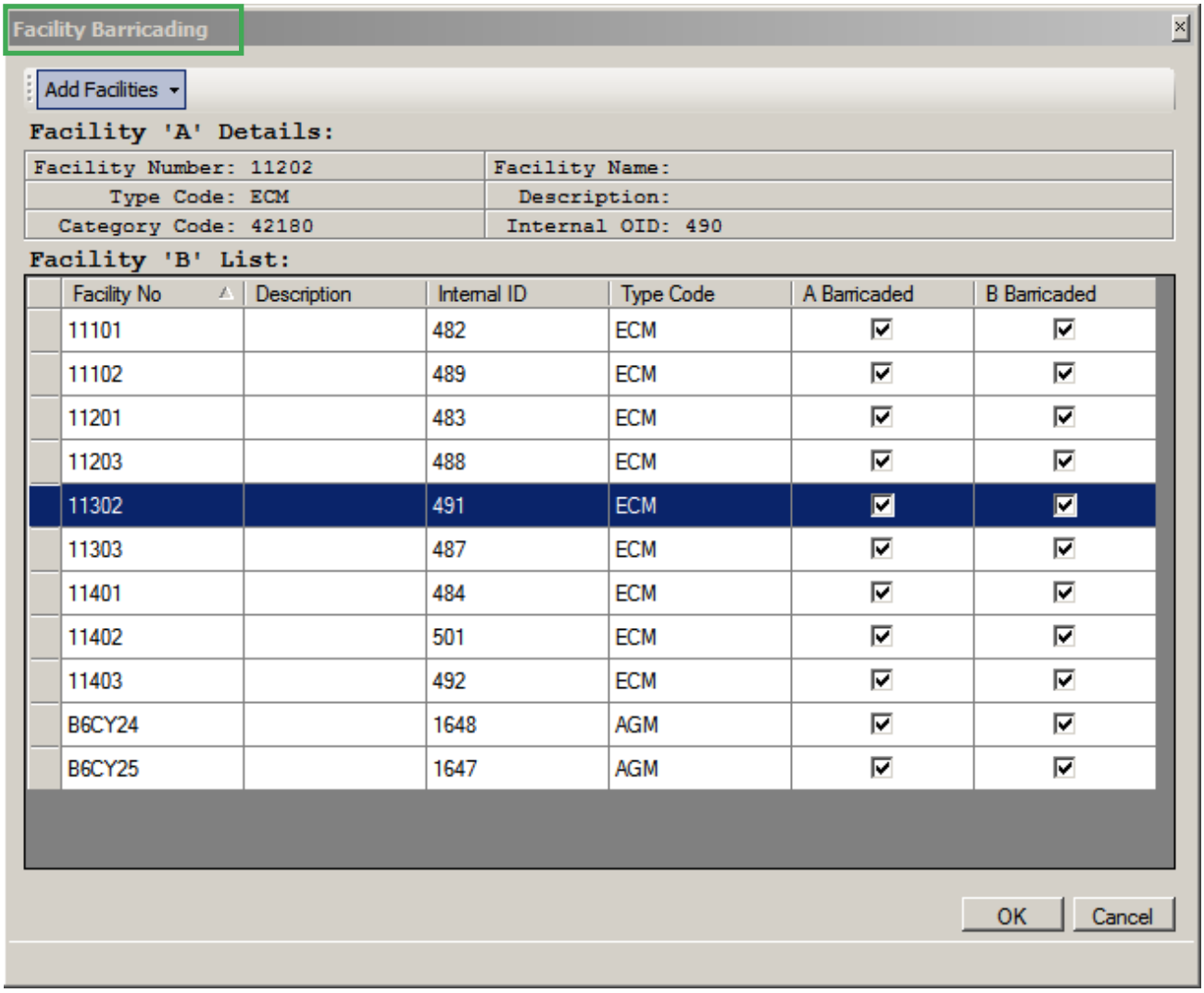
	Facility ID	Facility Number	Name	Type Code	Layer Name
▶	bldg_2080	00001		IHB	structure_existing_area
	bldg_2078	00002		IHB	structure_existing_area
	bldg_2075	00003		IHB	structure_existing_area
	bldg_2081	00004		IHB	structure_existing_area
	bldg_2079	00005		IHB	structure_existing_area
	bldg_2467	00006		IHB	structure_existing_area
	bldg_2090	00007	CALIBR...	EOL	structure_existing_area
	bldg_2472	00008		IHB	structure_existing_area
	bldg_2098	00009		IHB	structure_existing_area
	bldg_2400	00010		IHB	structure_existing_area
	bldg_2095	00011		IHB	structure_existing_area
	bldg_2087	00012		IHB	structure_existing_area
	bldg_2118	00013		IHB	structure_existing_area
	bldg_2085	00014		IHB	structure_existing_area
	bldg_2115	00015		IHB	structure_existing_area
	bldg_2088	00016		IHB	structure_existing_area
	bldg_2113	00017		EOL	structure_existing_area
	bldg_2086	00018		IHB	structure_existing_area
	bldg_2116	00019		IHB	structure_existing_area
	bldg_2092	00020	CHEM L...	IHB	structure_existing_area
	bldg_2403	00021		FAC	structure_existing_area
	bldg_2089	00022		IHB	structure_existing_area

E. In the **Select a Facility for Barricading** window, type in the facility number in the **Facility Filter** box. To select a specific barricaded facility click one time on the row and it will turn blue highlighting the selection.



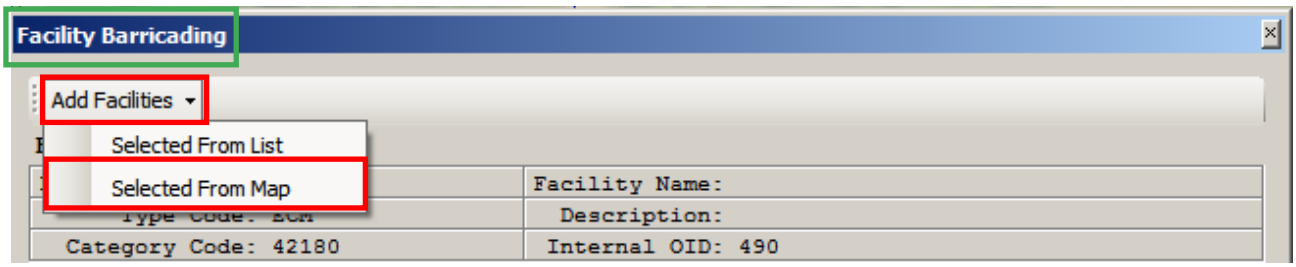
F. When selection has been made click OK.

G. The **Facility Barricading** window is now open.

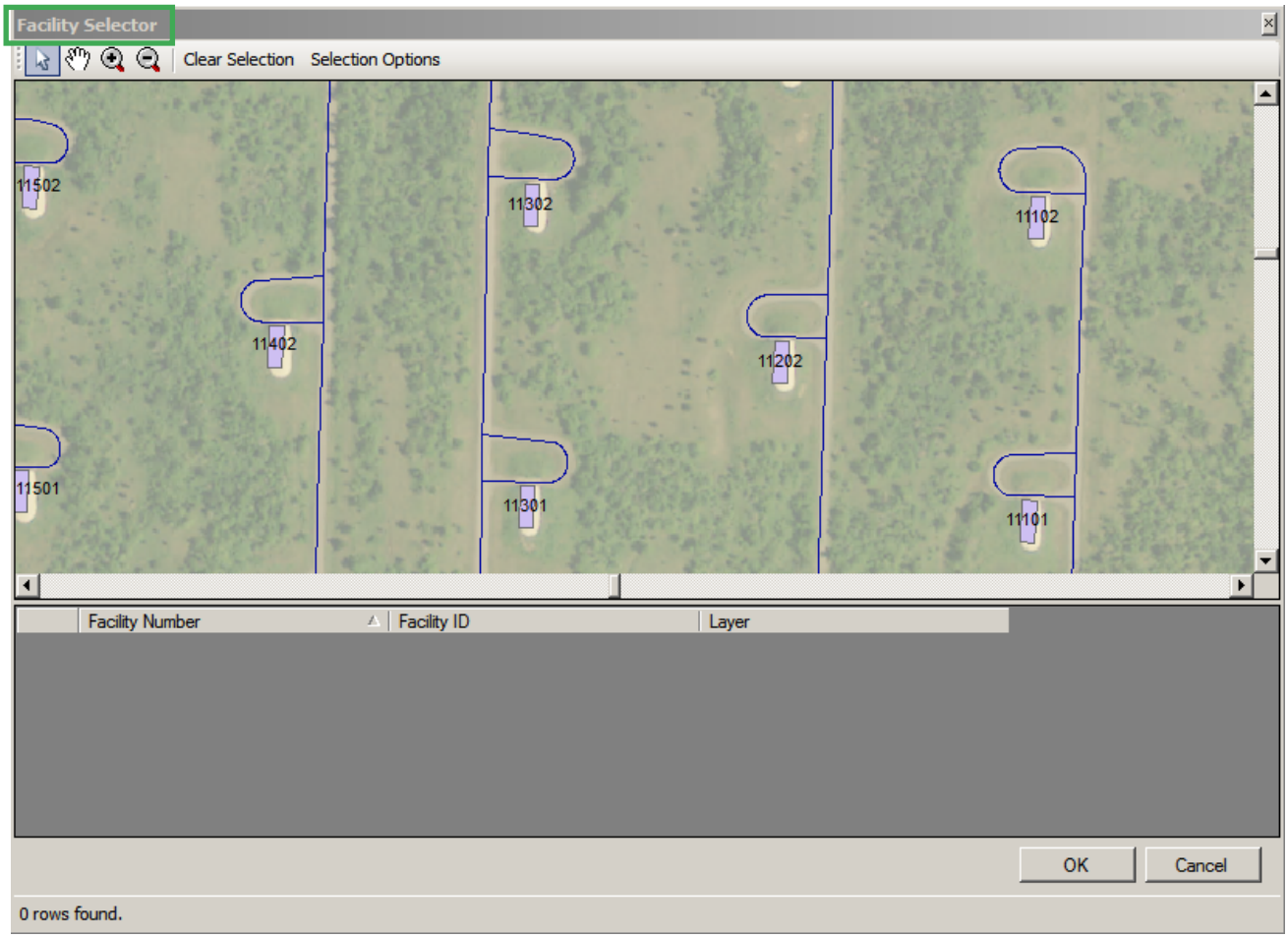


NOTE: If you refer back to the image associated with step 3B you will see that ECM 11301 is Identified, but is not identified in the listing above. You will manually assign the barricade criteria in the following steps.

H. In the **Facility Barricading** window, click on **Add Facilities** and then **Selected From Map**.



I. The Facility Selector window is now open.

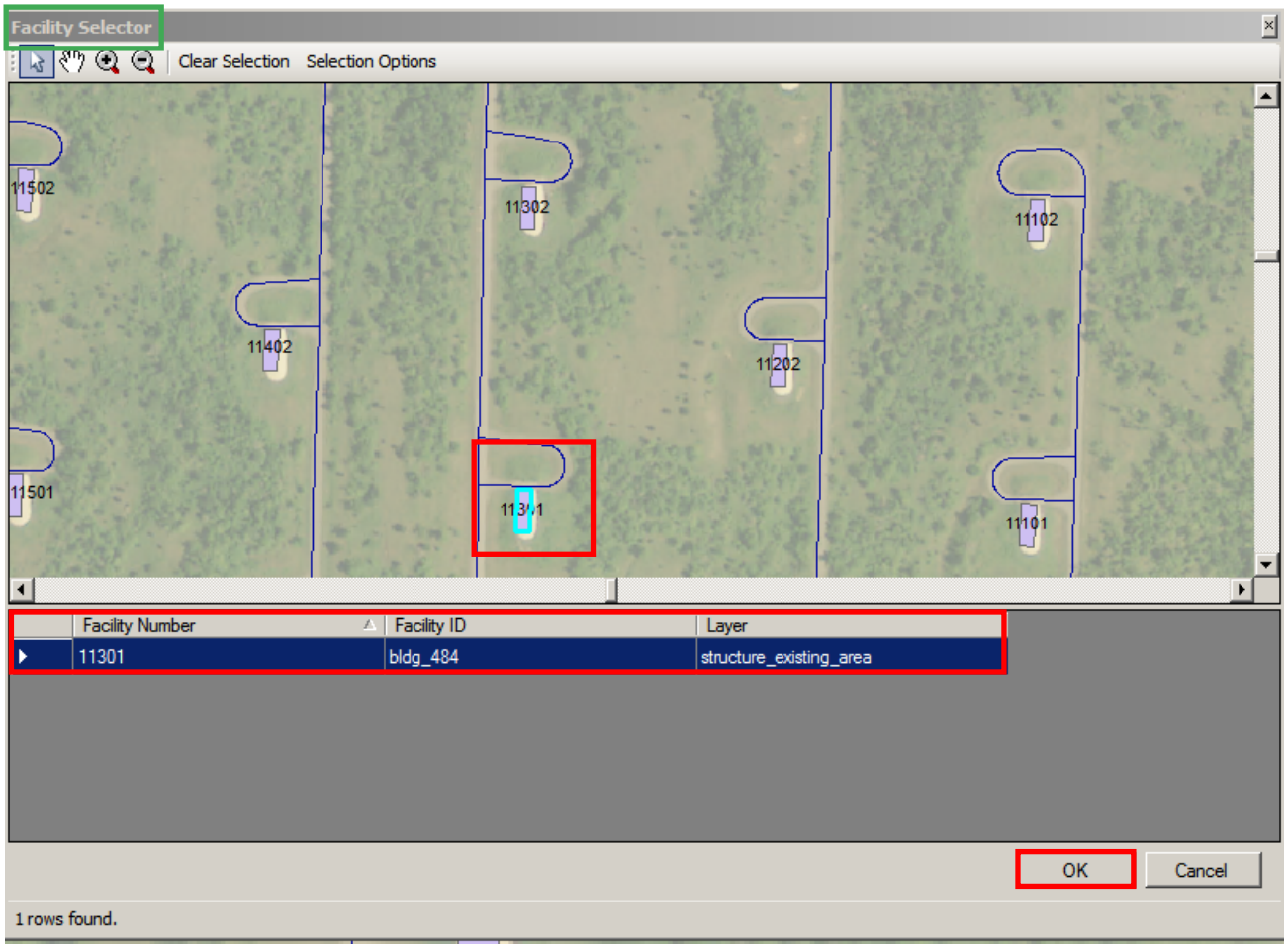


NOTE: There is two methods of selecting the facilities you want in this window.

1. Take your mouse cursor while holding down the left mouse button and drag the cursor around all the facilities you want to select. As you drag the cursor you will see an box appear.

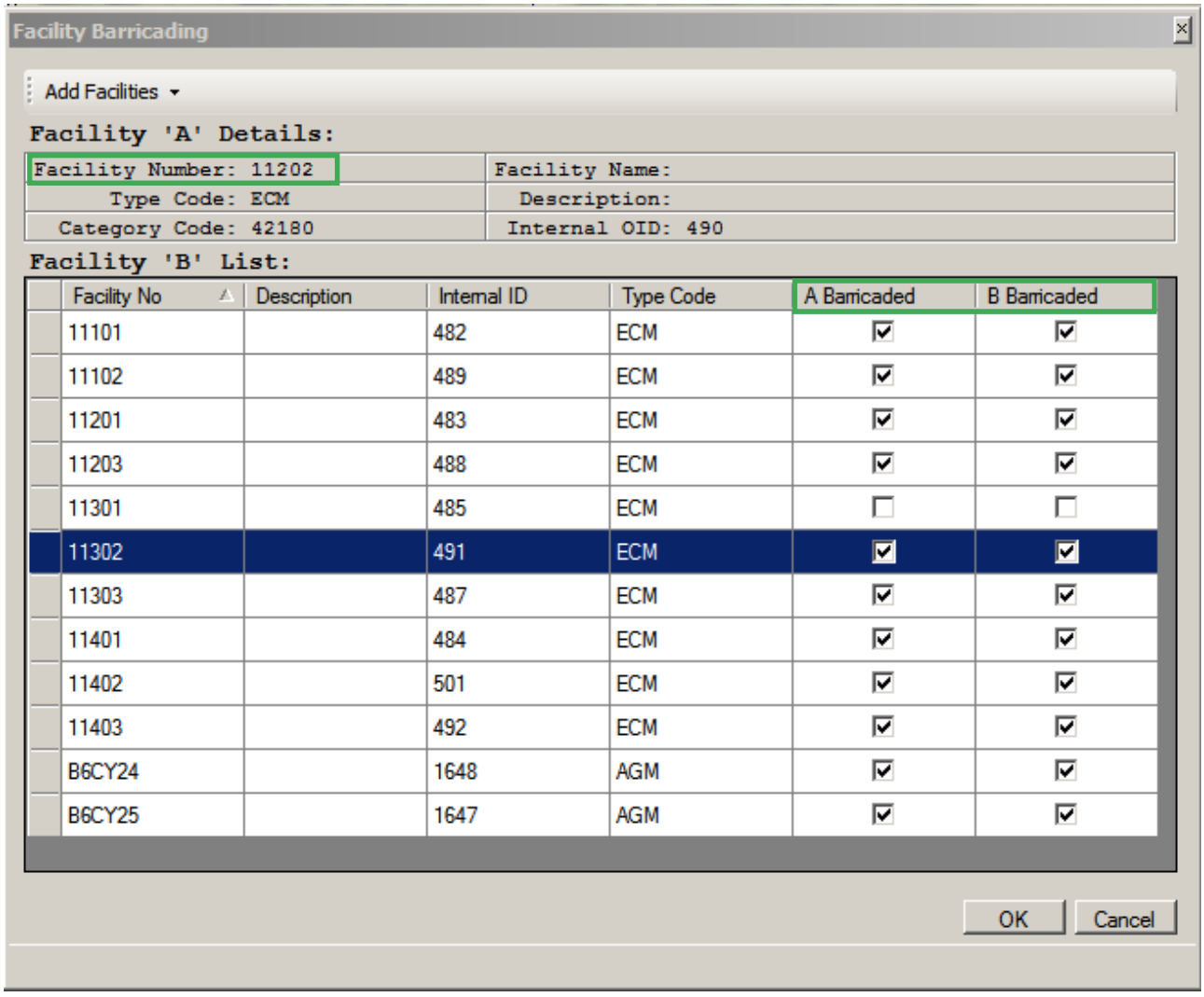
2. Take your cursor and select each facility individually by clicking on them.

J. Upon selecting the facility you will see the **facility polygon become highlighted** and the **facility** will be added to the bottom window of the **Facility Selector**.



K. Take your cursor and select the facility. The selected facility will be highlighted in blue. Click **OK** when done.

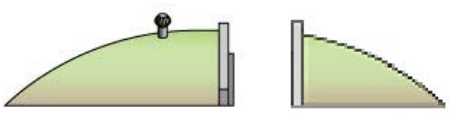
L. The Facility Barricading window is now displayed with the ES facility records that were selected.

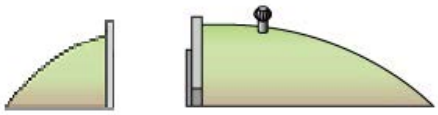


NOTE: You will notice there are columns listed for "**A Barricaded**" and "**B Barricaded**." A Barricaded refers to the main **PES 11202**. B Barricaded refers to the ES facilities. If the barricade is part of the main PES the A Barricaded column should be checked. If the barricade is part of the ES, the B Barricaded column should be checked. **Refer to examples provided on the next page. These are examples of barricading scenarios you might encounter.**

Examples of when A Barricade and B Barricade are checked:

EXAMPLE #1



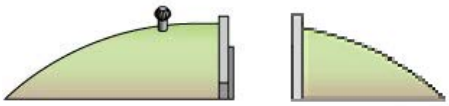


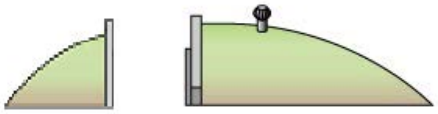
A = 11202

B = 11101

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
11101		482	ECM	☑	☑

EXAMPLE #2





A = 11202

B = 11102

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
11102		489	ECM	☑	☑

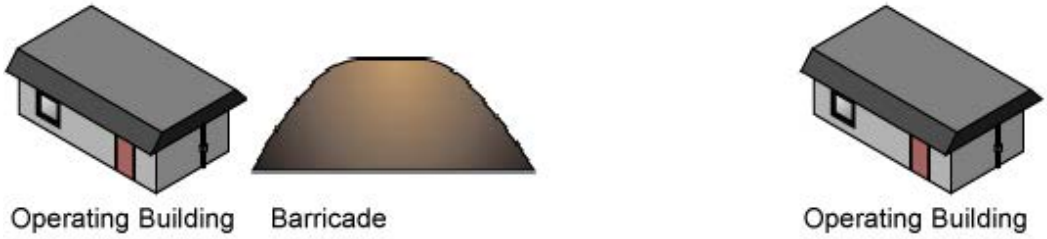
EXAMPLE #3

A = 11202

B = 11301

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
11301		485	ECM	☑	☑

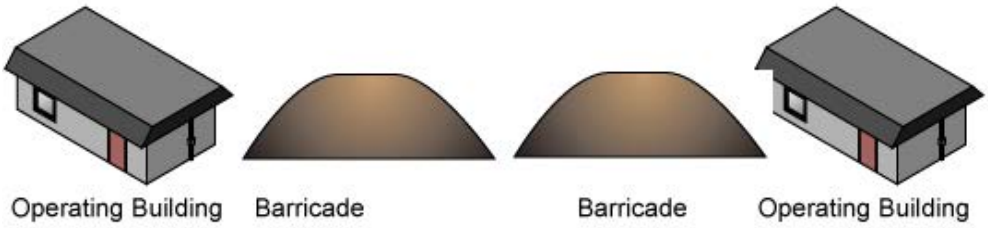
EXAMPLE #4



A B

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXX		XXX	EOL	☑	☐

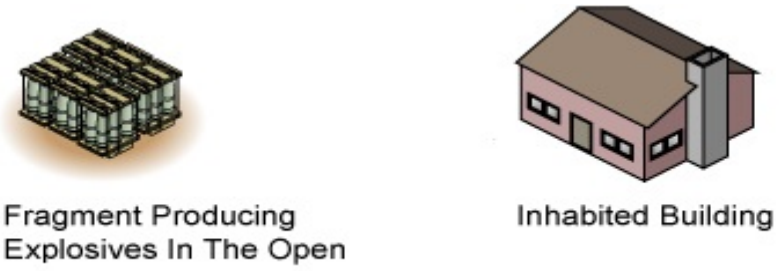
EXAMPLE #5



A B

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXX		XXX	EOL	☑	☑

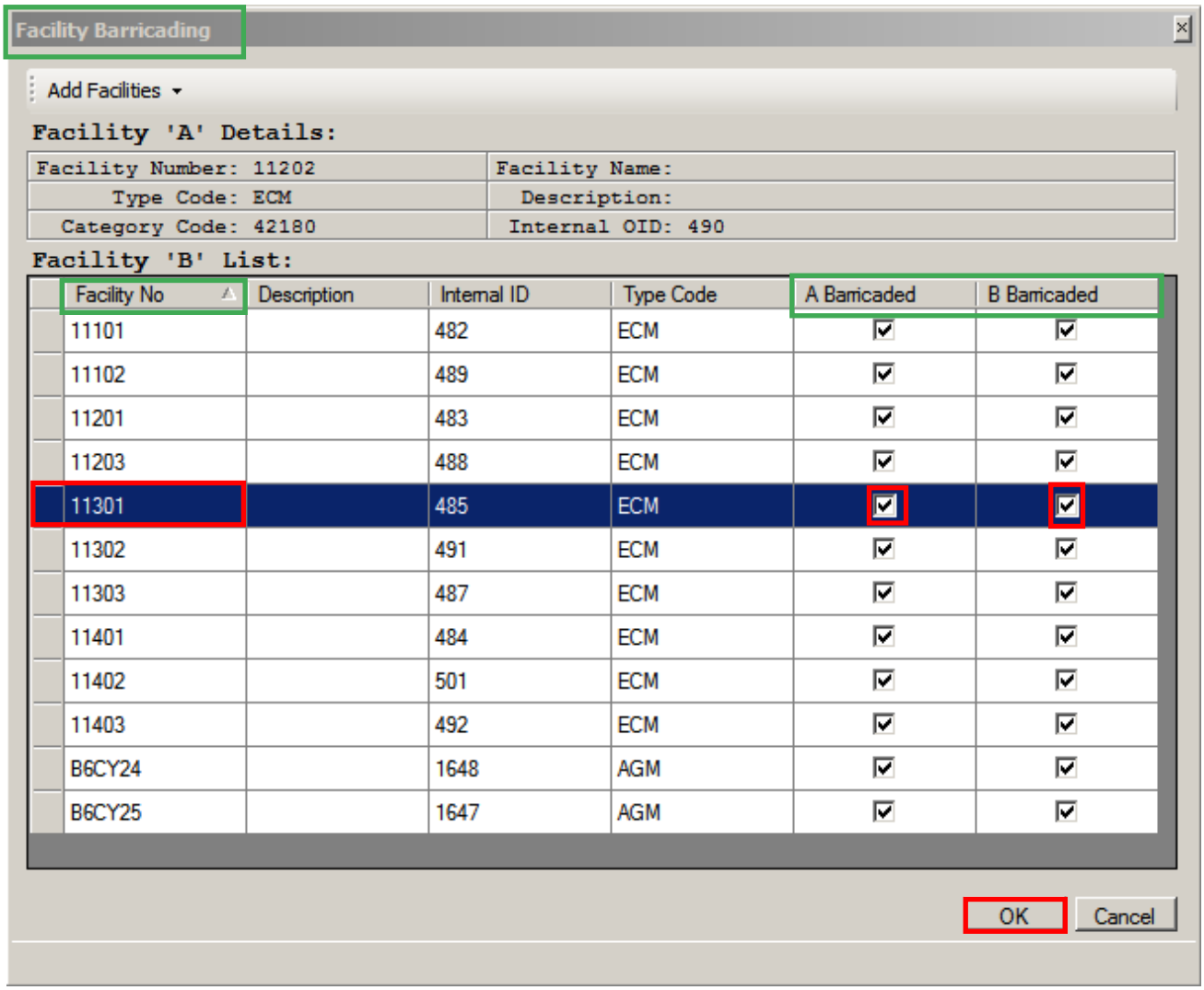
EXAMPLE #6



A B

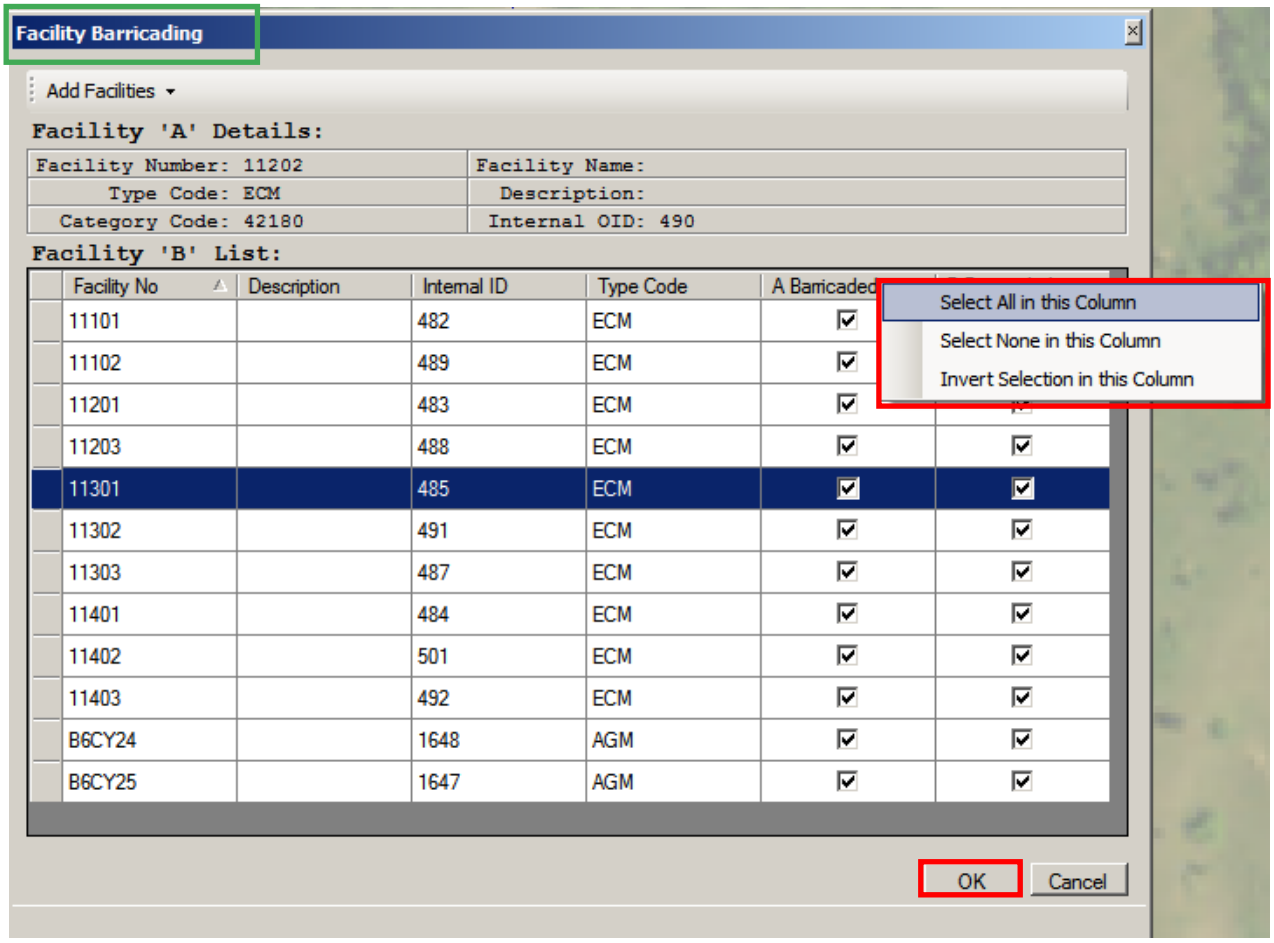
Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXX		XXX	AGM	☐	☐

M. In the **Facility Barricading** window go to the **Facility No** column and click once on **Facility number 11301**. This will highlight the 11301 record in blue. Go to the **A column** and click on the **check box** then go to the **B column** and click on the **check box**.



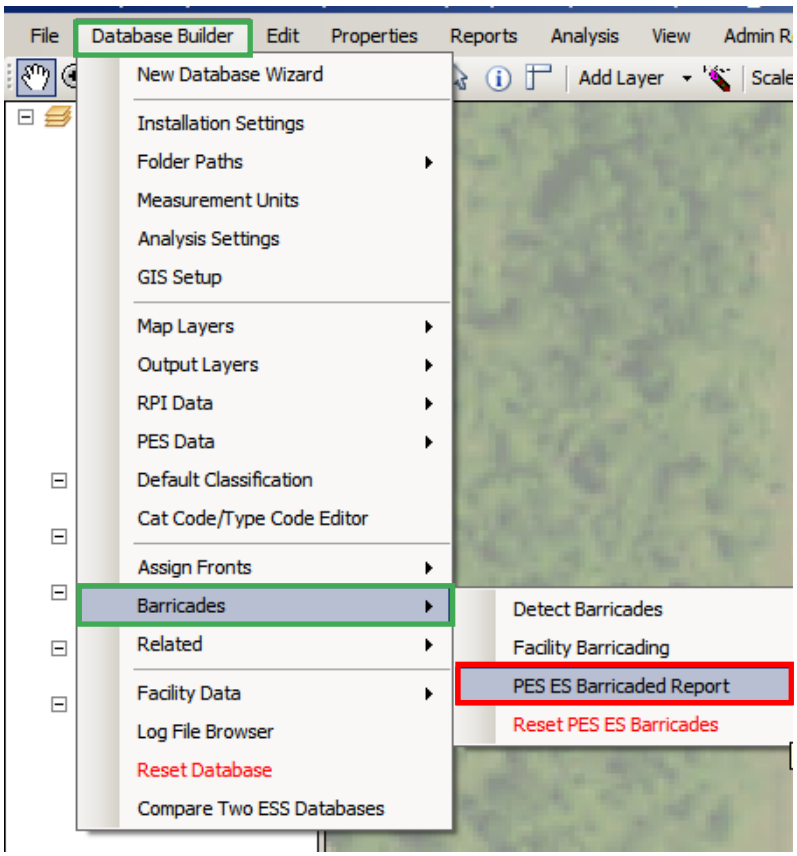
N. Click the **OK** button when complete.

NOTE: In the **Facility Barricading** window you know that everything in either column A or B is supposed to be checked. If you want to verify that, you can right click on the A or B column and then choose one of the **three options** seen below. When done click on the **OK** button.



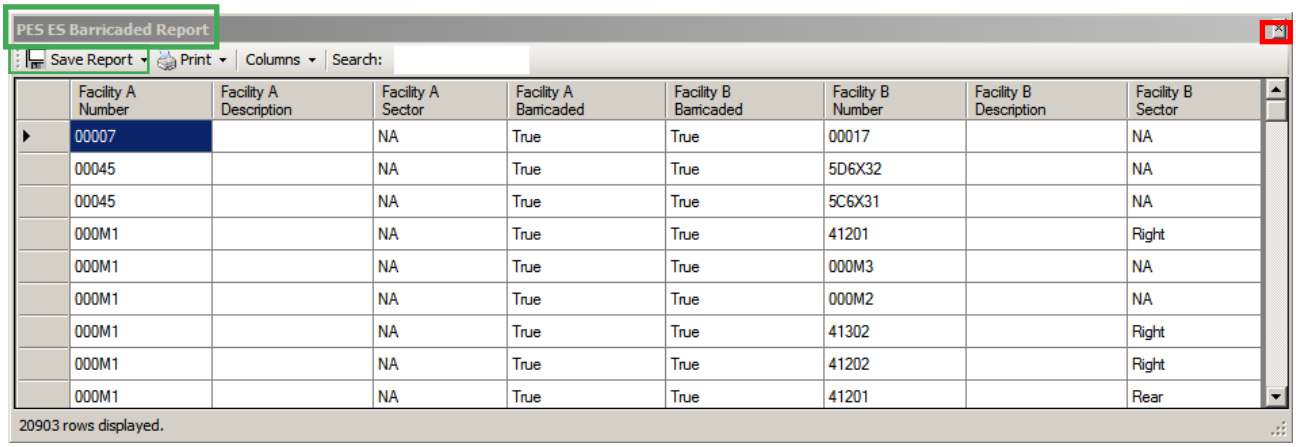
O. Manually setting the barricades is no complete.

P. To view the barricades report, go to the ESS main tool bar use the **Database Builder > Barricades > PES ES Barricaded Report** menu option. After clicking on the menu option, be patient as it may take awhile depending on the size of your installation.



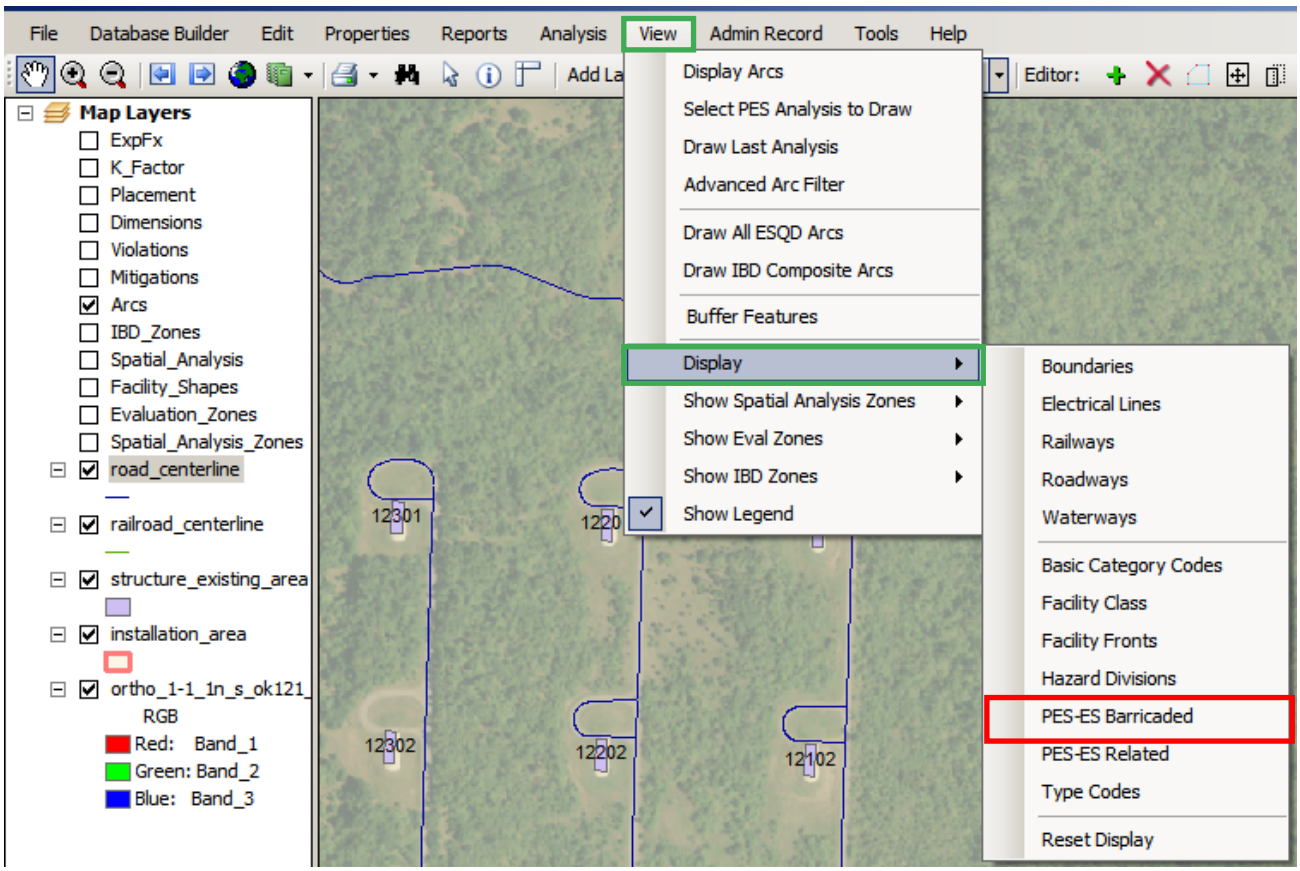
Close the report when finished.

Q. Below is the **PES ES Barricaded Report**. You can view all barricaded faciltiies within this report and easily export to a number of formats using the **Save Report** drop down menu. When done with the report go to the upper right corner and click on the small **X**.

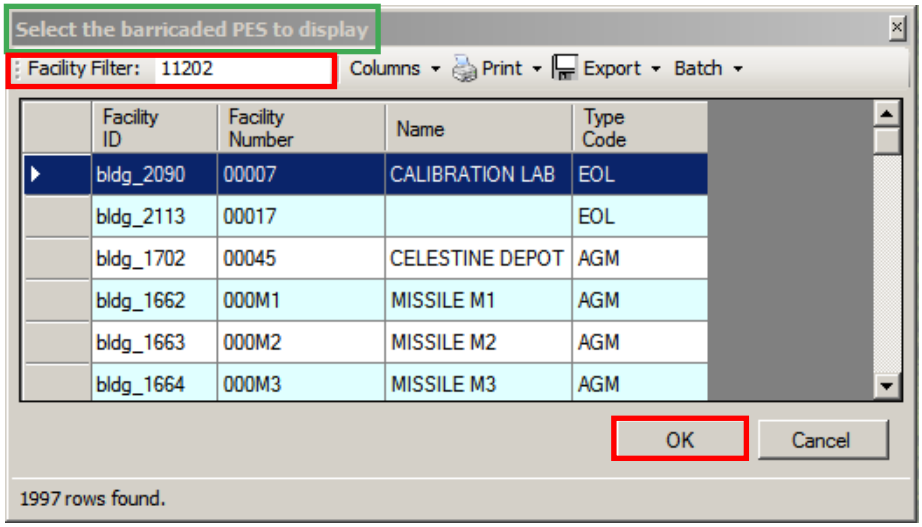


Facility A Number	Facility A Description	Facility A Sector	Facility A Barricaded	Facility B Barricaded	Facility B Number	Facility B Description	Facility B Sector
00007		NA	True	True	00017		NA
00045		NA	True	True	5D6X32		NA
00045		NA	True	True	5C6X31		NA
000M1		NA	True	True	41201		Right
000M1		NA	True	True	000M3		NA
000M1		NA	True	True	000M2		NA
000M1		NA	True	True	41302		Right
000M1		NA	True	True	41202		Right
000M1		NA	True	True	41201		Rear

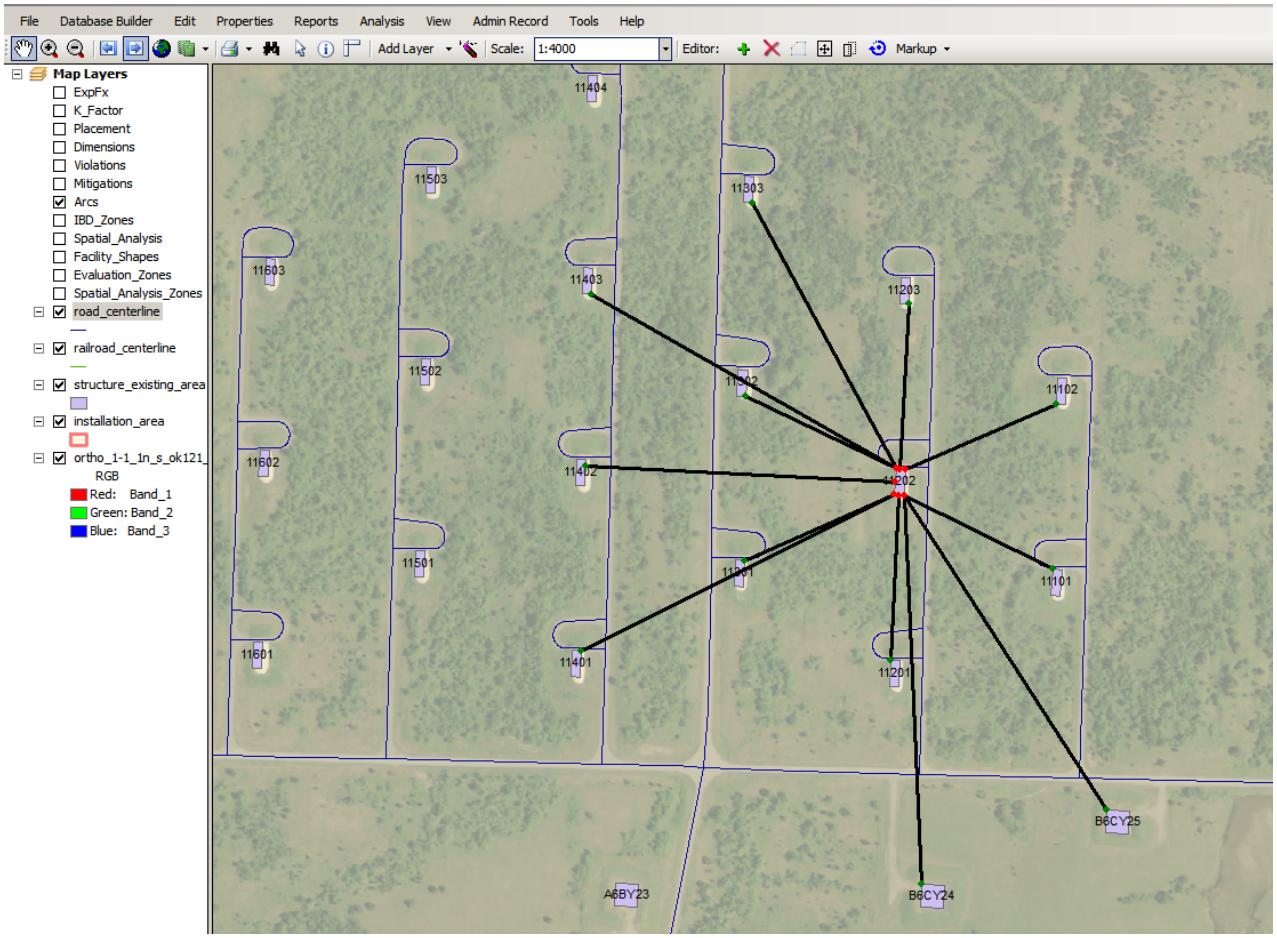
R. To visually see which facilities are barricaded, go to the **ESS main tool bar>View > Display > PES ES Barricaded** menu option. See the next page.



S. In the **Select the barricaded PES to display** window below, type the facility number in the **Facility Filter** input box. Click the **OK** button. You are now returned to the ESS main screen. See the next page.



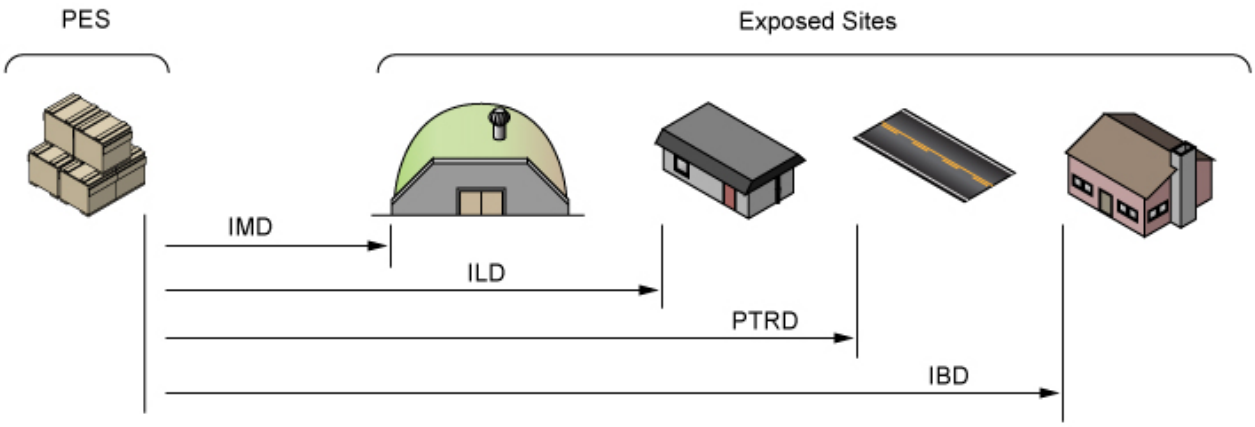
T. Lines will be displayed on the screen showing which ES facilities are barricaded for PES 11202. To clear the lines,use the **ESS Main Tool Bar>View>Display>Reset Display** menu option.



This concludes the setting barricades guide.

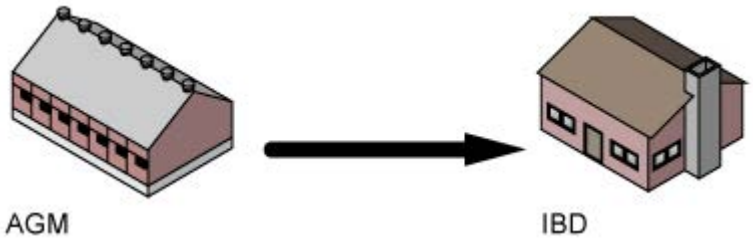
10. Introduction to Facility Relationships

After the ESS database has been developed and GIS, RPI, and PES data have been imported, the next step is to setup relationships between PES and ES facilities. This instructional documentation describes the procedure for setting facility relationships from PES to ES facilities. This is used when facilities are involved in similar mission activities and the types of facilities qualify for reduced quantity distance.

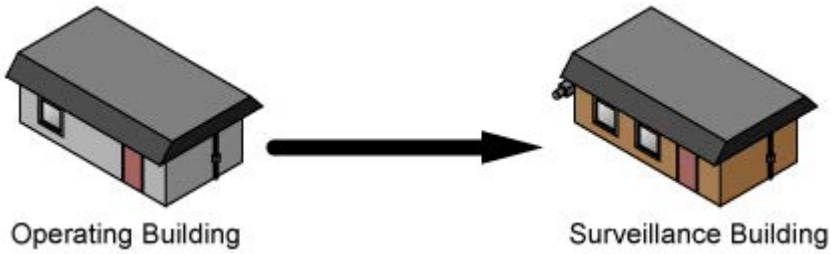


11. Examples of Facility Relationships:

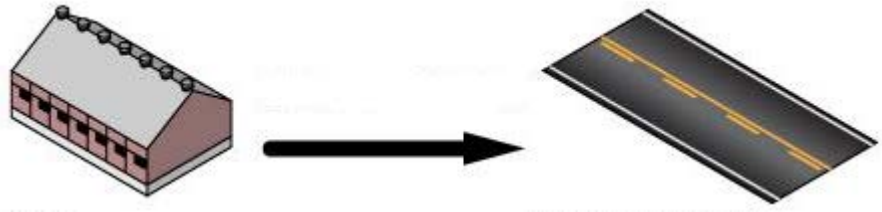
A. Above ground Magazine to an Inhabited Building (House): Related or Not Related is the question? In this case, No Relationship exists and requires the maximum QD be applied



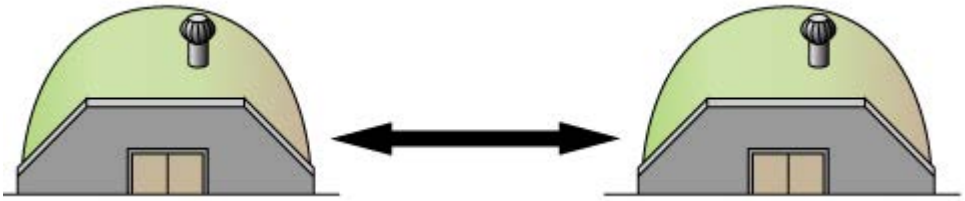
B. Explosives Operating Location (EOL) to a Surveillance Workshop: Related or Not Related is the question? In this case, we can establish a relationship and therefore justify the reduced QD criteria assigning Intraline (unbarricaded even if HD 1.1 is present at the PES).



C. Above Ground Magazine (AGM) to a Public Traffic Route (PTR): Related or Not Related is the question? In this case, there is no relationship and the ES (PTR) is an off base highway. In this case the PES will require the maximum PTR distance from the ES.



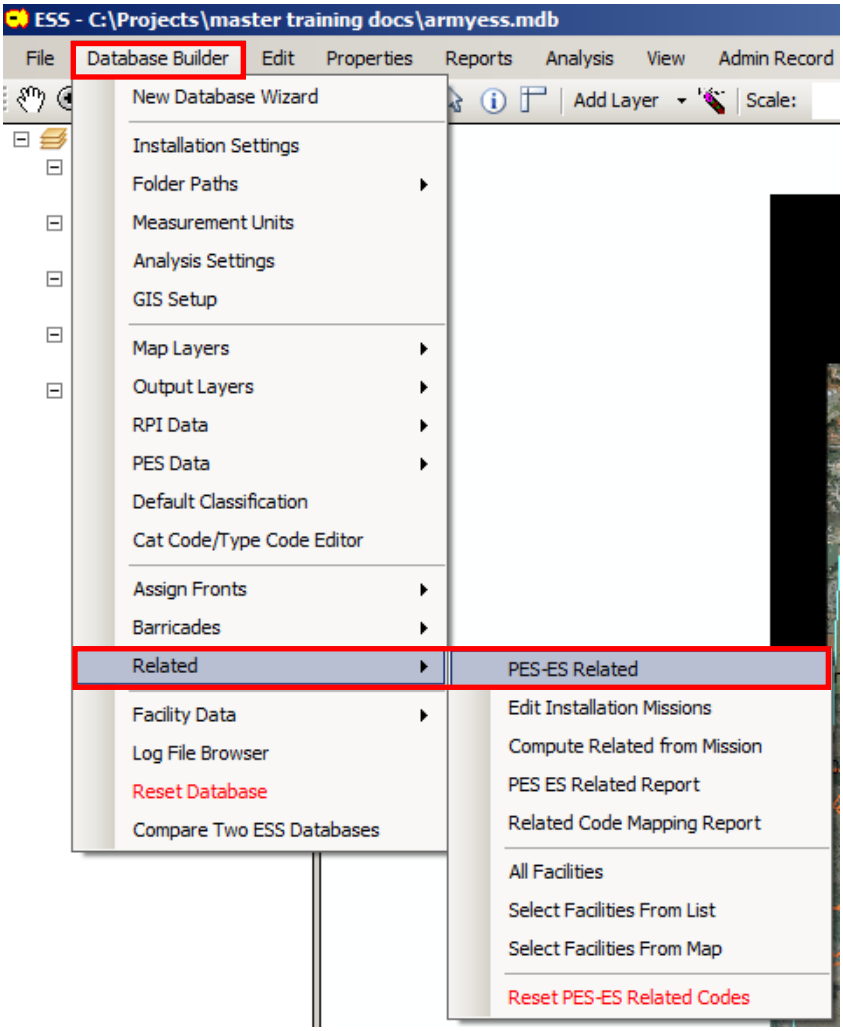
D. Earth Covered Magazine (ECM) to a Earth Covered Magazine (ECM): Related or Not Related is the question? In this case, there is a relationship and therefore you can apply the minimum intramagazine distance.



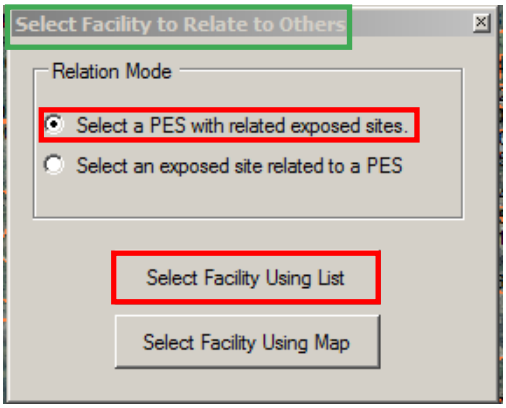
NOTE: There are many factors involving these types of PES to ES relationships. Always refer to the latest DA PAM 385-64 for specific criteria.

12. Establish Relationships:

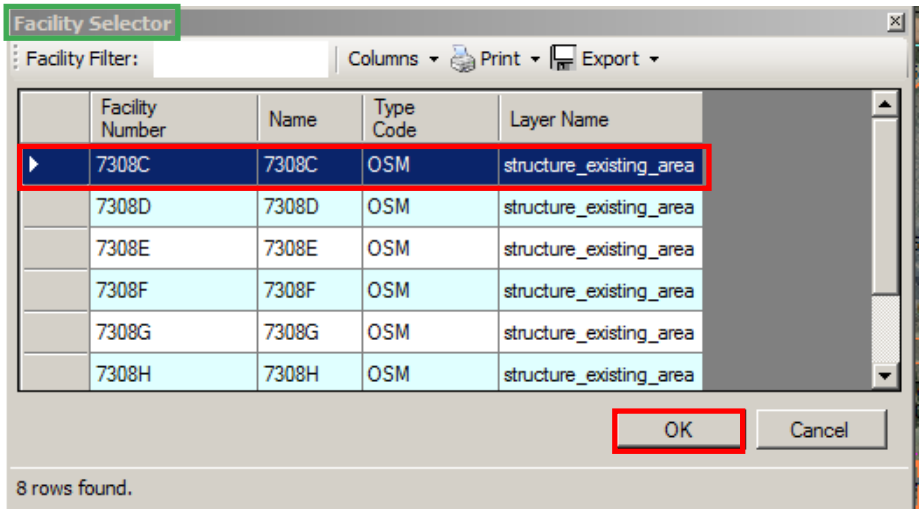
A. Go to **Database Builder > Related > PES-ES Related**:



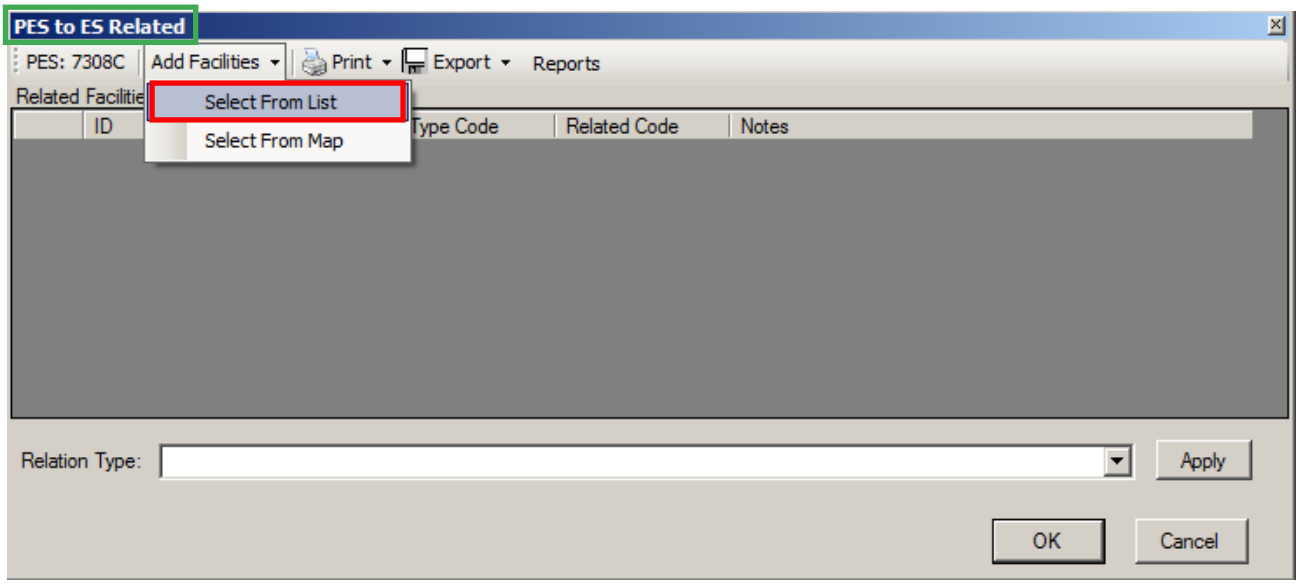
B. In the **Select Facility to Relate to Others** window, Click on the **"Select a PES with related exposed sites"**, then click on the **'Select Facility Using List'**



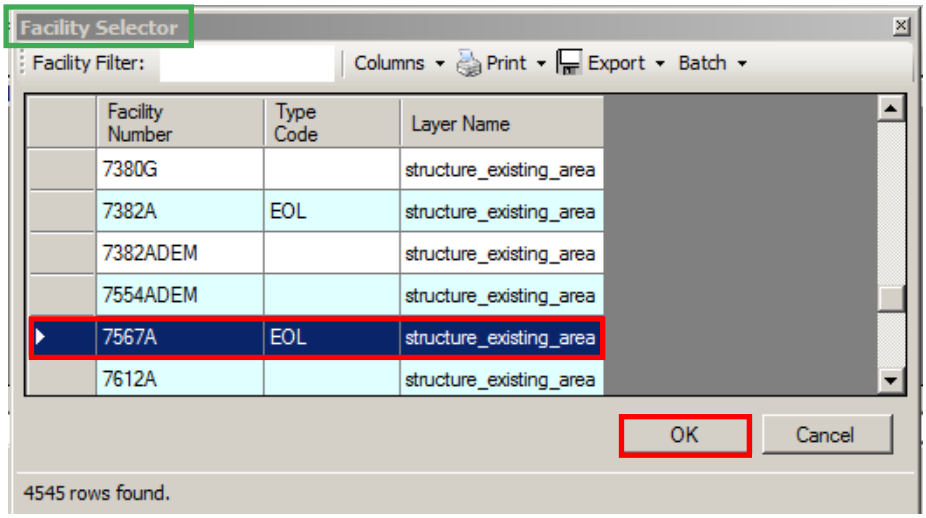
C. When the **Facility Selector** window opens, scroll down the list and click on the **row** for the facility you need. This will highlight the row you want to use. Then click on **OK.**



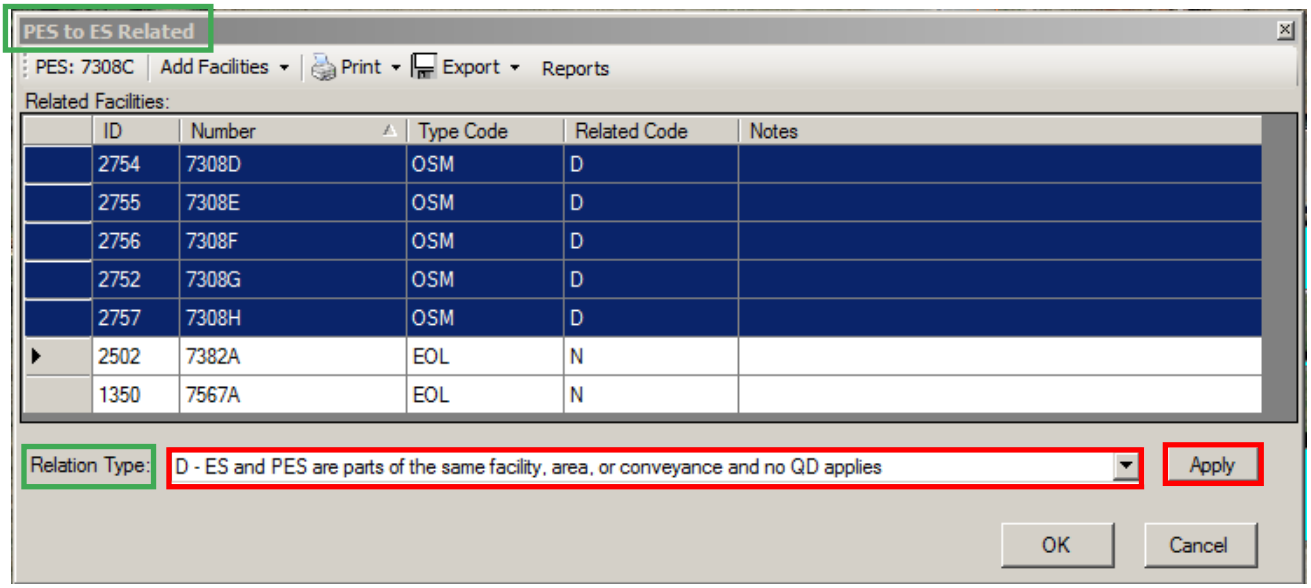
D. Another window **PES to ES Related** will open. Click on **Add Facilities > Select from List** pull down menu seen below.



E. **Facility Selector** window is now open. Your facilities are listed as seen below. Scroll down and look for your facility number and **click on the row** so that it is highlighted, then click the **OK** button.

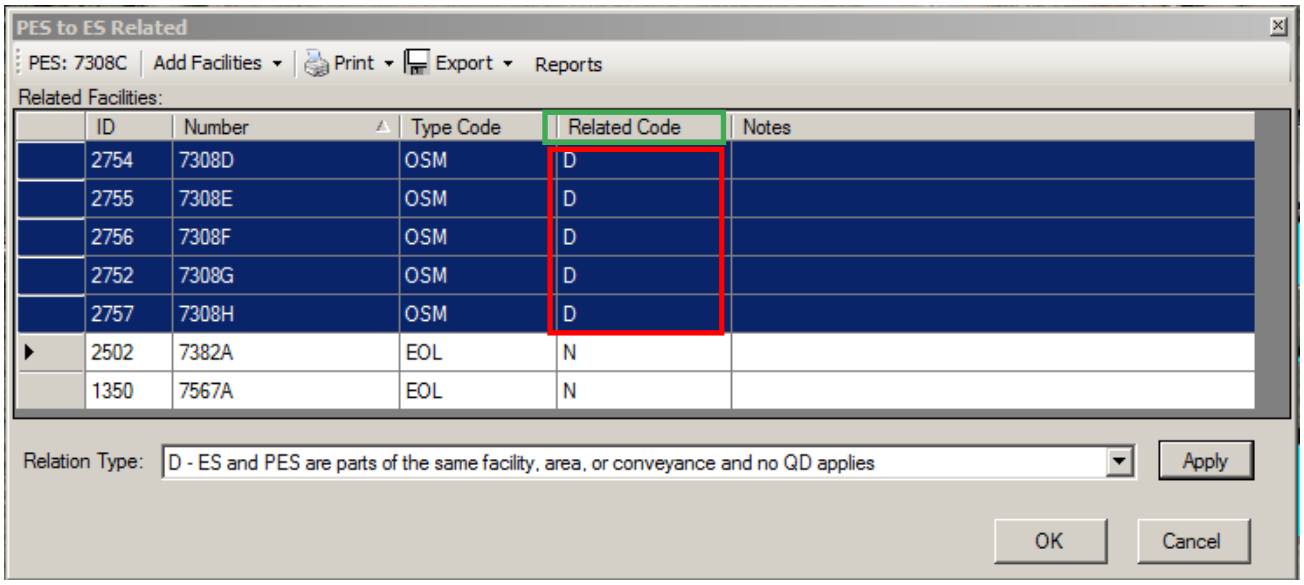


Note: You can select more than one Exposed Site by holding the CTRL key down on your keyboard while using your mouse to select multiple rows.



F. The facility(s) you selected will be added to the list in the **PES to ES Related** window seen above. Next, you will add a relationship type, by clicking on the **Relation Type** drop down list and selecting the appropriate relationship code. As an example we have selected **D – ES and PES are parts of the same facility, area, or conveyance and no QD applies** . It is important that you click on the **Apply** button for your codes to be changed.

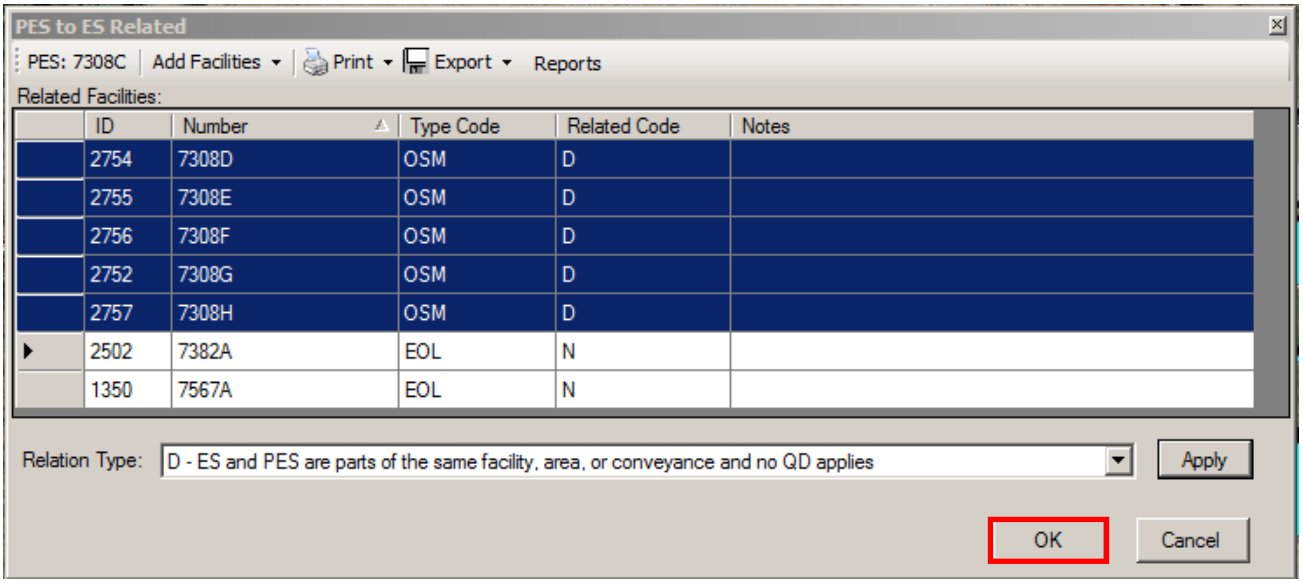
Reference: See Section 13 for a complete listing of Relationship codes with definitions.



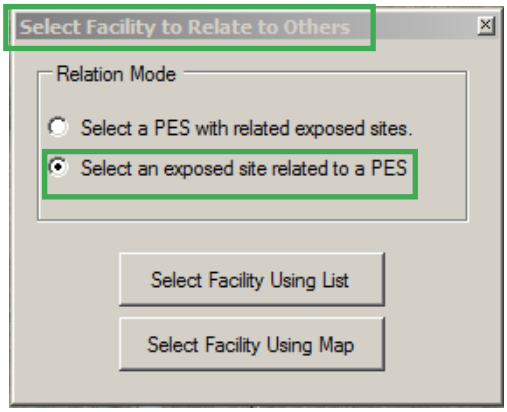
G. The facility(s) you selected should reflect a **Related Code D** as seen above.

H. Repeat this step for any additional facilities you need to establish relationships for.

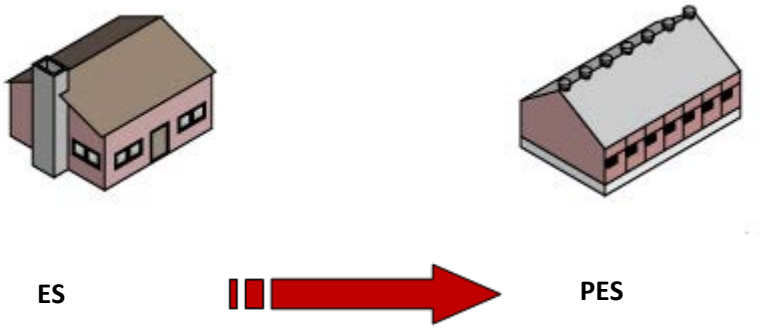
I. Click on **OK**, when you finish adding relationships to the facility(s) you selected.



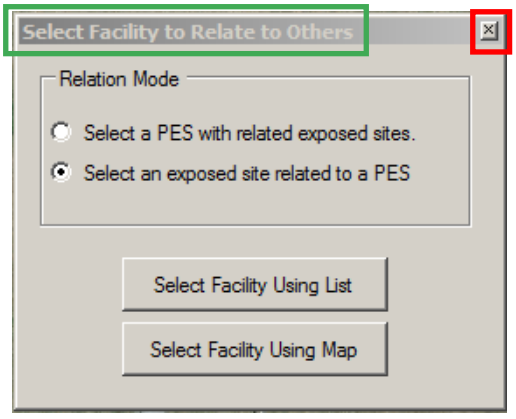
J. After clicking the OK button, you will be returned to the **Select Facility to Relate to Others** window seen below.



K. You also have the option to **Select an exposed site related to a PES**. The process is identical to what you just completed except your looking back from the ES to the PES(s).



L. Close the **Select Facility to Relate to Others** window when finished by clicking the **X** in the upper right hand corner of the image below. This will return you to your ESS main window.



13. ESS Relationship Codes

ESS Relationship Codes	
Code:	**Description:**
A	Facility serves a specific area
B	ES serves an individual location
D	ES and PES are parts of the same facility, area, or conveyance and no QD applies
E	This utility facility exclusively supports an explosives storage area
F	This facility or all personnel who access it are directly related to the explosives mission
H	ES is related to PES and Barricaded IL distance is applicable for ES. (C9.4.1.1.1 and C9.4.1.1.2)
I	The ES is manifestly inapplicable: ESQD arc can cross the installation boundary without creating a violation
L	Adjacent Berth: The ES is located on the same physical pier as the PES
M	ES is used for container stuffing and unstuffing operations that routinely support ships
N	No relationship is defined between the ES and PES
O	ES facility is unrelated to AE
P	The ES facility supports/services a single PES
Q	ES is used exclusively for alert/essential personnel supporting the PES
S	ES is used by explosives personnel not related to PES, no minimum fragment distance
T	The ES ship is part of the prepositioning program
U	The PES is a SBU that is located at an Explosives Loading Ship Pier
V	The PES is a SBU that is located at an Explosives Barge Pier
X	PES and ES are Related, no separation distance is required
Y	Facility Provides Quick Response Action in Immediate Vicinity
Z	ES is related to the PES, ILD Exposure

14. SDS Attributes Expected

SDS Entity Set	SDS Entity Class	SDS Entity Type	Entity Name	SDS Attribute	ID	Number (Link)	Desc	Attribute Description
buildings	buildings_general	canopy_pavilion_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	canopy_pavilion_site	bggenstr	facil_no	FALSE	TRUE	FALSE	The actual building number on the physical structure (NFADB facno)
buildings	buildings_general	canopy_pavilion_site	bggenstr	str_mat_d	FALSE	FALSE	FALSE	Construction type of material used
buildings	buildings_general	canopy_pavilion_site	bggenstr	str_type_d	FALSE	FALSE	FALSE	The type of structure.
buildings	buildings_general	canopy_pavilion_site	bggenstr	structname	FALSE	FALSE	TRUE	Common name given to the structure.
buildings	buildings_general	carport_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	carport_site	bggenstr	facil_no	FALSE	TRUE	FALSE	The actual building number on the physical structure (NFADB facno)
buildings	buildings_general	carport_site	bggenstr	str_mat_d	FALSE	FALSE	FALSE	Construction type of material used
buildings	buildings_general	carport_site	bggenstr	str_type_d	FALSE	FALSE	FALSE	The type of structure.
buildings	buildings_general	carport_site	bggenstr	structname	FALSE	FALSE	TRUE	Common name given to the structure.
buildings	buildings_general	shed_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	shed_site	bggenstr	facil_no	FALSE	TRUE	FALSE	The actual building number on the physical structure (NFADB facno)
buildings	buildings_general	shed_site	bggenstr	str_mat_d	FALSE	FALSE	FALSE	Construction type of material used
buildings	buildings_general	shed_site	bggenstr	str_type_d	FALSE	FALSE	FALSE	The type of structure.
buildings	buildings_general	shed_site	bggenstr	structname	FALSE	FALSE	TRUE	Common name given to the structure.
buildings	buildings_general	slab_area	bggenfnd	struct_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	slab_area	bggenfnd	feat_desc	FALSE	TRUE	FALSE	A description of the feature.
buildings	buildings_general	slab_area	bggenfnd	str_mat_d	FALSE	FALSE	TRUE	Construction type of material used
buildings	buildings_general	structure_existing_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	structure_existing_site	bggenstr	facil_no	FALSE	TRUE	FALSE	The actual building number on the physical structure (NFADB facno)
buildings	buildings_general	structure_existing_site	bggenstr	no_occup	FALSE	FALSE	FALSE	Number of persons currently occupying the building.
buildings	buildings_general	structure_existing_site	bggenstr	str_mat_d	FALSE	FALSE	FALSE	Construction type of material used
buildings	buildings_general	structure_existing_site	bggenstr	str_type_d	FALSE	FALSE	FALSE	The type of structure.
buildings	buildings_general	structure_existing_site	bggenstr	structname	FALSE	FALSE	TRUE	Common name given to the structure.
buildings	buildings_general	structure_future_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	structure_future_site	bggenstr	facil_no	FALSE	TRUE	FALSE	The actual building number on the physical structure (NFADB facno)
buildings	buildings_general	structure_future_site	bggenstr	no_occup	FALSE	FALSE	FALSE	Number of persons to occupying the building.
buildings	buildings_general	structure_future_site	bggenstr	str_mat_d	FALSE	FALSE	FALSE	Construction type of material used
buildings	buildings_general	structure_future_site	bggenstr	str_type_d	FALSE	FALSE	FALSE	The type of structure.
buildings	buildings_general	structure_future_site	bggenstr	structname	FALSE	FALSE	TRUE	Common name given to the structure.
buildings	buildings_general	tower_site	bggenstr	buildng_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_general	tower_site	bggenstr	str_mat_d	FALSE	FALSE	TRUE	Construction type of material used
buildings	buildings_general	tower_site	bggenstr	structname	FALSE	TRUE	FALSE	Common name given to the structure.
buildings	buildings_space	building_floor_area	bgspaflr	floor_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_space	building_floor_area	bgspaflr	buildng_id	FALSE	FALSE	FALSE	FOREIGN KEY - Links the record to BGGENSTR through primary key buildng_id
buildings	buildings_space	building_floor_area	bgspaflr	floorname	FALSE	TRUE	TRUE	Name of the building floor
buildings	buildings_space	building_room_area	bgsparom	room_id	TRUE	FALSE	FALSE	Primary Key
buildings	buildings_space	building_room_area	bgsparom	buildng_id	FALSE	FALSE	FALSE	FOREIGN KEY - Links the record to BGGENSTR through primary key BUILDNG_ID.
buildings	buildings_space	building_room_area	bgsparom	floor_id	FALSE	FALSE	FALSE	FOREIGN KEY - Links the record to BGSPALFR through primary key FLOOR_ID
buildings	buildings_space	building_room_area	bgsparom	room_ht	FALSE	FALSE	FALSE	Height dimension of the building room, measured from floor to ceiling.
buildings	buildings_space	building_room_area	bgsparom	room_leng	FALSE	FALSE	FALSE	Length dimension of a building room, measured from inside of wall to inside of wall.
buildings	buildings_space	building_room_area	bgsparom	room_width	FALSE	FALSE	FALSE	Width dimension of a building room, measured from inside of wall to inside of wall.
buildings	buildings_space	building_room_area	bgsparom	roomname	FALSE	TRUE	TRUE	Name of the building room.
cadastre	cadastre_federal_dod_property	installation_area	cddodins	instln_id	TRUE	FALSE	FALSE	Primary Key
cadastre	cadastre_federal_dod_property	installation_area	cddodins	feat_desc	FALSE	FALSE	FALSE	A description of the feature.
cadastre	cadastre_federal_dod_property	installation_area	cddodins	inst_desc	FALSE	FALSE	TRUE	A description for the installation.
cadastre	cadastre_federal_dod_property	installation_area	cddodins	instname	FALSE	FALSE	TRUE	Name of the installation.
communications	communications_cable_trans	communications_coaxial_line	coctrox	cocoax_id	TRUE	FALSE	FALSE	Primary Key
communications	communications_cable_trans	communications_coaxial_line	coctrox	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the cable.
communications	communications_cable_trans	communications_fiberoptic_line	coctrfop	fiberop_id	TRUE	FALSE	FALSE	Primary Key
communications	communications_cable_trans	communications_fiberoptic_line	coctrfop	feat_name	FALSE	TRUE	FALSE	The name of the feature.
communications	communications_cable_trans	communications_other_type_cable_line	coctrocl	cother_id	TRUE	FALSE	FALSE	Primary Key
communications	communications_cable_trans	communications_other_type_cable_line	coctrocl	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the cable.
communications	communications_cable_trans	communications_twisted_pair_line	coctrtwp	twpcbl_id	TRUE	FALSE	FALSE	Primary Key
communications	communications_cable_trans	communications_twisted_pair_line	coctrtwp	feat_name	FALSE	TRUE	FALSE	The name of the feature.
environmental_hazards	env_haz_munitions_remediation	munition_waste_disposal_area	ehmrmmwd	mrmmwd_id	TRUE	FALSE	FALSE	Primary Key
environmental_hazards	env_haz_munitions_remediation	munition_waste_disposal_area	ehmrmmwd	narrative	FALSE	TRUE	FALSE	A description or other unique information concerning the subject item.
environmental_hazards	env_haz_munitions_remediation	munition_waste_disposal_area	ehmrmmwd	pit_typ_d	FALSE	FALSE	TRUE	Code designated: eg. Open_Detonation, Open_Burn
environmental_hazards	env_haz_regulated_tanks	regulated_aboveground_storage_tank_site	ehtnkast	envast_id	TRUE	FALSE	FALSE	Primary Key
environmental_hazards	env_haz_regulated_tanks	regulated_aboveground_storage_tank_site	ehtnkast	narrative	FALSE	TRUE	TRUE	A description or other unique information concerning the subject item.
fauna	fauna_management	government_wildlife_management_area	famgtgov	wld_mgt_id	TRUE	FALSE	FALSE	Primary Key
fauna	fauna_management	government_wildlife_management_area	famgtgov	feat_name	FALSE	TRUE	FALSE	Name of the wildlife management area or refuge.
hydrography	hydrography_coastal_zone	shoreline	hycznshr	shorln_id	TRUE	FALSE	FALSE	Primary Key

SDS Entity Set	SDS Entity Class	SDS Entity Type	Entity Name	SDS Attribute	ID	Number (Link)	Desc	Attribute Description
hydrography	hydrography_coastal_zone	shoreline	hycznshr	shore_name	FALSE	FALSE	TRUE	Common name for the shoreline
improvement	improvement_athletic_recreation	athletic_court_area	imathcrt	court_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	athletic_court_area	imathcrt	court_name	FALSE	TRUE	FALSE	The name of the court area.
improvement	improvement_athletic_recreation	athletic_court_area	imathcrt	crt_desig	FALSE	FALSE	TRUE	Any local designator for the court.
improvement	improvement_athletic_recreation	athletic_field_area	imathare	field_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	athletic_field_area	imathare	fld_desig	FALSE	FALSE	TRUE	Local identifier for field area.
improvement	improvement_athletic_recreation	athletic_field_area	imathare	fld_name	FALSE	TRUE	FALSE	The name of the athletic field.
improvement	improvement_athletic_recreation	bleachers_site	imathare	field_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	bleachers_site	imathare	fld_desig	FALSE	TRUE	FALSE	Local identifier for field area.
improvement	improvement_athletic_recreation	bleachers_site	imathare	fld_name	FALSE	FALSE	TRUE	The name of the athletic field.
improvement	improvement_athletic_recreation	golf_course_fairway_alignment_line	imathgfa	alignmt_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	golf_course_fairway_alignment_line	imathgfa	hole_no	FALSE	TRUE	FALSE	The number of the hole, including course designation, if applicable; e.g. BLUE #12
improvement	improvement_athletic_recreation	golf_course_putting_green_area	imathgfg	green_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	golf_course_putting_green_area	imathgfg	feat_name	FALSE	TRUE	FALSE	The designation of the area, #18 GREEN
improvement	improvement_athletic_recreation	golf_course_putting_green_area	imathgfg	hole_no	FALSE	FALSE	TRUE	The designation of the hole, including the course if so designated; e.g. #6
improvement	improvement_athletic_recreation	golf_course_tee_area	imathgfg	green_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	golf_course_tee_area	imathgfg	feat_name	FALSE	TRUE	FALSE	The designation of the area, #6 RED TEE
improvement	improvement_athletic_recreation	golf_course_tee_area	imathgfg	hole_no	FALSE	FALSE	TRUE	The designation of the hole, including the course if so designated; e.g. BLUE #6 or RED #6
improvement	improvement_athletic_recreation	swimming_pool_area	imathpol	pool_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_athletic_recreation	swimming_pool_area	imathpol	feat_desc	FALSE	TRUE	FALSE	Any brief description of the feature.
improvement	improvement_channel_master_plan	channel_alignment_boundary_line	imcmpchb	chnline_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_flood_control	dam_site	imfdcdam	dam_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_flood_control	dam_site	imfdcdam	crs_name	FALSE	FALSE	TRUE	The name of the water body in which dam was constructed.
improvement	improvement_flood_control	dam_site	imfdcdam	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the dam structure.
improvement	improvement_general	miscellaneous_feature_area	imgenmis	misarea_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_general	miscellaneous_feature_area	imgenmis	feat_cat	FALSE	FALSE	FALSE	Facility category code for the feature.
improvement	improvement_general	miscellaneous_feature_area	imgenmis	feat_desc	FALSE	FALSE	TRUE	Any brief description of the feature
improvement	improvement_general	miscellaneous_feature_area	imgenmis	feat_name	FALSE	TRUE	FALSE	The name of the feature
improvement	improvement_machinery	crane_site	immaccrn	crane_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_machinery	crane_site	immaccrn	crane_d	FALSE	FALSE	TRUE	The type of crane.
improvement	improvement_machinery	crane_site	immaccrn	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the crane.
improvement	improvement_outdoor_recreation	boat_ramp_site	imrecbtr	bt_rmp_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	boat_ramp_site	imrecbtr	feat_name	FALSE	TRUE	FALSE	Name of the recreation feature.
improvement	improvement_outdoor_recreation	boating_site	imrecbot	boating_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	boating_site	imrecbot	feat_desc	FALSE	FALSE	FALSE	Any brief description of the feature.
improvement	improvement_outdoor_recreation	campground_area	imceccmp	camping_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	campground_area	imceccmp	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the campsite
improvement	improvement_outdoor_recreation	day_use_area	imrecdua	dayuse_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	day_use_area	imrecdua	feat_name	FALSE	TRUE	TRUE	The name of the feature.
improvement	improvement_outdoor_recreation	drive_in_theatre_area	imrecdit	theatre_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	drive_in_theatre_area	imrecdit	feat_desc	FALSE	FALSE	FALSE	Any brief description of the feature.
improvement	improvement_outdoor_recreation	fishing_site	imrecfsh	fishing_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	fishing_site	imrecfsh	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the fishing area.
improvement	improvement_outdoor_recreation	hunting_area	imrechnt	hunting_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	hunting_area	imrechnt	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the hunting area.
improvement	improvement_outdoor_recreation	miscellaneous_recreation_area	imrecmis	outdoor_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	miscellaneous_recreation_area	imrecmis	feat_desc	FALSE	FALSE	FALSE	Any brief description of the feature.
improvement	improvement_outdoor_recreation	picnic_site	imrecpic	picnic_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	picnic_site	imrecpic	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the picnic area.
improvement	improvement_outdoor_recreation	playground_area	imrecply	playgnd_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	playground_area	imrecply	feat_desc	FALSE	TRUE	FALSE	Any brief description of the feature.
improvement	improvement_outdoor_recreation	recreation_park_area	imrecprk	park_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	recreation_park_area	imrecprk	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the park
improvement	improvement_outdoor_recreation	small_craft_marina_site	imrecmar	marina_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	small_craft_marina_site	imrecmar	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the marina.
improvement	improvement_outdoor_recreation	swimming_site	imrecswm	swimng_id	TRUE	FALSE	FALSE	Primary Key
improvement	improvement_outdoor_recreation	swimming_site	imrecswm	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the swimming area.
military_operations	military_safety	ammunition_storage_area	mlsftamo	storage_id	TRUE	FALSE	FALSE	Primary Key
military_operations	military_safety	ammunition_storage_area	mlsftamo	stor_desc	FALSE	FALSE	FALSE	A description of the ammo storage area.
military_operations	military_safety	ammunition_storage_area	mlsftamo	stor_desig	FALSE	FALSE	TRUE	Any local designator for the ammo storage area. Area Designator Name
military_operations	military_training	military_landing_zone_area	mltnglzn	airsaf_id	TRUE	FALSE	FALSE	Primary Key
military_operations	military_training	training_site	mltngtrg	trng_id	TRUE	FALSE	FALSE	Primary Key
military_operations	military_training	training_site	mltngtrg	feat_desc	FALSE	TRUE	FALSE	A brief description of the training area.

SDS Entity Set	SDS Entity Class	SDS Entity Type	Entity Name	SDS Attribute	ID	Number (Link)	Desc	Attribute Description
military_operations	military_training	training_site	mltngtrg	narrative	FALSE	FALSE	TRUE	A description or other unique information concerning the subject item.
transportation	transportation_air	airfield_surface_centerline	trairsur	air_sur_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_air	airfield_surface_centerline	trairsur	feat_name	FALSE	TRUE	FALSE	The name of the feature
transportation	transportation_air	airfield_surface_centerline	trairsur	sur_use_d	FALSE	FALSE	TRUE	The primary purpose of the surface of the airfield
transportation	transportation_air	airfield_surface_edge_line	trairsur	air_sur_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_air	airfield_surface_edge_line	trairsur	feat_name	FALSE	FALSE	TRUE	The name of the feature
transportation	transportation_air	airfield_surface_edge_line	trairsur	sur_use_d	FALSE	FALSE	FALSE	The primary purpose of the surface of the airfield
transportation	transportation_air	airfield_surface_site	trairsur	air_sur_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_air	airfield_surface_site	trairsur	feat_name	FALSE	TRUE	FALSE	The name of the feature
transportation	transportation_air	airfield_surface_site	trairsur	sur_use_d	FALSE	FALSE	TRUE	The primary purpose of the surface of the airfield
transportation	transportation_marine	anchor_berth_area	trmaranc	maranc_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_marine	anchor_berth_area	trmaranc	dep_dat_d	FALSE	FALSE	TRUE	A code indicating the reference or datum used to determine the water depth.
transportation	transportation_marine	anchor_berth_area	trmaranc	feat_name	FALSE	TRUE	FALSE	Any commonly used name or designator for the anchor berth. Feature Name
transportation	transportation_marine	anchor_berth_area	trmaranc	mean_depth	FALSE	FALSE	FALSE	The mean depth of water within the anchor berth.
transportation	transportation_marine	anchorage_area	trmaracg	anchrg_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_marine	anchorage_area	trmaracg	dep_dat_d	FALSE	FALSE	FALSE	A code indicating the reference or datum against which the water depth is measured.
transportation	transportation_marine	anchorage_area	trmaracg	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the anchorage.
transportation	transportation_marine	anchorage_area	trmaracg	mean_depth	FALSE	FALSE	FALSE	The mean water depth in the anchorage.
transportation	transportation_marine	channel_area	trmarchn	channel_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_marine	channel_area	trmarchn	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the channel .
transportation	transportation_marine	ferry_route_area	trmarrte	marrte_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_marine	ferry_route_area	trmarrte	ferry_name	FALSE	FALSE	TRUE	Any commonly used name
transportation	transportation_marine	landing_site	trmarlnd	landing_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_marine	landing_site	trmarlnd	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the landing.
transportation	transportation_ports_and_harbors	drydock_site	trhrbdry	drydock_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_ports_and_harbors	drydock_site	trhrbdry	facil_id	FALSE	FALSE	FALSE	Foreign key, link to the Facility Record
transportation	transportation_ports_and_harbors	drydock_site	trhrbdry	feat_name	FALSE	TRUE	FALSE	Common name used to identify the drydock area
transportation	transportation_ports_and_harbors	mooring_facility_site	trhrbmor	facilty_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_ports_and_harbors	mooring_facility_site	trhrbmor	fac_type_d	FALSE	FALSE	TRUE	Discriminator - The type of the mooring facility
transportation	transportation_ports_and_harbors	mooring_facility_site	trhrbmor	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the mooring area
transportation	transportation_ports_and_harbors	turning_basin_area	trhrbtrn	vesturn_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_ports_and_harbors	turning_basin_area	trhrbtrn	feat_name	FALSE	TRUE	FALSE	Common name used to identify the turning basin
transportation	transportation_railroad	railroad_centerline	trrrdrcl	railrd_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_railroad	railroad_centerline	trrrdrcl	feat_name	FALSE	FALSE	TRUE	Any commonly used name for the railroad
transportation	transportation_railroad	railroad_centerline	trrrdrcl	traf_vol_d	FALSE	FALSE	FALSE	Traffic volume for this segment.
transportation	transportation_railroad	railroad_yard_area	trrrdyrd	rryard_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_railroad	railroad_yard_area	trrrdyrd	feat_desc	FALSE	FALSE	TRUE	A description of therailroad yard. Feature Descriptive Text
transportation	transportation_railroad	railroad_yard_area	trrrdyrd	yard_name	FALSE	TRUE	FALSE	A name that represent the railroad yard. Name Descriptive Text
transportation	transportation_vehicle	road_centerline	trvehrcl	cline_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_vehicle	road_centerline	trvehrcl	feat_name	FALSE	FALSE	FALSE	Any commonly used name for the road centerline.
transportation	transportation_vehicle	road_centerline	trvehrcl	road_name	FALSE	FALSE	TRUE	A common name or street name used to refer to the stretch of road.
transportation	transportation_vehicle	road_site	trvehrds	rd_seg_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_vehicle	road_site	trvehrds	feat_name	FALSE	FALSE	FALSE	Any commonly used name or designator.
transportation	transportation_vehicle	road_site	trvehrds	road_name	FALSE	FALSE	TRUE	Name of the roadway segment
transportation	transportation_vehicle	vehicle_parking_area	trvehprk	parking_id	TRUE	FALSE	FALSE	Primary Key
transportation	transportation_vehicle	vehicle_parking_area	trvehprk	feat_desc	FALSE	TRUE	FALSE	Any commonly used name for the parking area. Feature Name
transportation	transportation_vehicle	vehicle_parking_area	trvehprk	park_use_d	FALSE	FALSE	TRUE	The primary use of the parking area.
transportation	transportation_vehicle	vehicle_parking_area	trvehprk	veh_day	FALSE	FALSE	FALSE	The average number of vehicles normally parked within the parking area per day.
utilities	utilities_compressed_air_system	compressed_air_pipe_line	utairpip	airpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_compressed_air_system	compressed_air_pipe_line	utairpip	feat_desc	FALSE	FALSE	FALSE	Any brief description of the feature.
utilities	utilities_electrical_system	electrical_cable_line	utelecgp	cblgrp_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_electrical_system	electrical_cable_line	utelecgp	feat_name	FALSE	TRUE	FALSE	Any commonly used name for the feature.
utilities	utilities_electrical_system	electrical_cable_line	utelecgp	voltage_d	FALSE	FALSE	TRUE	The system voltage applied to the cable group.
utilities	utilities_electrical_system	electrical_substation_site	electrical_substation_site	substa_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_electrical_system	electrical_substation_site	electrical_substation_site	fac_name	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.
utilities	utilities_electrical_system	electrical_substation_site	electrical_substation_site	feat_name	FALSE	TRUE	TRUE	Name of the electrical substation site.
utilities	utilities_fuel_system	fuel_line	utfulpip	fulpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_fuel_system	fuel_line	utfulpip	use_d	FALSE	FALSE	FALSE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	tank_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	serial_no	FALSE	TRUE	FALSE	unique identification number of the subject item.
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	tank_dia	FALSE	FALSE	FALSE	The inside diameter of the tank.
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	tank_lgth	FALSE	FALSE	FALSE	The length dimension of the tank, measured from outside face of the exterior wall/side.
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	tank_use_d	FALSE	FALSE	TRUE	Discriminator. This value differentiates similar entities by use or type.

SDS Entity Set	SDS Entity Class	SDS Entity Type	Entity Name	SDS Attribute	ID	Number (Link)	Desc	Attribute Description
utilities	utilities_fuel_system	fuel_tank_site	utfultnk	tank_width	FALSE	FALSE	FALSE	The exterior width dimension of the tank, measured from outside face of the exterior wall/side
utilities	utilities_general	conduit_centerline	utgencon	utcond_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_general	conduit_centerline	utgencon	feat_name	FALSE	TRUE	FALSE	Any commonly used name of the culvert.
utilities	utilities_general	undefined_tank_site	utgenutk	unktnk_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_general	undefined_tank_site	utgenutk	buildng_id	FALSE	FALSE	FALSE	Foreign Key to SDS bggenstr Entity.
utilities	utilities_general	undefined_tank_site	utgenutk	tank_lgth	FALSE	FALSE	FALSE	The length dimension of the tank, measured from outside face of the exterior wall/side.
utilities	utilities_general	undefined_tank_site	utgenutk	tank_width	FALSE	FALSE	FALSE	The exterior width dimension of the tank, measured from outside face of the exterior wall/side
utilities	utilities_general	undefined_utility_line	utgenpip	genpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_general	utility_pole_tower_point	utgenpol	pole_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_general	utility_pole_tower_point	utgenpol	manuf_id	FALSE	TRUE	FALSE	An operator generated identifier used to identify a specific manufacturer.
utilities	utilities_general	utility_pole_tower_point	utgenpol	poleheight	FALSE	FALSE	FALSE	The height of the pole measured from the ground surface to the top.
utilities	utilities_head_cool_system	heat_cool_line	uthcspip	hcspipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_head_cool_system	heat_cool_line	uthcspip	feat_desc	FALSE	FALSE	FALSE	Narrative text providing a brief description of the feature.
utilities	utilities_heat_cool_system	heat_cool_plant_area	uthcsplt	hcsplnt_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_heat_cool_system	heat_cool_plant_area	uthcsplt	name_d	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.
utilities	utilities_industrial_system	industrial_waste_line	utinwpip	inwpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_industrial_system	industrial_waste_line	utinwpip	use_d	FALSE	FALSE	FALSE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_industrial_system	industrial_waste_oil_water_separator_site	utinwsep	inwsep_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_industrial_system	industrial_waste_oil_water_separator_site	utinwsep	sep_name	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.
utilities	utilities_industrial_system	industrial_waste_tank_point	utinwtnk	inwtank_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_industrial_system	industrial_waste_treatment_plant_area	utinwtpt	inwplnt_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_industrial_system	industrial_waste_treatment_plant_area	utinwtpt	name_d	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.
utilities	utilities_natural_gas_system	natural_gas_line	utgaspip	gaspipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_natural_gas_system	natural_gas_line	utgaspip	use_d	FALSE	FALSE	FALSE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_natural_gas_system	natural_gas_tank_point	utgastnk	gastank_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_natural_gas_system	natural_gas_tank_point	utgastnk	tank_dia	FALSE	FALSE	FALSE	The inside diameter of the tank.
utilities	utilities_natural_gas_system	natural_gas_tank_point	utgastnk	tank_lgth	FALSE	FALSE	FALSE	The length dimension of the tank, measured from outside face of the exterior wall/side.
utilities	utilities_natural_gas_system	natural_gas_tank_point	utgastnk	tank_use_d	FALSE	FALSE	FALSE	The particular kind or use of the tank.
utilities	utilities_natural_gas_system	natural_gas_tank_point	utgastnk	tank_width	FALSE	FALSE	FALSE	The exterior width dimension of the tank, measured from outside face of the exterior wall/side
utilities	utilities_saltwater_system	saltwater_line	utswtpip	swtline_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_saltwater_system	saltwater_line	utswtpip	feat_desc	FALSE	FALSE	FALSE	Any brief description of the feature.
utilities	utilities_storm_system	storm_sewer_line	utstopip	stopipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_storm_system	storm_sewer_line	utstopip	feat_name	FALSE	FALSE	FALSE	Narrative text providing a brief description of the feature.
utilities	utilities_storm_system	storm_sewer_line	utstopip	use_d	FALSE	FALSE	FALSE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_transmission_system	pipeline_line	uttxspip	txpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_wastewater_system	wastewater_disposal_tank_site	utwwttnk	wwtank_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_wastewater_system	wastewater_disposal_tank_site	utwwttnk	tank_dia	FALSE	FALSE	FALSE	The inside diameter of the tank.
utilities	utilities_wastewater_system	wastewater_disposal_tank_site	utwwttnk	tank_lgth	FALSE	FALSE	FALSE	The length dimension of the tank, measured from outside face of the exterior wall/side.
utilities	utilities_wastewater_system	wastewater_disposal_tank_site	utwwttnk	tank_use_d	FALSE	FALSE	FALSE	The particular kind or use of the waste water tank.
utilities	utilities_wastewater_system	wastewater_disposal_tank_site	utwwttnk	tank_width	FALSE	FALSE	FALSE	The exterior width dimension of the tank, measured from outside face of the exterior wall/side
utilities	utilities_wastewater_system	wastewater_line	utwwtpip	pipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_wastewater_system	wastewater_line	utwwtpip	use_d	FALSE	FALSE	FALSE	The status of the subject item, The status of the subject item.
utilities	utilities_wastewater_system	wastewater_treatment_plant_site	utwwttpt	wwtplnt_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_wastewater_system	wastewater_treatment_plant_site	utwwttpt	name_d	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.
utilities	utilities_water_system	water_line	utwatpip	watpipe_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_water_system	water_line	utwatpip	use_d	FALSE	FALSE	FALSE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_water_system	water_tank_site	utwattnk	wattank_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_water_system	water_tank_site	utwattnk	serial_no	FALSE	TRUE	FALSE	unique identification number of the subject item.
utilities	utilities_water_system	water_tank_site	utwattnk	tank_dia	FALSE	FALSE	FALSE	The inside diameter of the tank.
utilities	utilities_water_system	water_tank_site	utwattnk	tank_lgth	FALSE	FALSE	FALSE	The length dimension of the tank, measured from outside face of the exterior wall/side.
utilities	utilities_water_system	water_tank_site	utwattnk	tank_use_d	FALSE	FALSE	TRUE	Discriminator. This value differentiates similar entities by use or type.
utilities	utilities_water_system	water_tank_site	utwattnk	tank_width	FALSE	FALSE	FALSE	The exterior width dimension of the tank, measured from outside face of the exterior wall/side
utilities	utilities_water_system	water_treatment_plant_area	utwattpt	watplnt_id	TRUE	FALSE	FALSE	Primary Key
utilities	utilities_water_system	water_treatment_plant_area	utwattpt	name_d	FALSE	TRUE	FALSE	The site specific identification name or number assigned to the subject item.