

Setting Barricades Utilizing GIS Data or Manually

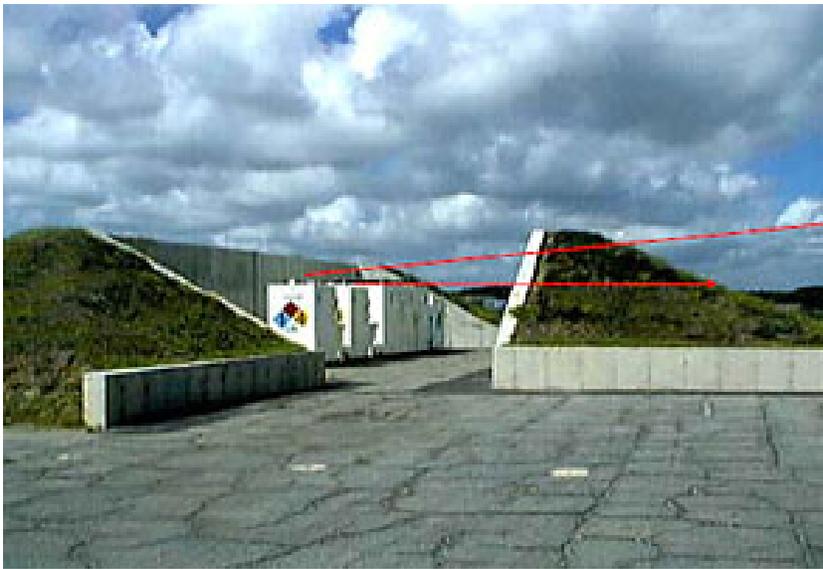
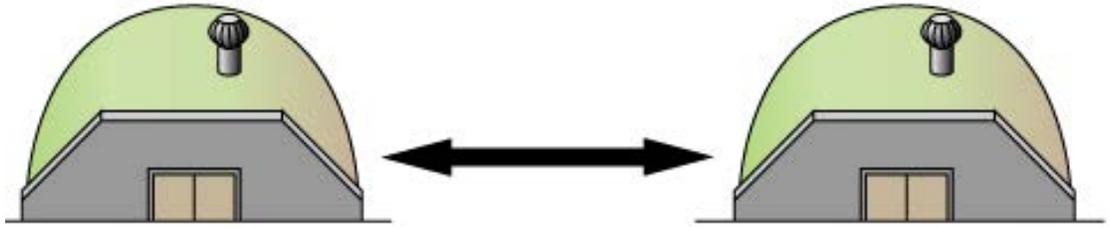


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Setting Barricades Utilizing GIS Data or Manually

1. 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 where 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.

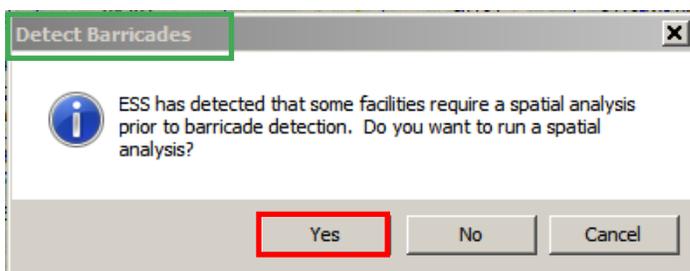
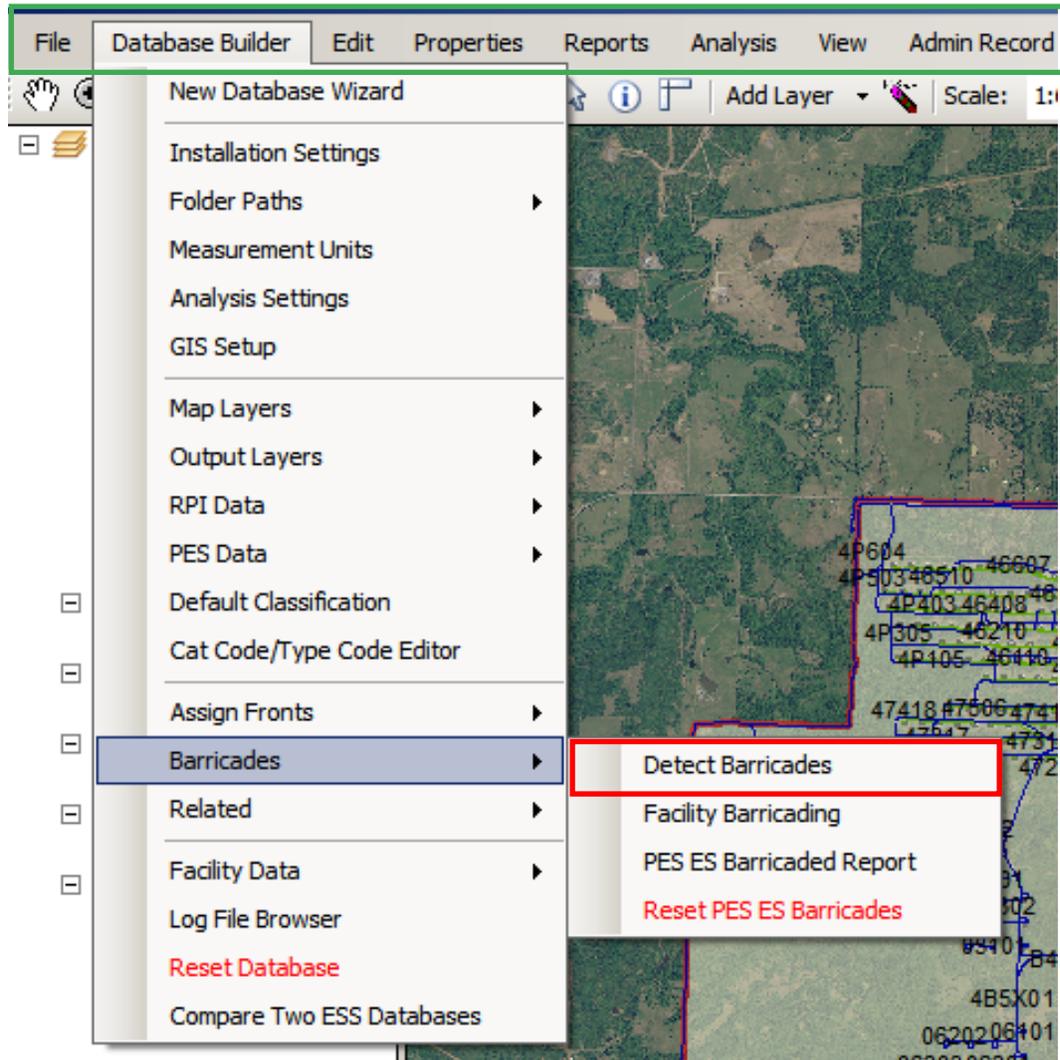
A. Refer to DA PAM 385-64, Ammunition and Explosives Safety Standards, 16-25. Barricades and Earth Cover for Magazines

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).

2. Detect Barricades & Perform Spatial Analysis

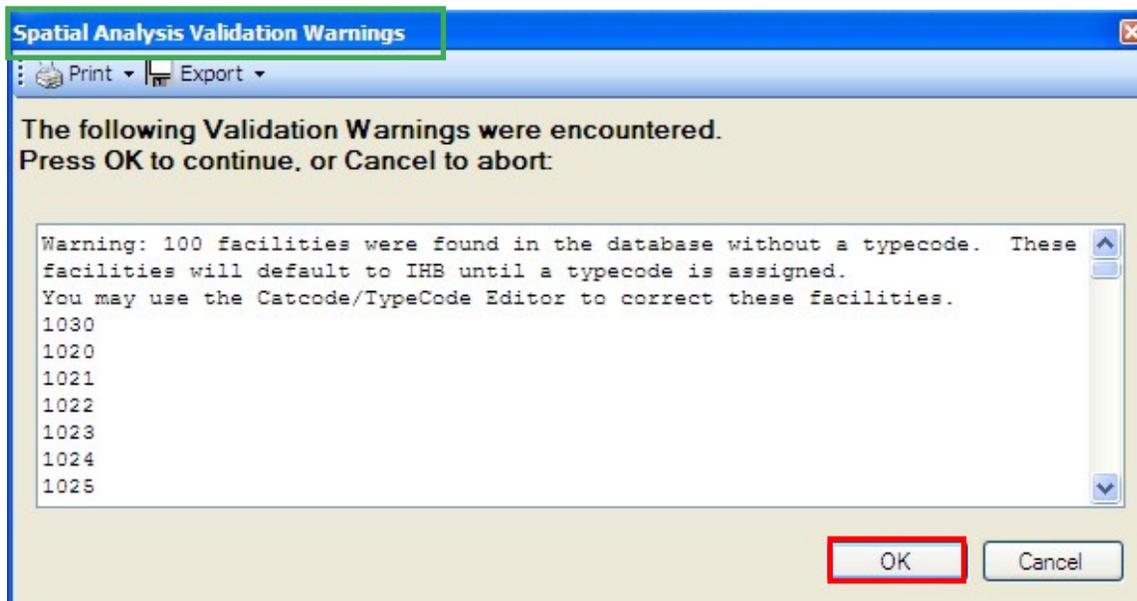
Note: ESS uses a spatial analysis to detect barricades between PES and ES facilities. Up to this point in the guide, a spatial analysis has not been run. When we run the Detect Barricades menu option, it will run a spatial analysis before going through the procedure of detecting any barricades.

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

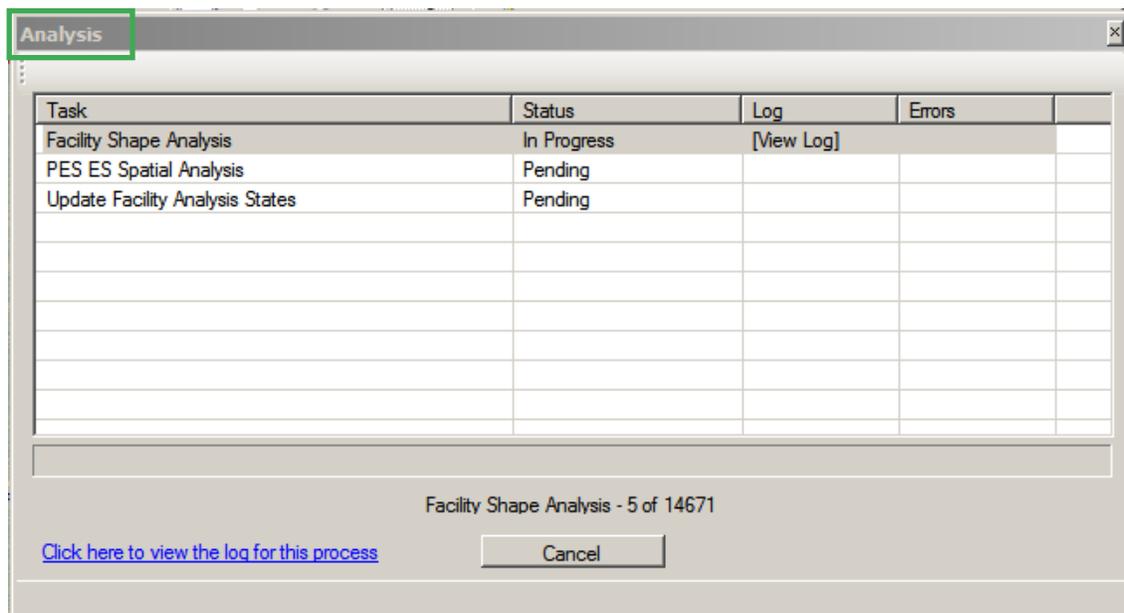


B. On the **Detect Barricades** window, click on **YES** to continue:

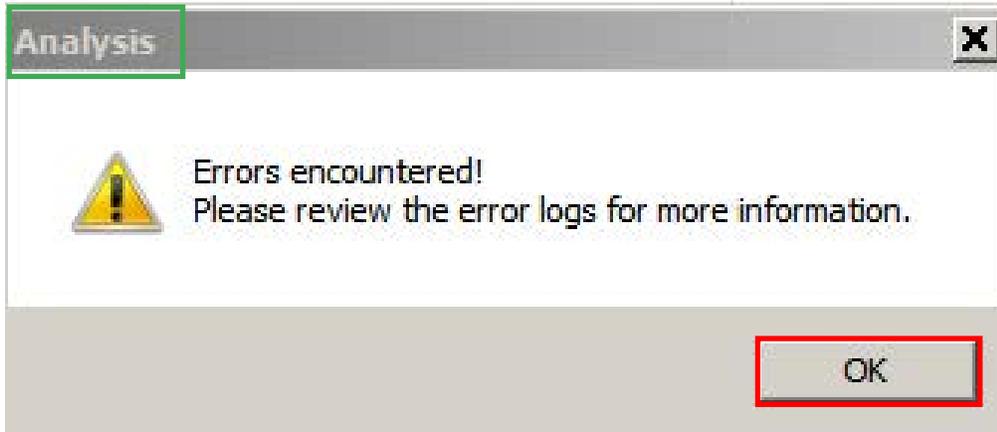
C. You may get a warning message in the **Spatial Analysis Validation Warning** window indicating there are facilities missing a Type Code, and will automatically assign them the IHB (inhabited building) type code. Do not worry about this at this point. You can review the logs and it will identify which 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.

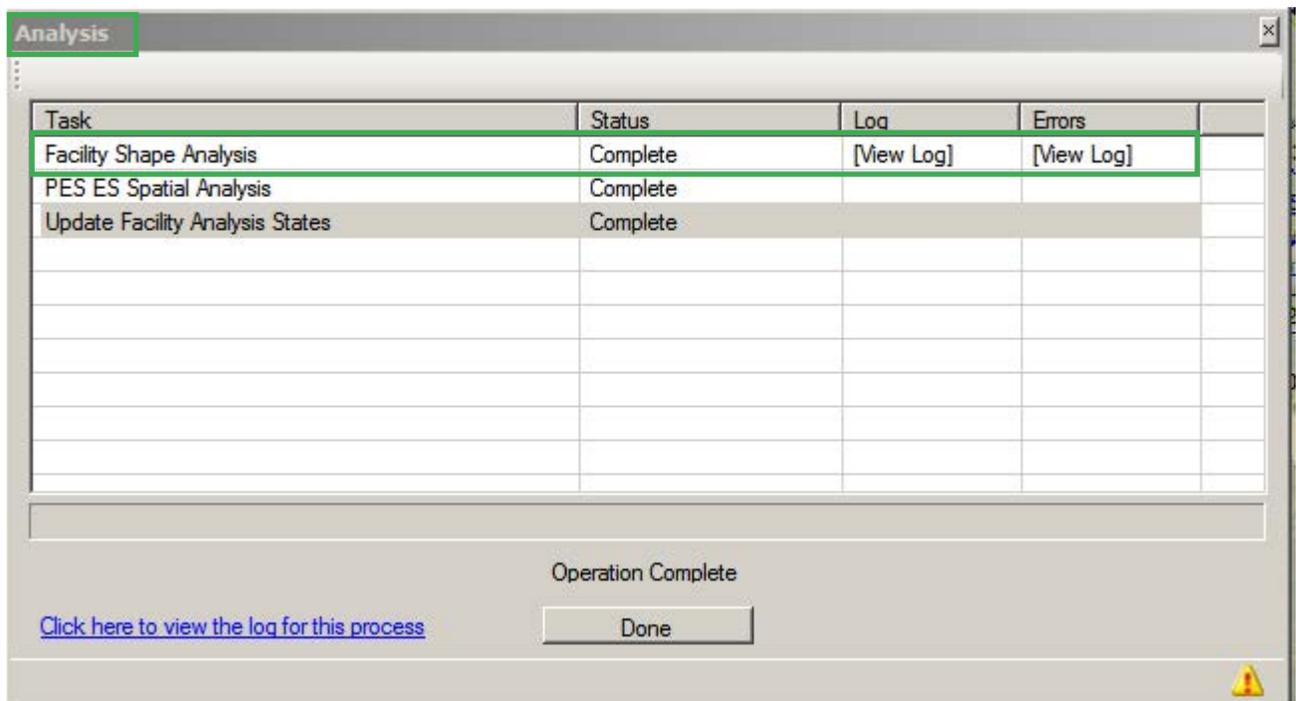


E. Upon completion of the analysis you may see this **Analysis** dialogue box, click **OK**.



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 the bottom left corner of the Analysis window highlighted in blue. Lets review these three logs in the pages to follow.



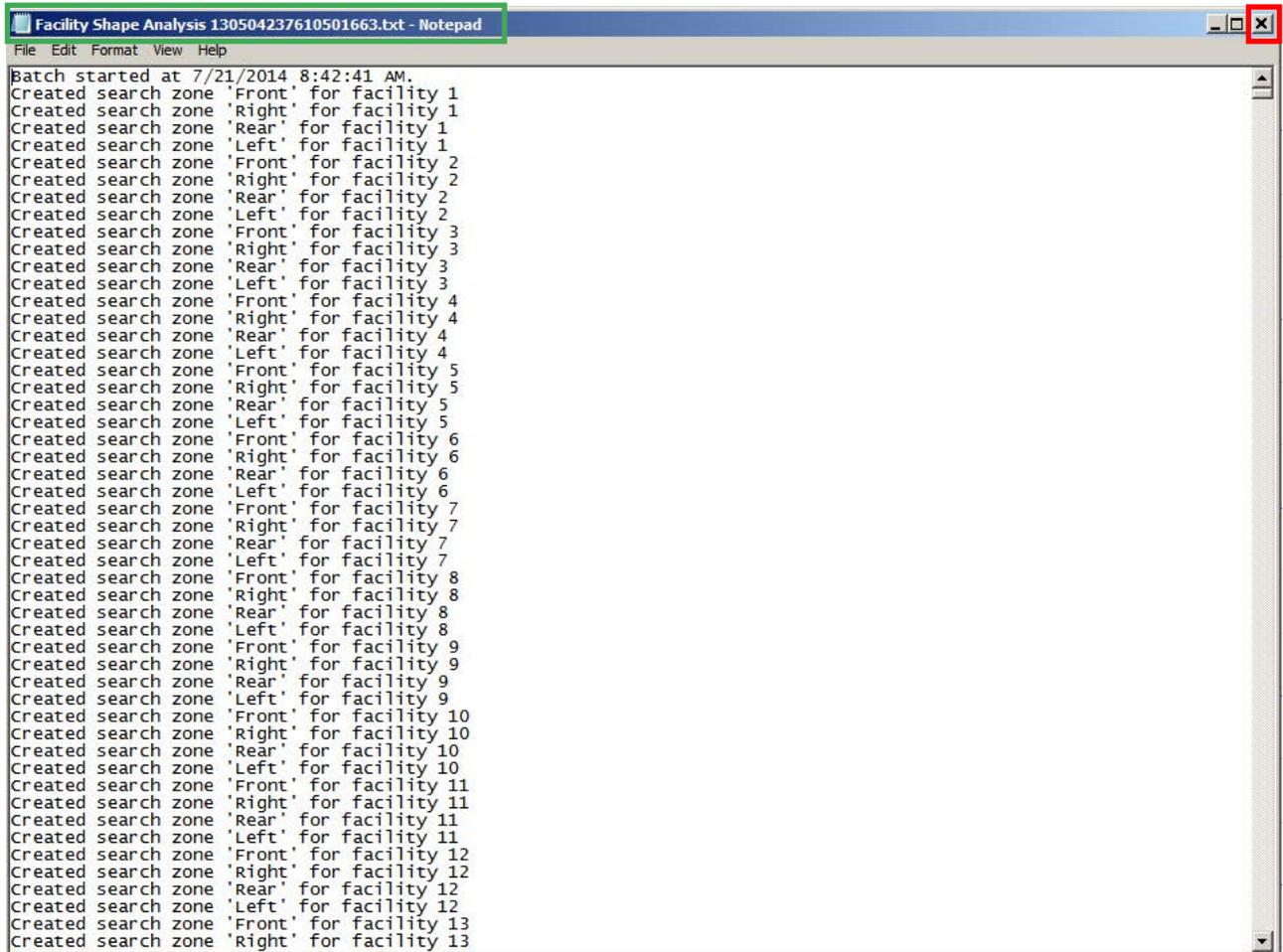
2. In the **Analysis** window under the **Log** column click on the link, **View Log**. See next page.

The screenshot shows a window titled "Analysis" with a table containing the following data:

Task	Status	Log	Errors
Facility Shape Analysis	Complete	View Log	View Log
PES ES Spatial Analysis	Complete		
Update Facility Analysis States	Complete		

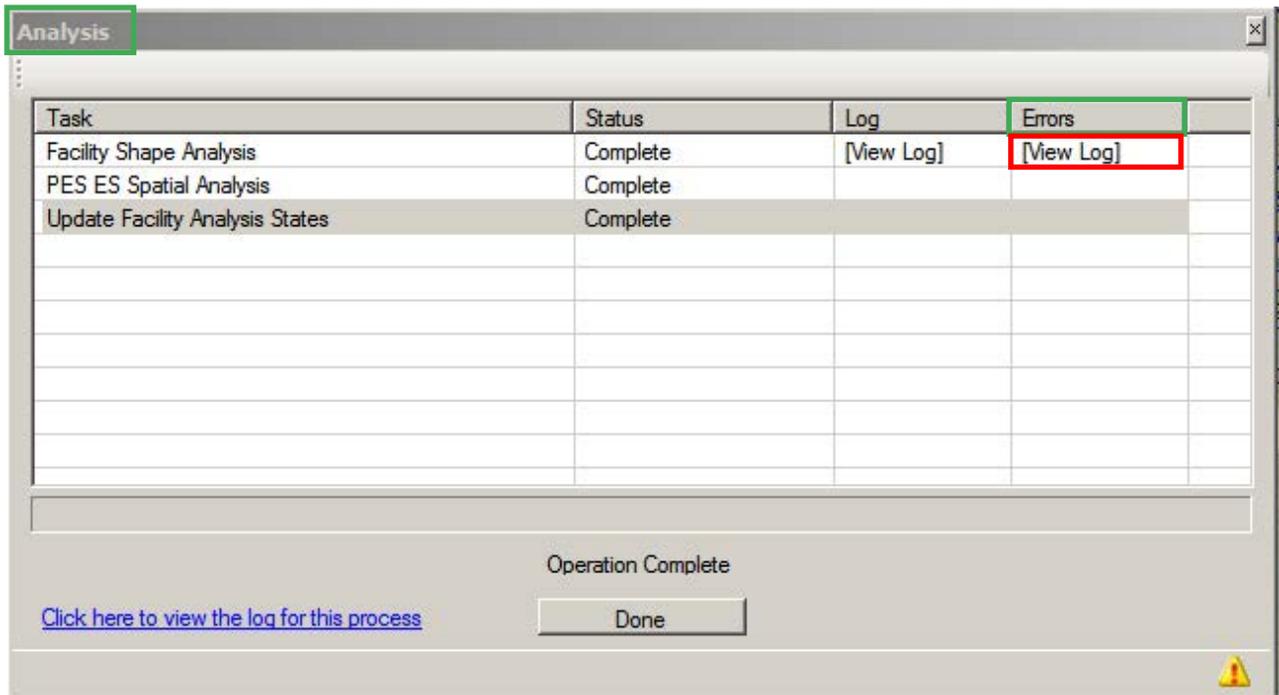
Below the table, the text "Operation Complete" is displayed. There is a blue hyperlink "Click here to view the log for this process" and a "Done" button. A yellow warning icon is visible in the bottom right corner.

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.



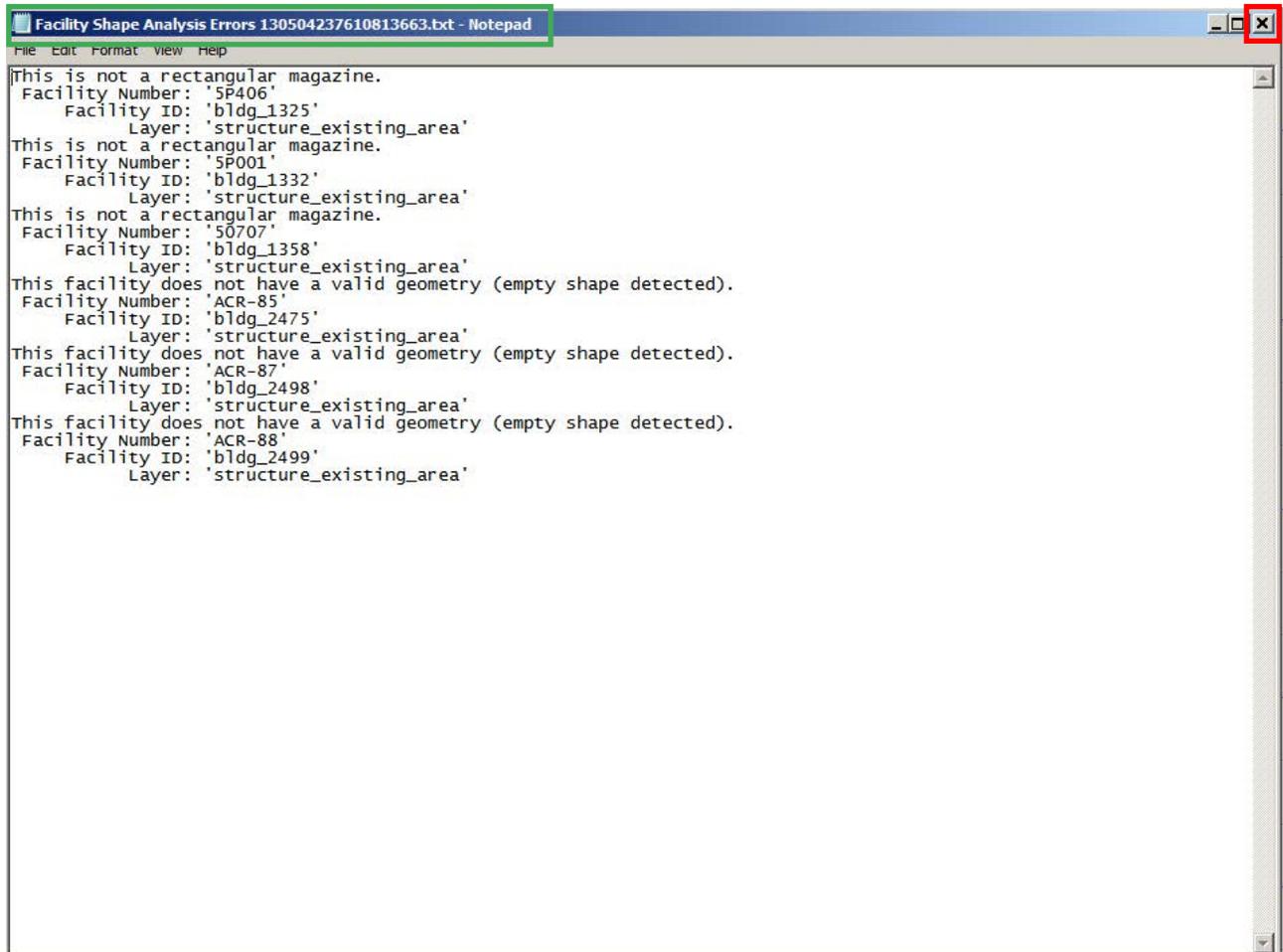
```
Facility Shape Analysis 130504237610501663.txt - Notepad
File Edit Format View Help
Batch started at 7/21/2014 8:42:41 AM.
Created search zone 'Front' for facility 1
Created search zone 'Right' for facility 1
Created search zone 'Rear' for facility 1
Created search zone 'Left' for facility 1
Created search zone 'Front' for facility 2
Created search zone 'Right' for facility 2
Created search zone 'Rear' for facility 2
Created search zone 'Left' for facility 2
Created search zone 'Front' for facility 3
Created search zone 'Right' for facility 3
Created search zone 'Rear' for facility 3
Created search zone 'Left' for facility 3
Created search zone 'Front' for facility 4
Created search zone 'Right' for facility 4
Created search zone 'Rear' for facility 4
Created search zone 'Left' for facility 4
Created search zone 'Front' for facility 5
Created search zone 'Right' for facility 5
Created search zone 'Rear' for facility 5
Created search zone 'Left' for facility 5
Created search zone 'Front' for facility 6
Created search zone 'Right' for facility 6
Created search zone 'Rear' for facility 6
Created search zone 'Left' for facility 6
Created search zone 'Front' for facility 7
Created search zone 'Right' for facility 7
Created search zone 'Rear' for facility 7
Created search zone 'Left' for facility 7
Created search zone 'Front' for facility 8
Created search zone 'Right' for facility 8
Created search zone 'Rear' for facility 8
Created search zone 'Left' for facility 8
Created search zone 'Front' for facility 9
Created search zone 'Right' for facility 9
Created search zone 'Rear' for facility 9
Created search zone 'Left' for facility 9
Created search zone 'Front' for facility 10
Created search zone 'Right' for facility 10
Created search zone 'Rear' for facility 10
Created search zone 'Left' for facility 10
Created search zone 'Front' for facility 11
Created search zone 'Right' for facility 11
Created search zone 'Rear' for facility 11
Created search zone 'Left' for facility 11
Created search zone 'Front' for facility 12
Created search zone 'Right' for facility 12
Created search zone 'Rear' for facility 12
Created search zone 'Left' for facility 12
Created search zone 'Front' for facility 13
Created search zone 'Right' for facility 13
```

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.

The screenshot shows a window titled "Analysis" with a table of tasks. The table has columns for Task, Status, Log, and Errors. The tasks listed are "Facility Shape Analysis", "PES ES Spatial Analysis", and "Update Facility Analysis States", all with a status of "Complete". The "Log" column contains "[View Log]" links for the first two tasks. Below the table, the text "Operation Complete" is displayed. In the bottom left corner, there is a blue hyperlink "Click here to view the log for this process" which is highlighted with a red box. A "Done" button is located in the bottom center, and a yellow warning icon is in the bottom right corner.

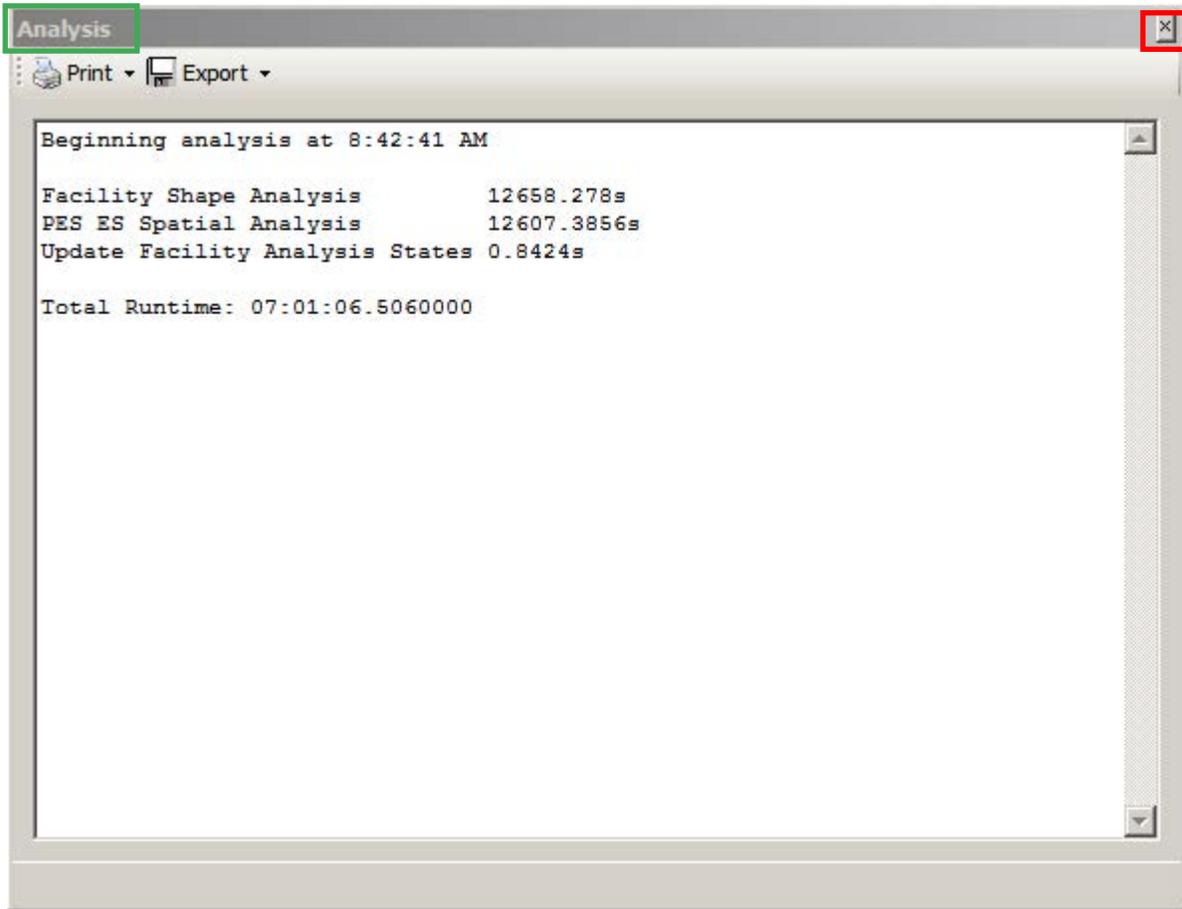
Task	Status	Log	Errors
Facility Shape Analysis	Complete	[View Log]	[View Log]
PES ES Spatial Analysis	Complete		
Update Facility Analysis States	Complete		

Operation Complete

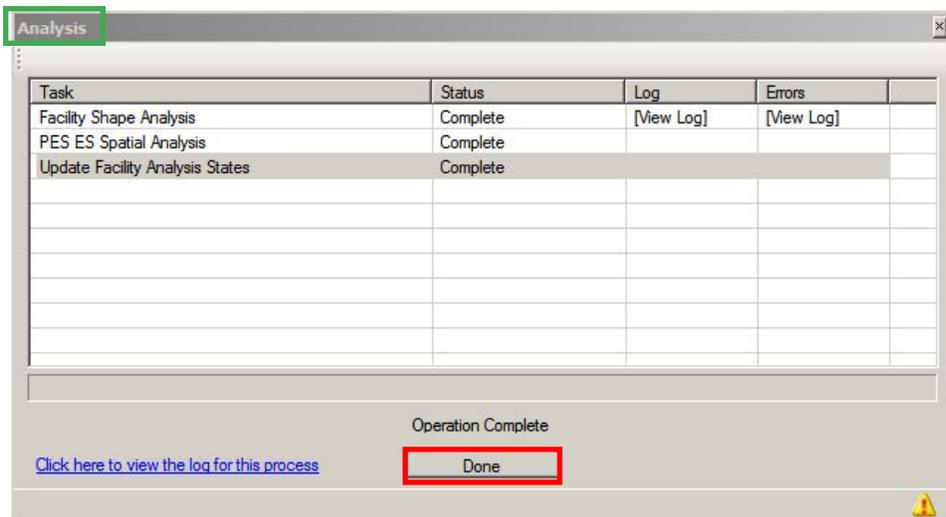
[Click here to view the log for this process](#)

Done

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



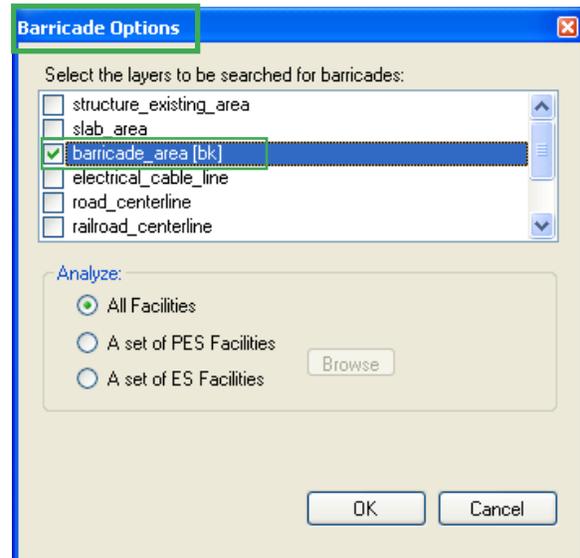
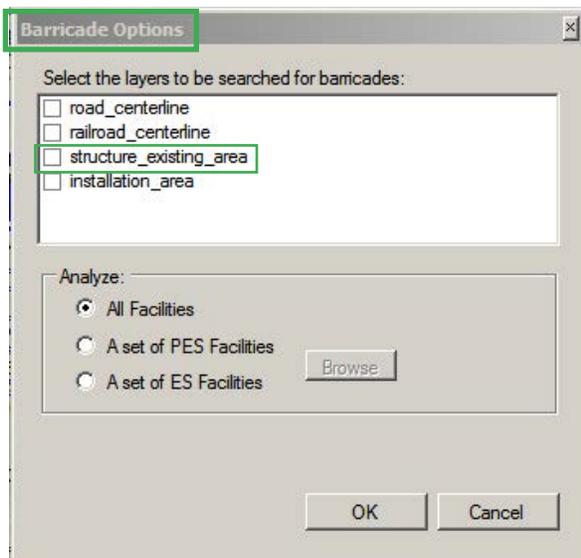
10. When done with this report, click the **X** in the upper right corner of the analysis window seen above.



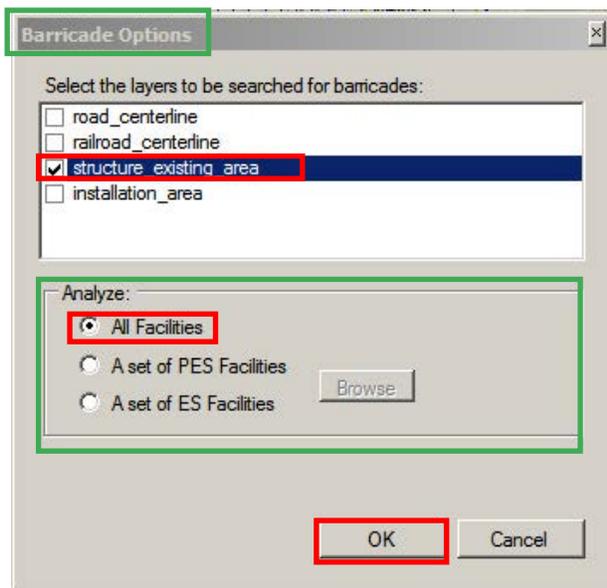
11. Upon closing the log above you are returned to the **Analysis** window. If finished click the **Done** button.

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.

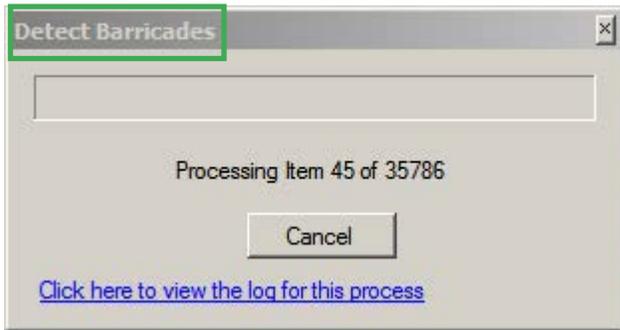


H. In the **Barricade Options** window you will select the appropriate file containing your shape file for the barricades. If you are unsure of which file it is, consult with the Installation Directorate of Engineering Division, Master Planner/GIS POC.

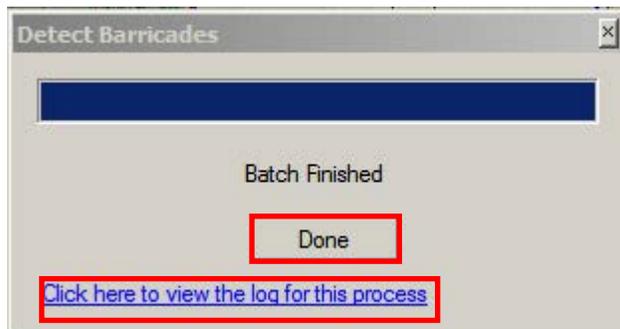


I. In the **Barricade Options** window center you will see a box called **Analyze**. Select the option called **All Facilities**. Click **OK** when done.

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



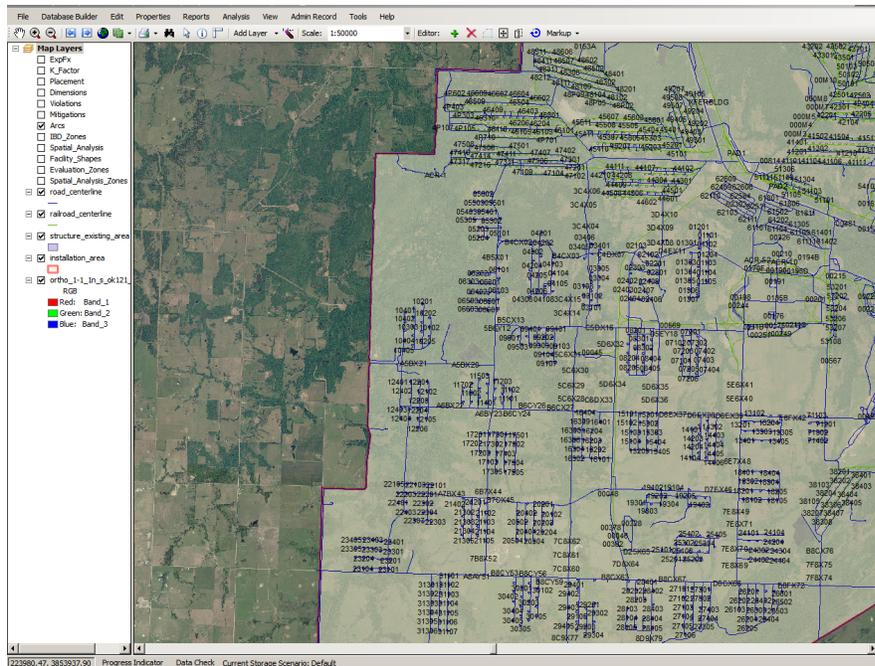
K. Once the detection process is complete you can either **view the log** or click **Done**.



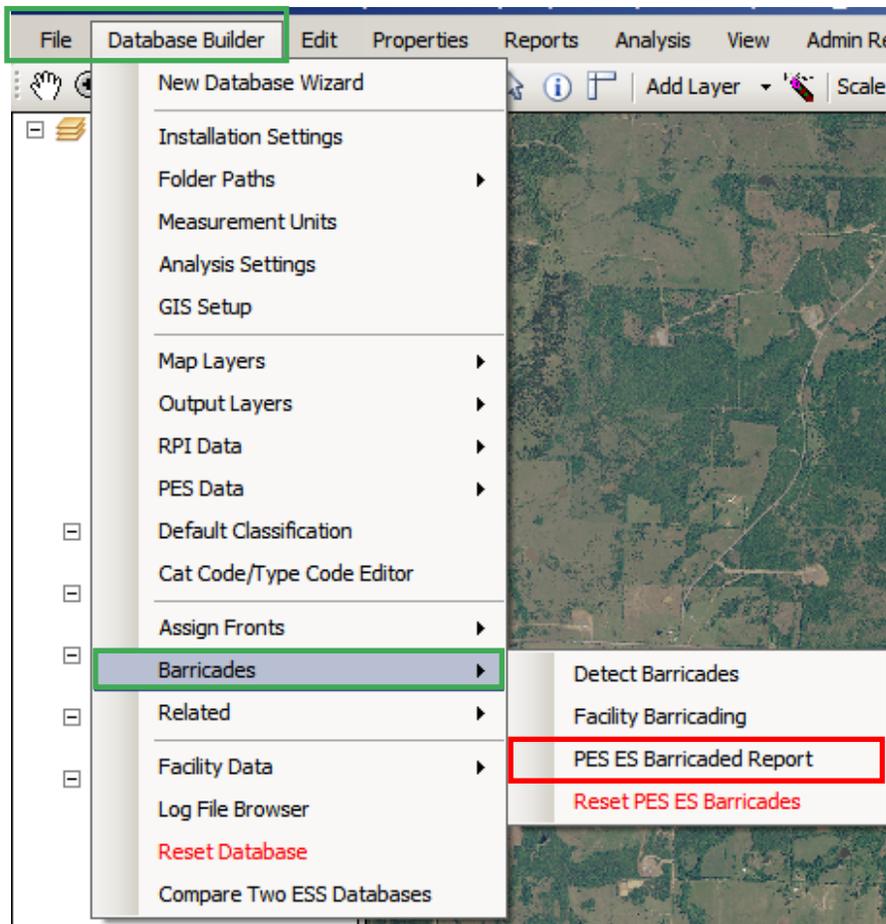
L. This will automatically open the **Barricades Detected During Analysis** window. You can view the data in this window and export it if necessary.

Barricades Detected During Analysis					
Print Table		Search:			Columns
	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.**



3. 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



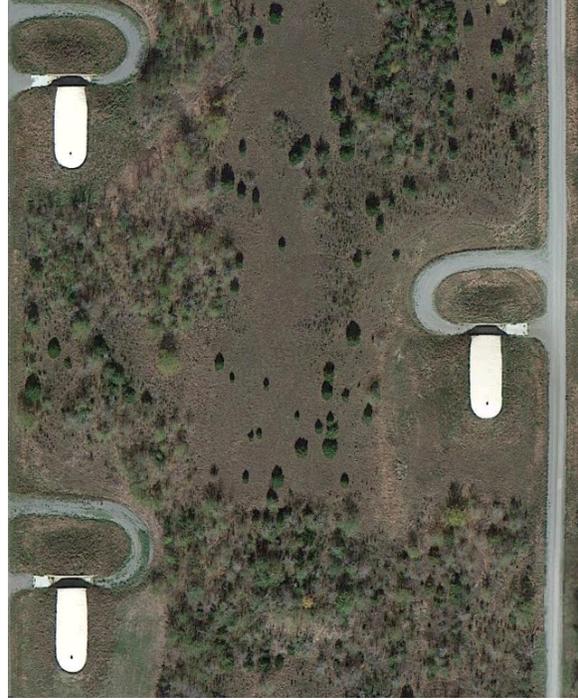
ESS Image #2 Production Building: EOL



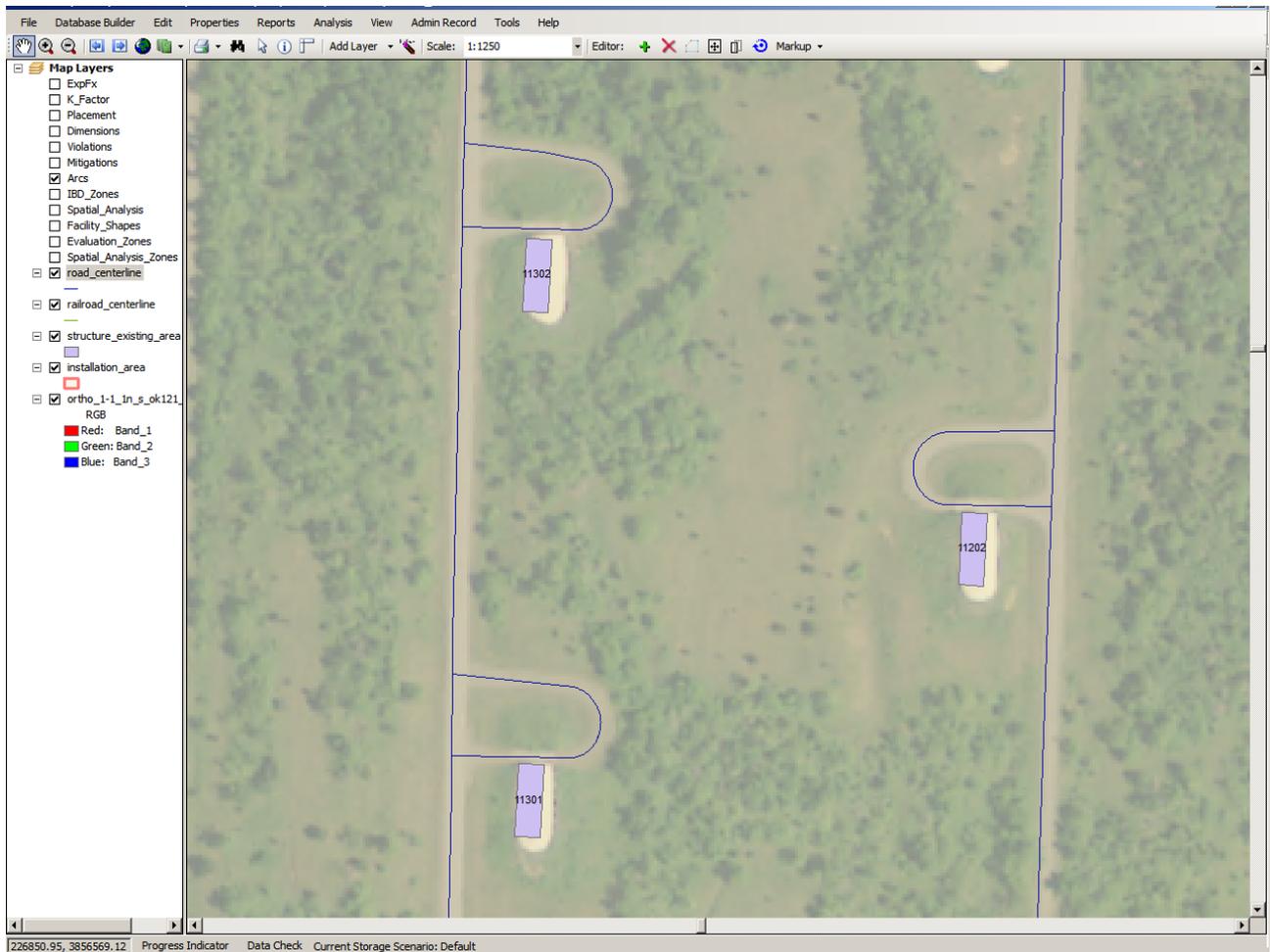
**Google Earth ESS Image #2
Production Building: EOL**



ESS Image #3 ECM: Front Barricade



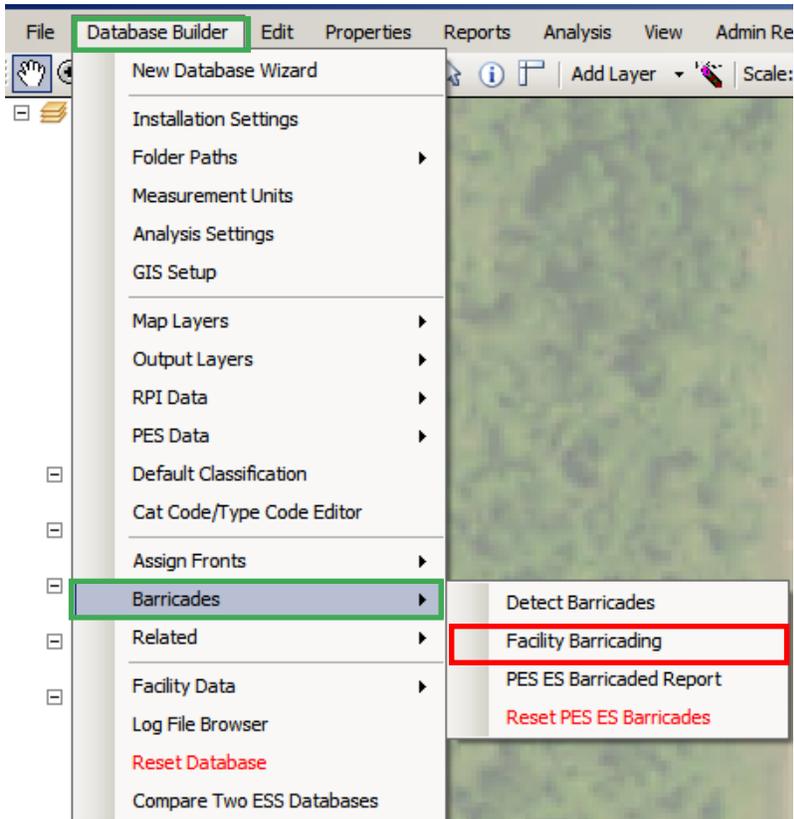
Google Earth Image #3 ECM: frontal Barricade



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.



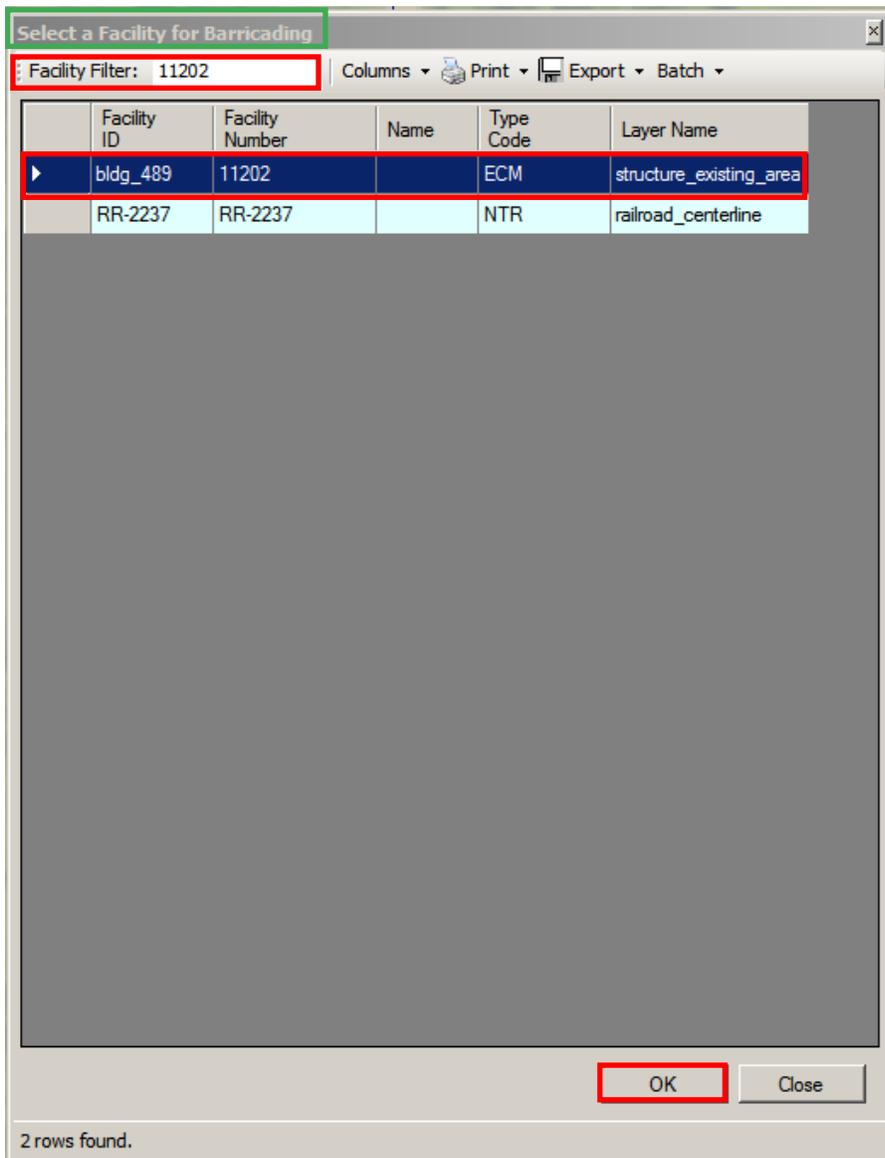
D. The **Select a Facility for Barricading** window below is now open.



The screenshot shows a software window titled "Select a Facility for Barricading". At the top, there is a "Facility Filter:" field and a menu bar with "Columns", "Print", "Export", and "Batch" options. Below the menu bar is a table with the following columns: Facility ID, Facility Number, Name, Type Code, and Layer Name. The table contains 22 rows of data. The first row is selected. At the bottom of the window, there are "OK" and "Close" buttons. A status bar at the very bottom indicates "14671 rows found."

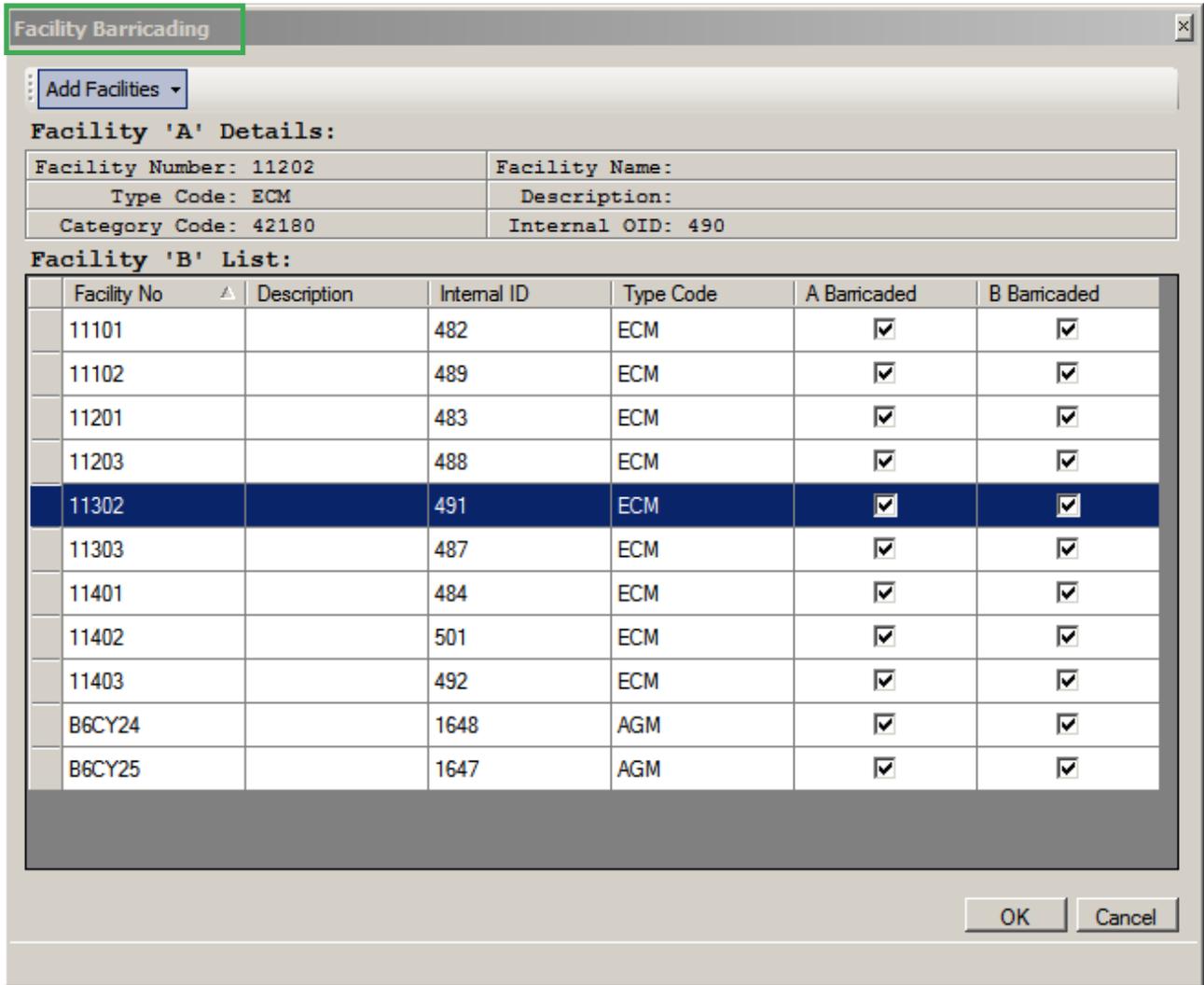
Facility ID	Facility Number	Name	Type Code	Layer Name
bldg_2080	00001		IHB	structure_existing_area
bldg_2078	00002		IHB	structure_existing_area
bldg_2075	00003		IHB	structure_existing_area
bldg_2081	00004		IHB	structure_existing_area
bldg_2079	00005		IHB	structure_existing_area
bldg_2467	00006		IHB	structure_existing_area
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.



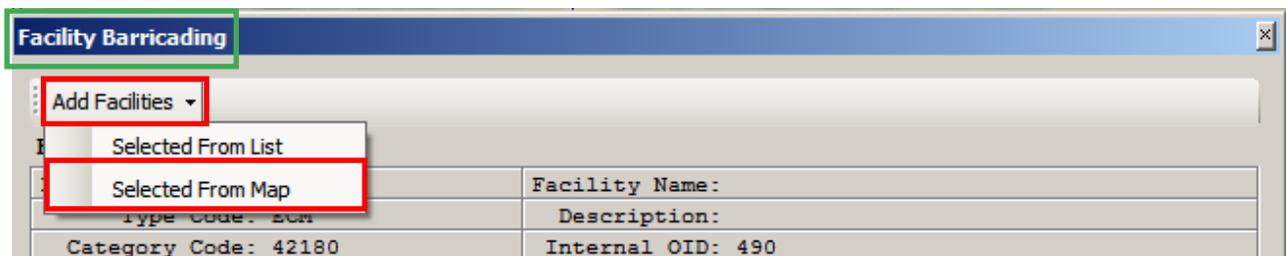
F. When selection has been made click **OK**.

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

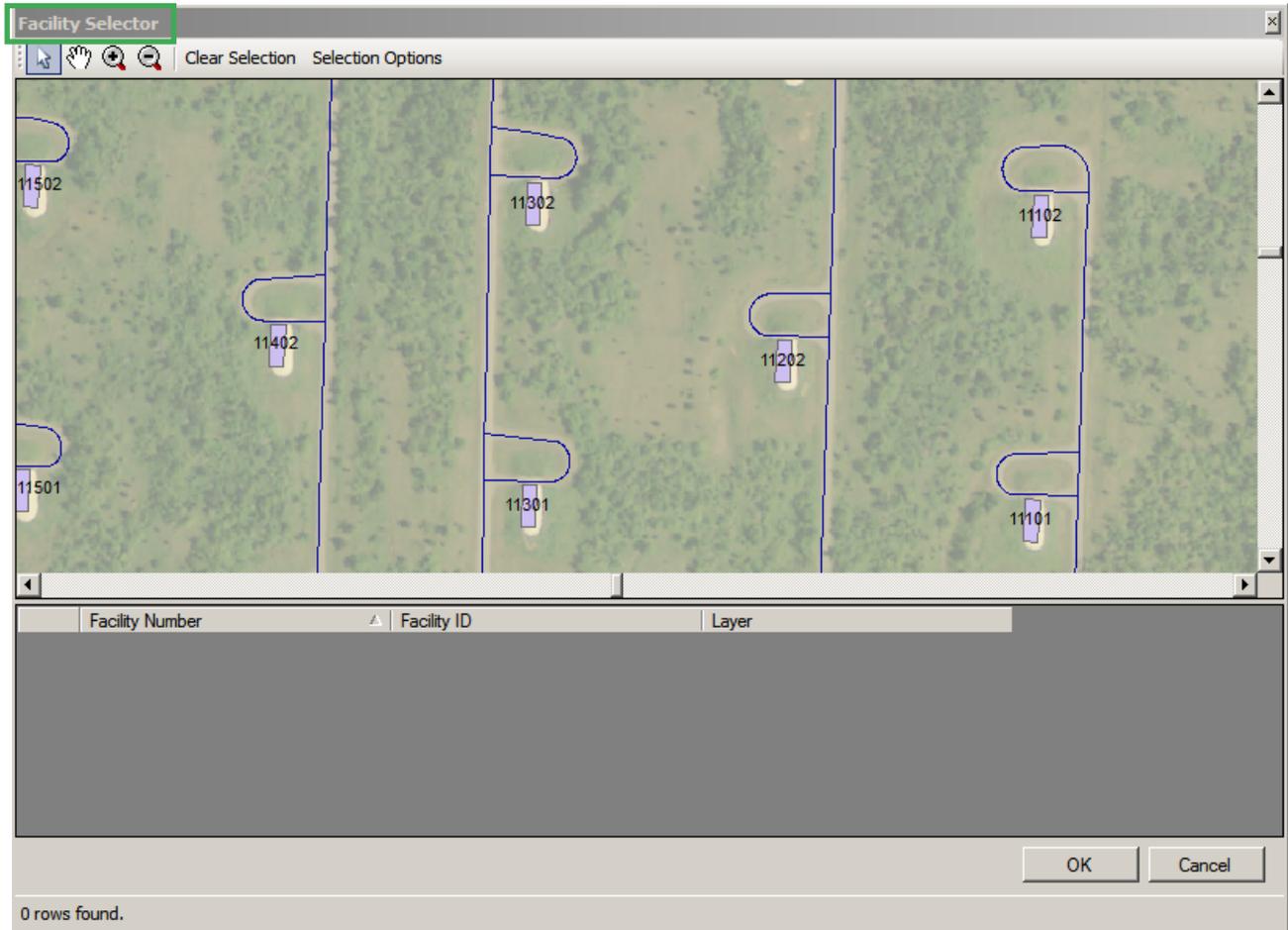


NOTE: If you refer back to the image associated with step 3B you will see that ECM 11301 is Identified, but is not identified in the listing above. You will manually assign the barricade criteria in the following steps.

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



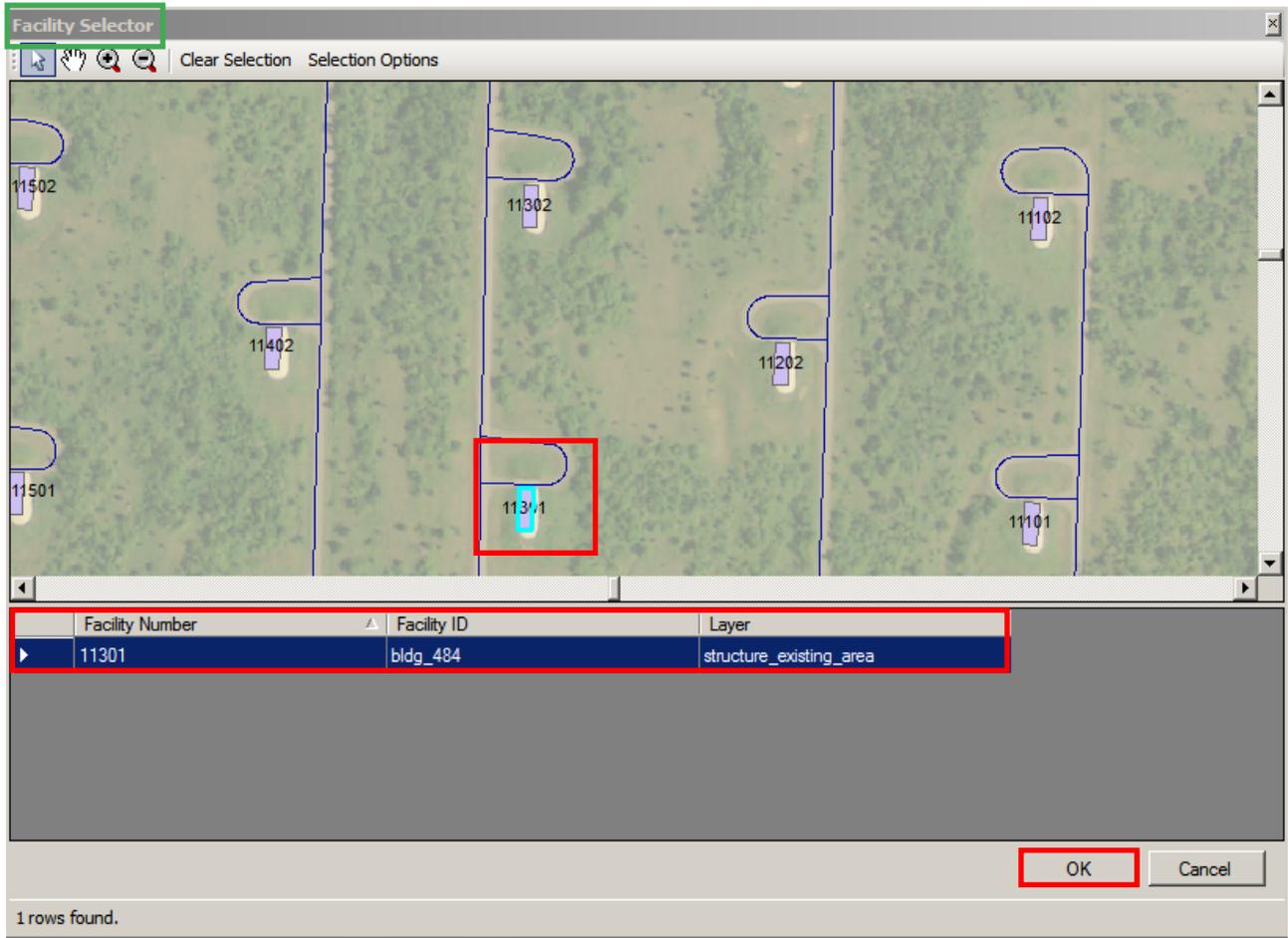
I. The Facility Selector window is now open.



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.

The screenshot shows a window titled "Facility Barricading". At the top, there is a dropdown menu labeled "Add Facilities". Below this, the "Facility 'A' Details:" section contains a table with the following information:

Facility Number: 11202	Facility Name:
Type Code: ECM	Description:
Category Code: 42180	Internal OID: 490

Below the details is the "Facility 'B' List:" section, which contains a table with the following columns: Facility No, Description, Internal ID, Type Code, A Barricaded, and B Barricaded. The table lists several facilities, with Facility 11302 highlighted in blue. The "A Barricaded" and "B Barricaded" columns contain checkboxes.

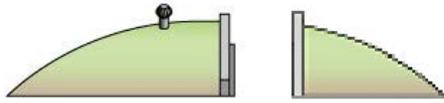
Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
11101		482	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11102		489	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11201		483	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11203		488	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11301		485	ECM	<input type="checkbox"/>	<input type="checkbox"/>
11302		491	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11303		487	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11401		484	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11402		501	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11403		492	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B6CY24		1648	AGM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B6CY25		1647	AGM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

At the bottom right of the window, there are "OK" and "Cancel" buttons.

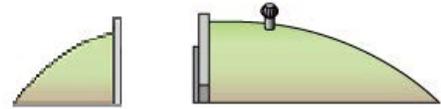
NOTE: You will notice there are columns listed for “A Barricaded” and “B Barricaded.” A Barricaded refers to the main PES 11202. B Barricaded refers to the ES facilities. If the barricade is part of the main PES the A Barricaded column should be checked. If the barricade is part of the ES, the B Barricaded 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



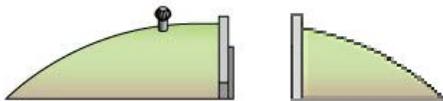
A = 11202



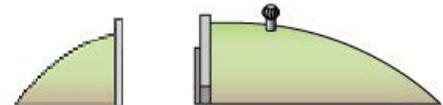
B = 11101

Facility No	Description	Internal ID	Type Code	A Baricaded	B Baricaded
11101		482	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

EXAMPLE #2



A = 11202



B = 11102

Facility No	Description	Internal ID	Type Code	A Baricaded	B Baricaded
11102		489	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

EXAMPLE #3



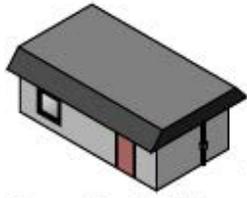
A = 11202



B = 11301

Facility No	Description	Internal ID	Type Code	A Baricaded	B Baricaded
11301		485	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

EXAMPLE #4

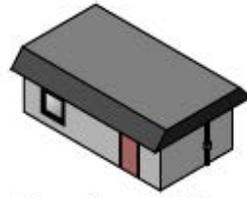


Operating Building

A



Barricade

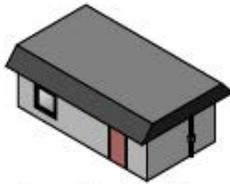


Operating Building

B

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXXX		XXX	EOL	<input checked="" type="checkbox"/>	<input type="checkbox"/>

EXAMPLE #5



Operating Building

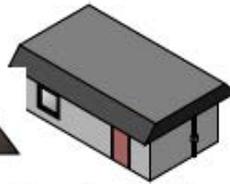
A



Barricade



Barricade

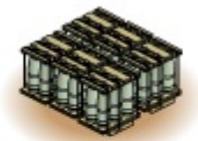


Operating Building

B

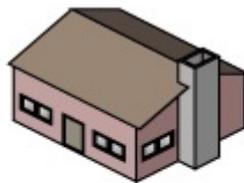
Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXXX		XXX	EOL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

EXAMPLE #6



Fragment Producing
Explosives In The Open

A



Inhabited Building

B

Facility No	Description	Internal ID	Type Code	A Barricaded	B Barricaded
XXXXXX		XXX	AGM	<input type="checkbox"/>	<input type="checkbox"/>

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**.

The screenshot shows the 'Facility Barricading' window. At the top, there is a dropdown menu for 'Add Facilities'. Below it, the 'Facility 'A' Details' section contains a table with the following information:

Facility Number: 11202	Facility Name:
Type Code: ECM	Description:
Category Code: 42180	Internal OID: 490

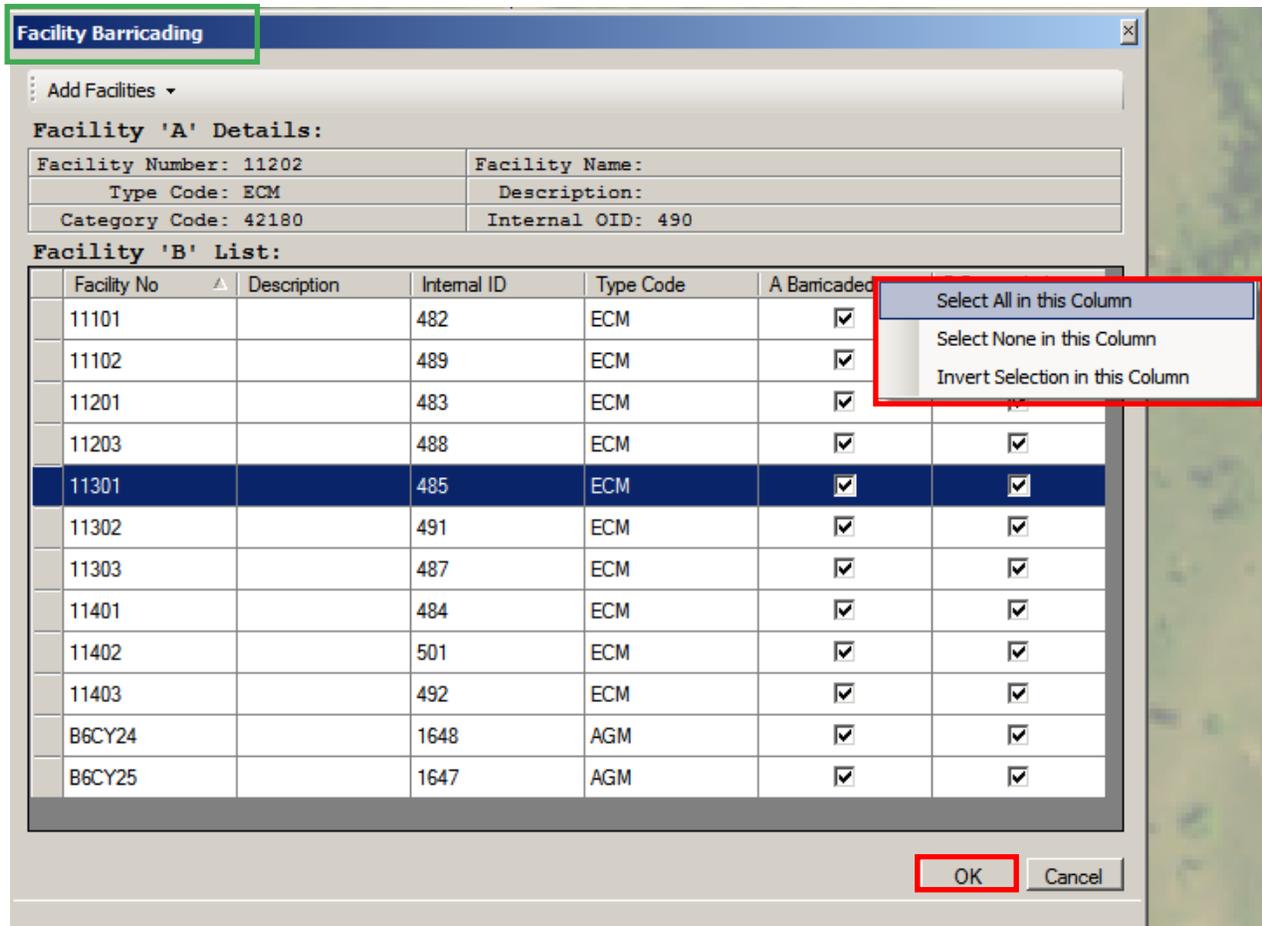
Below the details is the 'Facility 'B' List' section, which contains a table with the following data:

Facility No	Description	Internal ID	Type Code	A Baricaded	B Baricaded
11101		482	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11102		489	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11201		483	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11203		488	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11301		485	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11302		491	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11303		487	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11401		484	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11402		501	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
11403		492	ECM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B6CY24		1648	AGM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
B6CY25		1647	AGM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

At the bottom right of the window, there are two buttons: 'OK' and 'Cancel'.

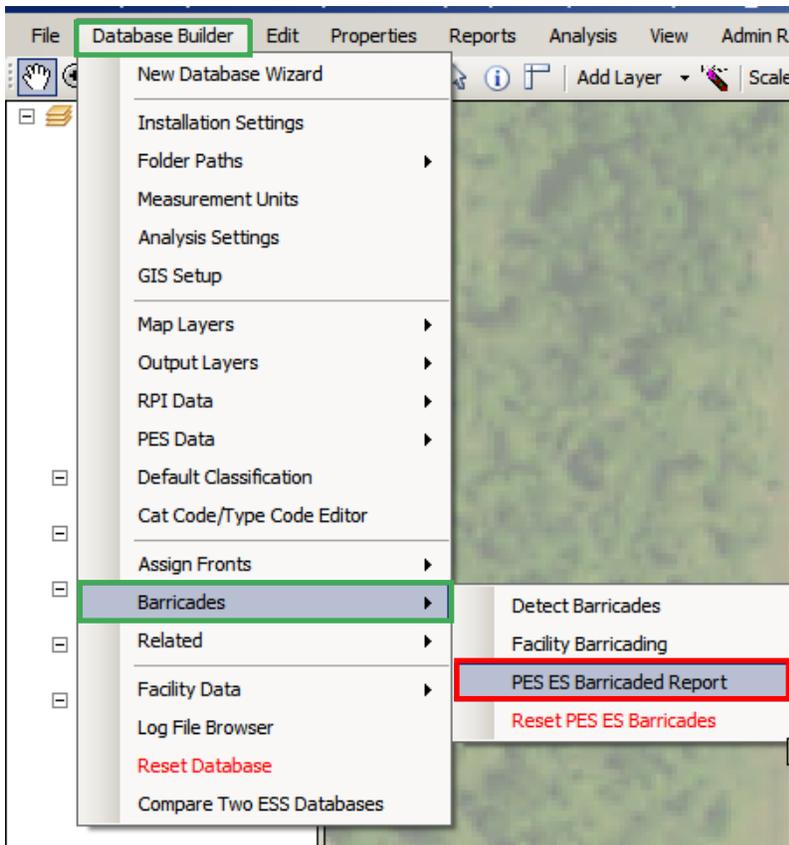
N. Click the **OK** button when complete.

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 facilities 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**.

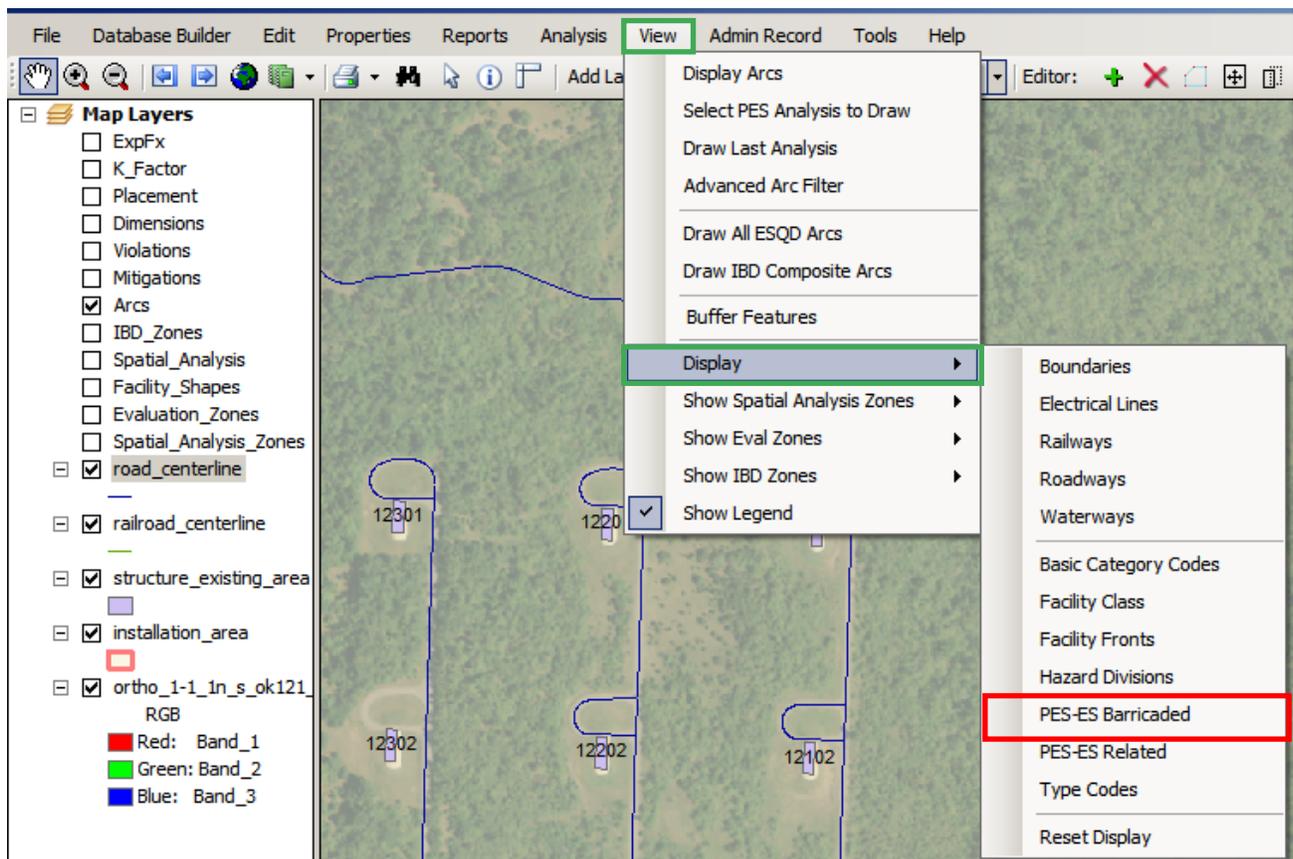
PES ES Barricaded Report

Save Report Print Columns Search:

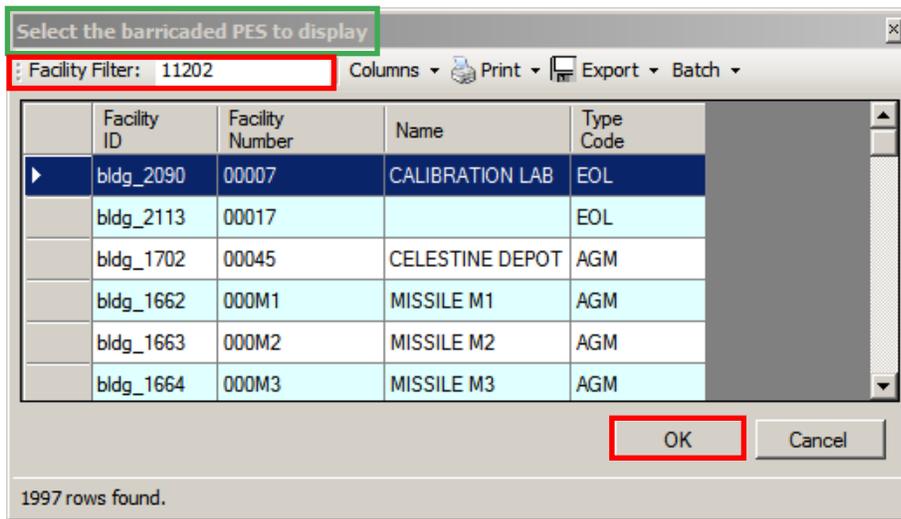
	Facility A Number	Facility A Description	Facility A Sector	Facility A Bamcaded	Facility B Bamcaded	Facility B Number	Facility B Description	Facility B Sector
▶	00007		NA	True	True	00017		NA
	00045		NA	True	True	5D6X32		NA
	00045		NA	True	True	5C6X31		NA
	000M1		NA	True	True	41201		Right
	000M1		NA	True	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

20903 rows displayed.

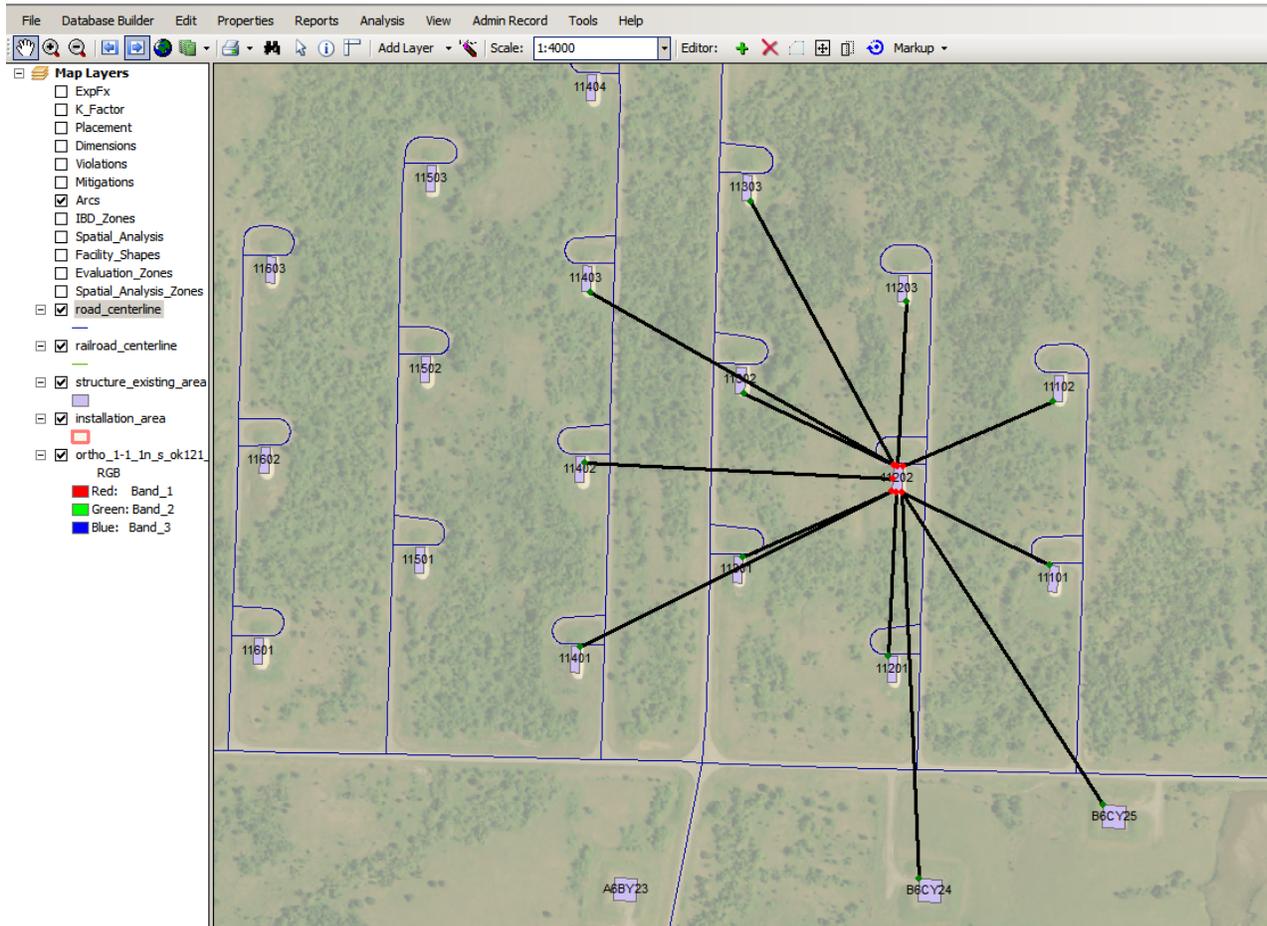
R. To visually see which facilities are barricaded, go to the **ESS main tool bar > View > Display > PES ES Barricaded** menu option. See the next page.



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.