

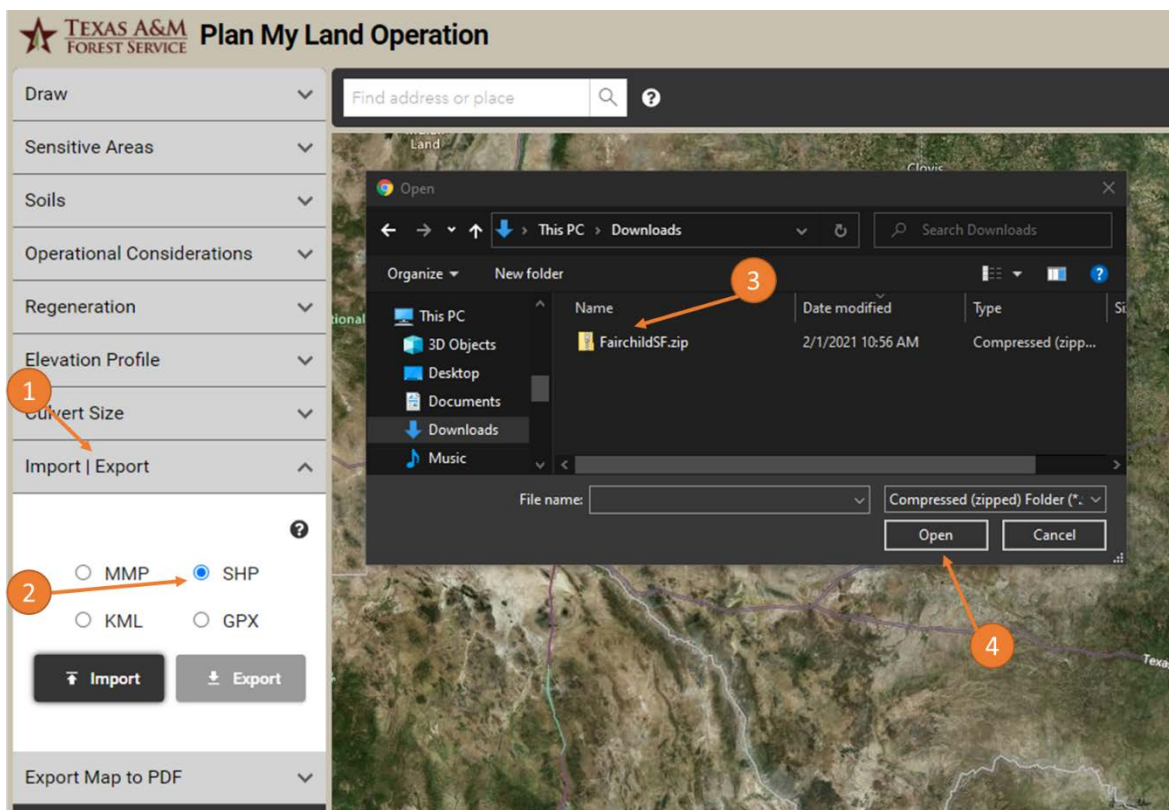
Plan My Land Operation

Case Study Exercise

The Plan My Land Operation application allows users to quickly map a project site, identify sensitive areas, determine operational characteristics of mapped soils, calculate area and distances, and receive BMP recommendations based on the hydrology, soils, and topography of the mapped area.

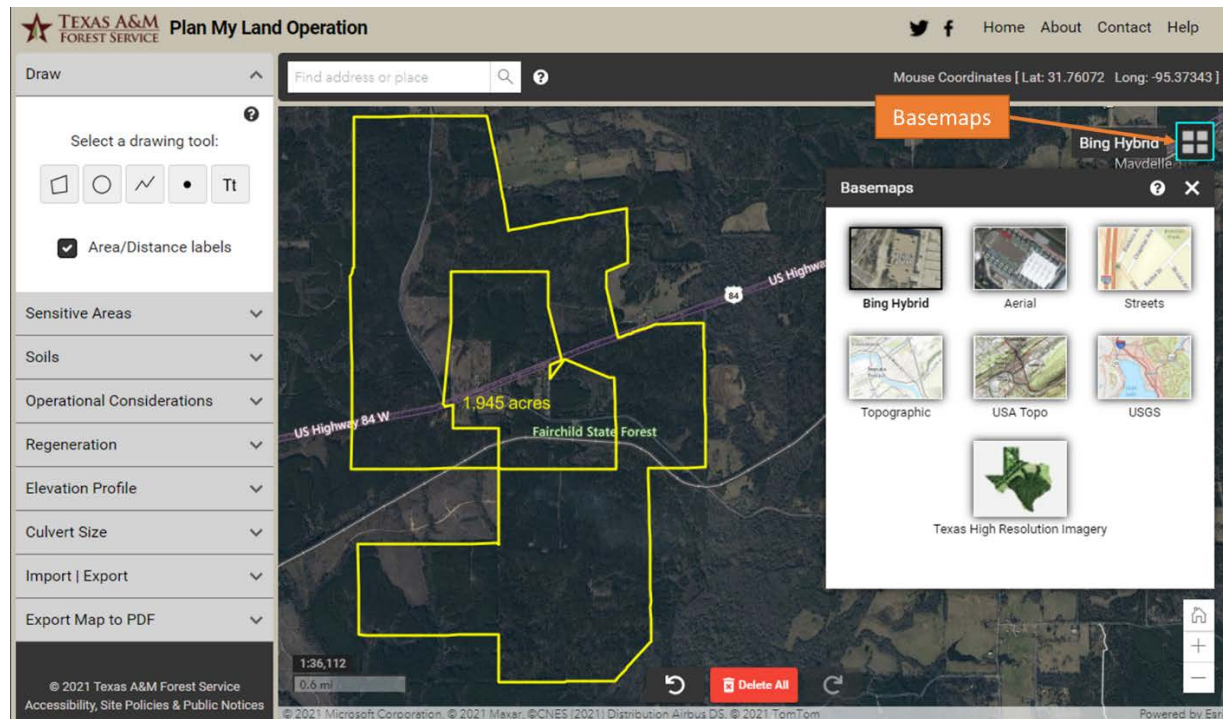
This exercise was designed to help users become familiar with the Plan My Land Operation application. To begin, follow the steps below:

1. Download the project file [FairchildSF.zip](https://texasforestinfo.tamu.edu/pmlo/about) from the Plan My Land Operation Help website (<https://texasforestinfo.tamu.edu/pmlo/about>) and save to your computer in the **Downloads** folder or another folder that you choose.
2. Open the application by browsing to the website <http://texasforestinfo.com>. Close the **Disclaimer** window and click on **Plan My Land Operation**.
3. Load the project file by first clicking **Import | Export** in the left column. Then select the **SHP** radio button and click the **Import** button. Select the **FairchildSF** file from the **Downloads** folder (or the folder you chose) and click **Open**.



Note: Shape files must be loaded as compressed zip (.zip) files. The application also enables users to draw their own project boundaries and save their project in order to work on it later.

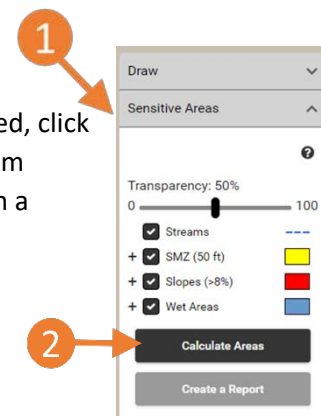
The application automatically zooms to the location, outlines the boundary, and calculates the area (acres). Various base maps can be viewed using the tile with four squares in the top right part of the map (Bing Hybrid, Aerial, Streets, Topographic, USA Topo, USGS). Texas Google 6-inch and historic aerial photographs can be selected by clicking the “Texas High Resolution Imagery” button. The “Layers” tile, directly below Basemaps, includes datasets (Contours, Flood Zones, Hydrology, Watersheds, Wet Areas, and Parcels) that can be overlaid on a basemap.



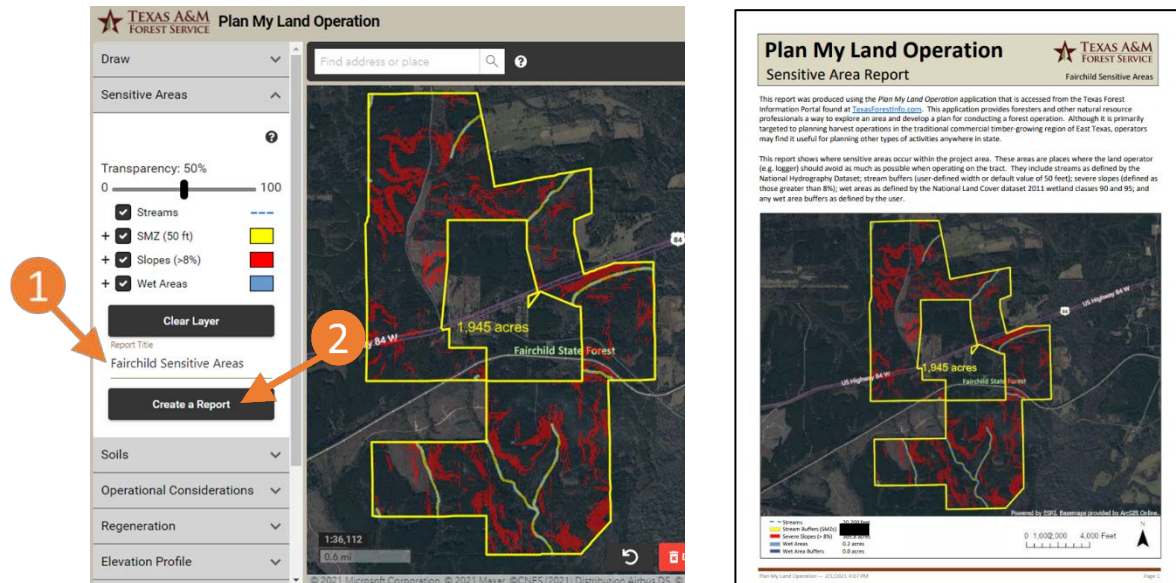
Now that the project area (boundary) has been defined, work through the following exercises and answer the questions.

Exercise 1: Identifying sensitive areas (streams, SMZs, severe slopes, wet areas) on a project area using the application.

1. Click the **Sensitive Areas** tab in the left Column and, when opened, click the **Calculate Areas** button. The application maps streams, stream buffers, severe slopes, and wet areas using different colors when a project area has been defined.



2. Type a **Report Title** in the input box and click on **Create a Report**. The application opens the “Sensitive Area Report” as a pdf file in a new window. First time users may need to turn off the Pop-Up Blocker.

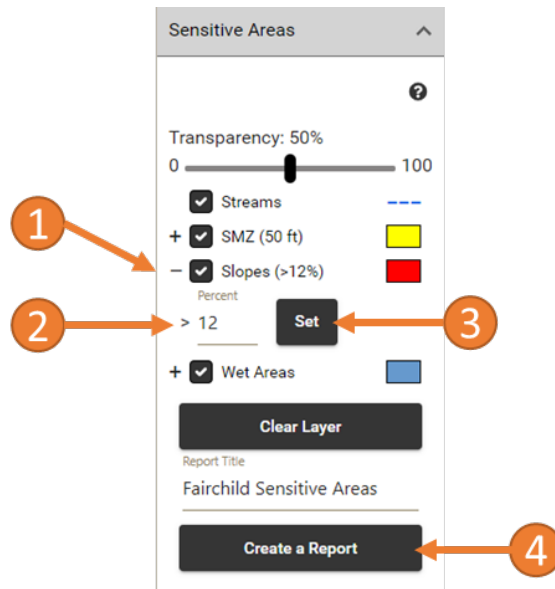


A one-page report is produced showing a map of the sensitive areas and summary statistics (length, area) of critical areas. Use the information in the Sensitive Area Report to answer the following question.

Question 1: What is the area (acres) in Stream Buffers (SMZs)? 1,945 acres

Custom values can be entered for stream buffers, severe slopes, and wet areas by clicking the + sign in the left column.

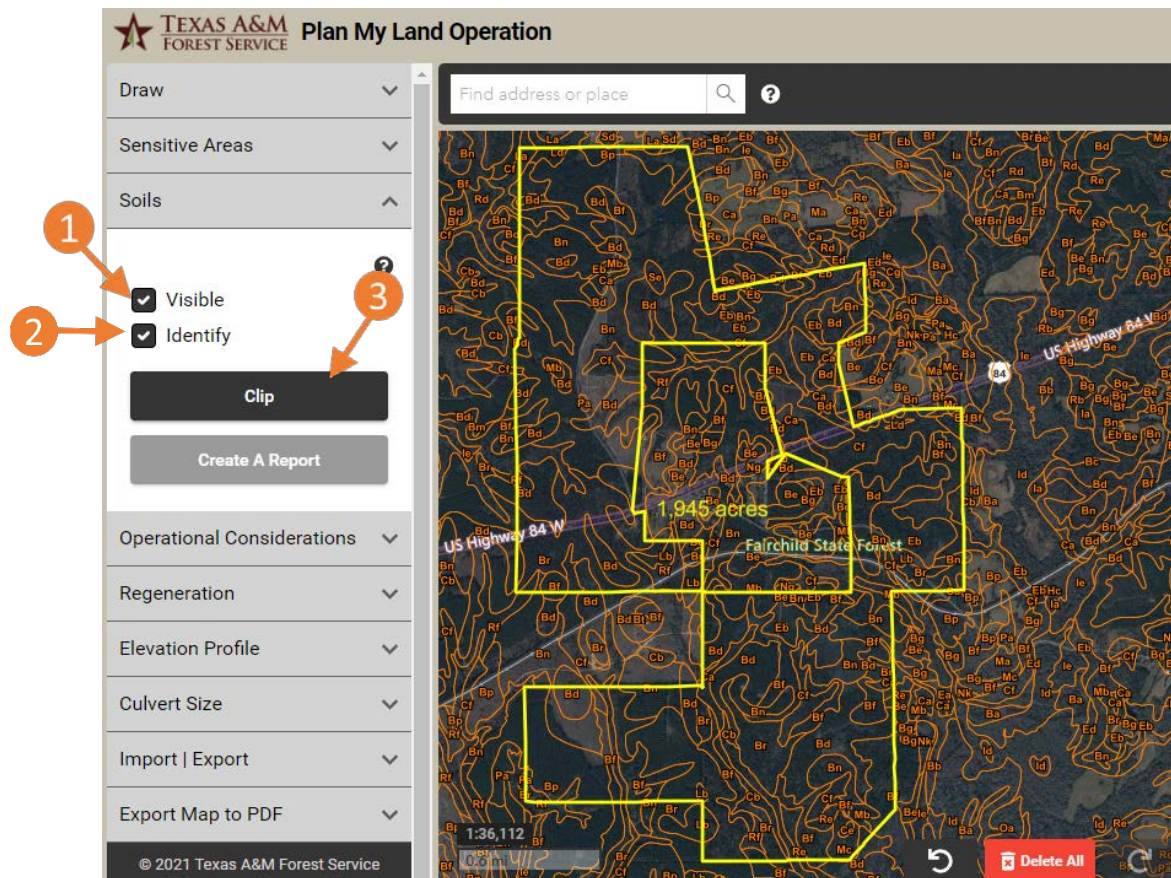
3. Click the **+** sign next to **Severe Slopes (> 8%)**, type in **12%** in the text box, and click **Set**. The map automatically re-calculates sensitive areas. Type a new **Report Title** and click **Create a Report**.



Question 2: What is the area (acres) represented by Severe Slopes (>12%)? _____ acres

Exercise 2: Viewing soil types and associated properties on a project area.

1. Clear the sensitive areas layer by clicking **Clear Layer** in the **Sensitive Areas** tab, and then click on the **Soils** tab.
2. Check the **Visible** and **Identify** boxes (you might need to zoom in to enable “Identify”), and then click the **Clip** button. This will display a color coded map of the soils within the project area boundary.



An interactive summary table of the project area soils displays the soil series name, area, and percent of the tract covered by that soil type. The **Transparency** slide bar allows you to make the soils layer transparent.

Soils Within Project Area

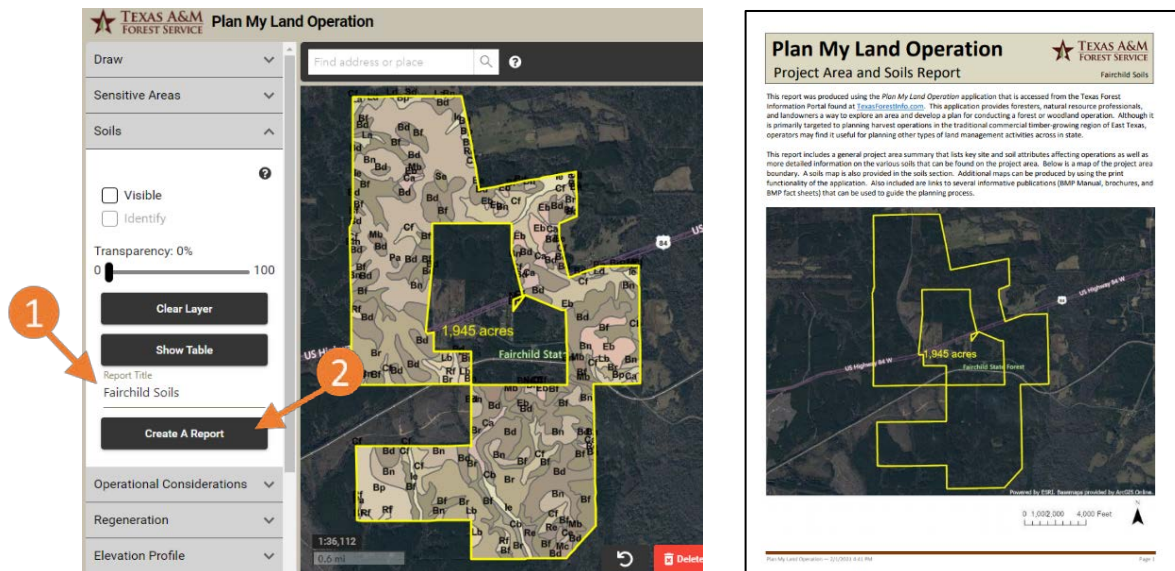
Symbol	Soil Name	Acres	Percentage
Bn	Bowie fine sandy loam, 3 to 8 percent slopes	431.6	22.2%
Bd	Sacul fine sandy loam, 3 to 8 percent slopes	416.2	21.4%

3. With “Identify” checked, click directly on the **Soil Label** to bring up a text box with more detailed soil properties.
4. Look at the clipped soils table and click on the different rows to identify the soils in the map.

Question 3: How many acres are in Lilbert loamy fine sand, sloping soil series? _____ acres

Question 4: What percent of the tract is Betis loamy fine sand, sloping? _____ %

5. Type a **Report Title** in the input box and click on **Create a Report**.



The application opens the Project Area and Soils Report as a pdf file in a new window. A multi-page report is produced of soils maps, summary information, and BMP recommendations for each soil type.

Use the Project Area and Soils Report to answer the following questions:

Question 5: What is the total length (in feet) of perennial streams on this tract? _____ ft.

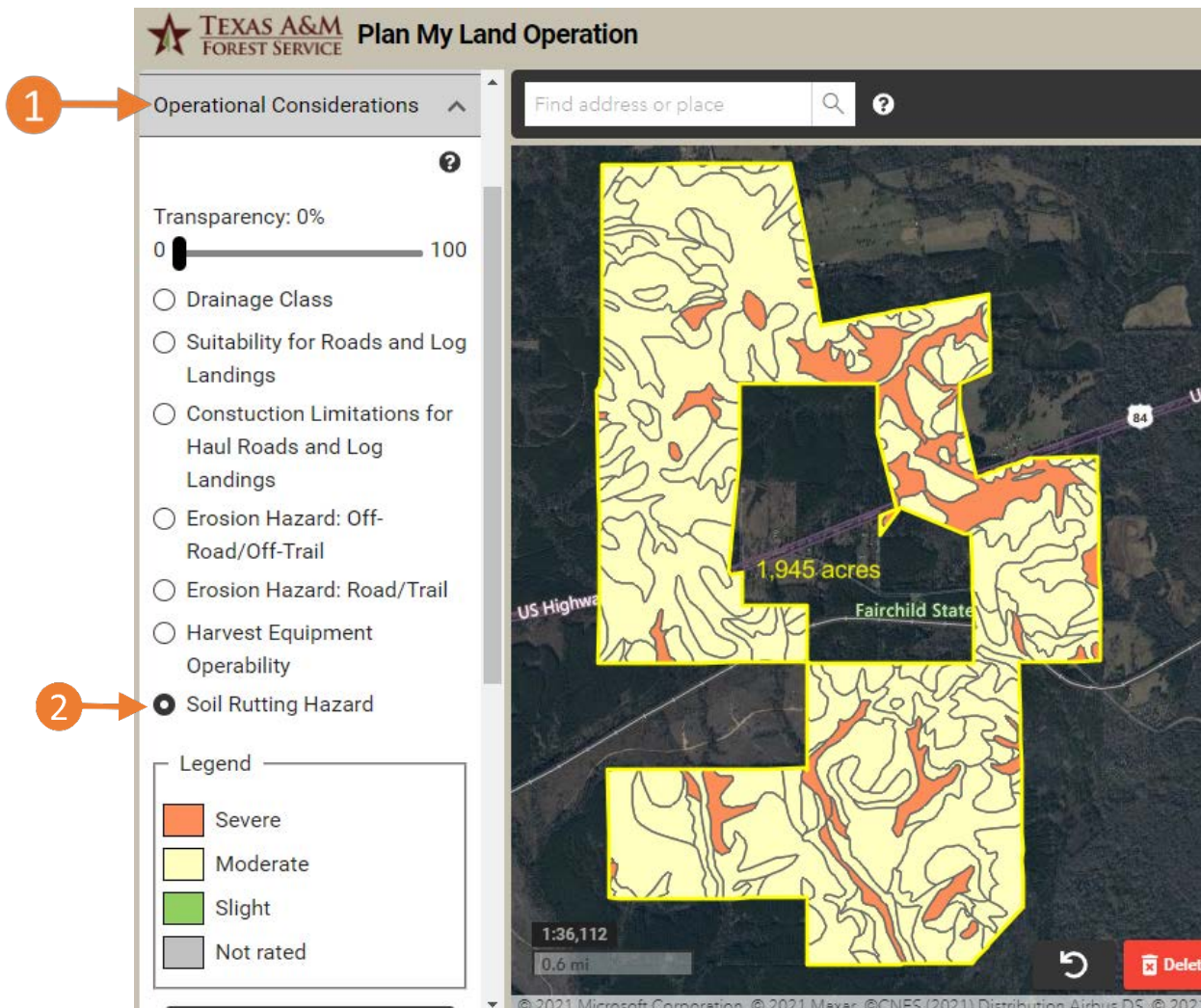
Question 6: What drainage class is the Elrose fine sandy loam, 3 to 8 percent (Mb)? _____

Question 7: What is the Rating for Harvest Equipment Operability on the Tenaha loamy fine sand, strongly sloping (Rf) soil? _____

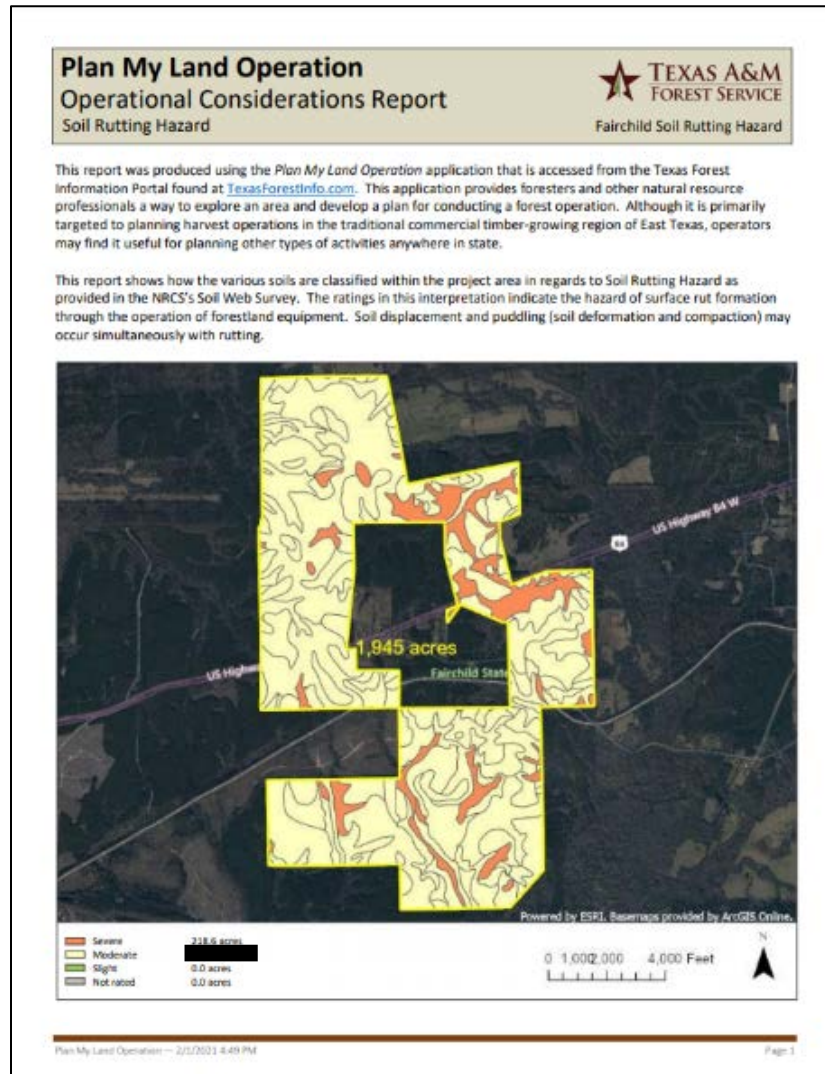
Question 8: What is the BMP Awareness for Soil Rutting Hazard on the Darco loamy fine sand, sloping (Lb) soil? _____

Exercise 3: Viewing general soil properties (erosion and rutting hazard) to support operation planning and layout on a project area.

1. Click on the **Operational Considerations** tab. The project area is automatically color coded based on the assigned ratings of key soil characteristics (i.e. *Drainage Class, Suitability for Roads and Landings, Erosion Hazard, etc.*).
2. Select different radio buttons to see how the map colors change. Select **Soil Rutting Hazard**.



3. Type a **Report Title** in the input box and click on **Create a Report** button. The application opens the “Operational Considerations Report” for the property selected (i.e. Soil Rutting Hazard) as a pdf file in a new window.



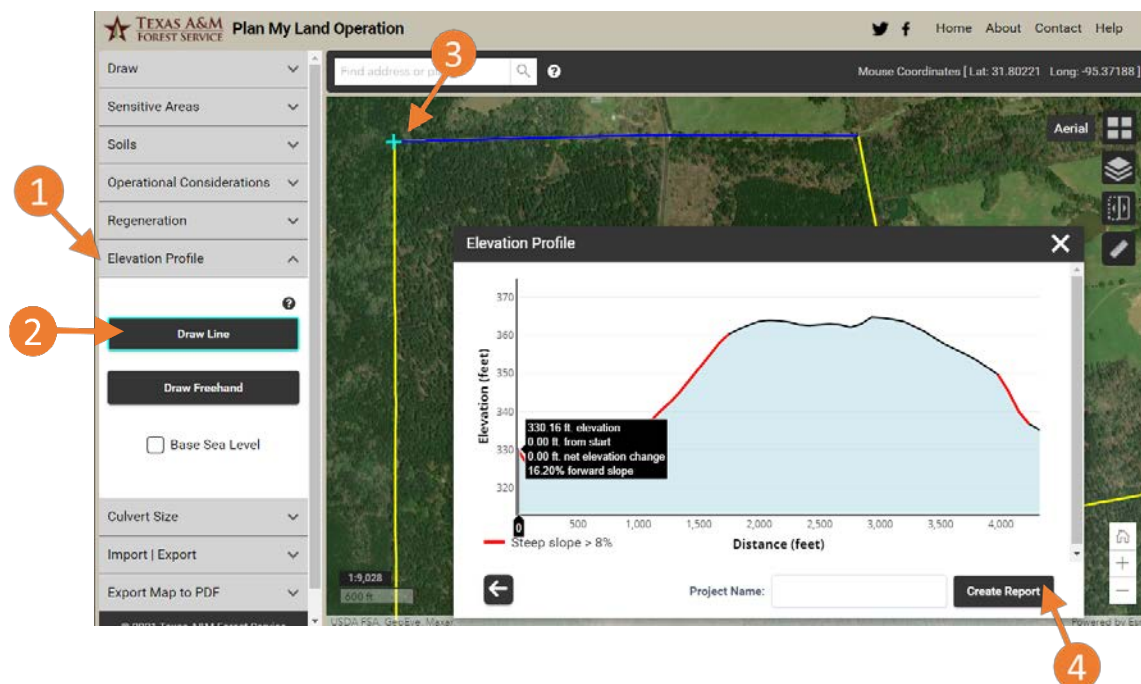
The Operational Considerations Report is produced showing a color coded map and area statistics of the operational consideration selected.

Use the Operational Considerations Report to answer the following question:

Question 9: How many acres have a “Moderate” rating for Soil Rutting Hazard? _____ acres

Exercise 4: Determining topographical properties of a road segment to adequately plan erosion control measures (BMPs).

1. Clear the Operational Considerations layer, by selecting the **Clear Layer** button, and zoom in to the northern boundary of the tract.
2. Click on the **Elevation Profile** tab, and then the **Draw Line** button. This will allow you to visualize the elevation profile of a potential road segment so you can adequately plan for BMPs and erosion control.
3. Click on the northwest corner of the tract to add a vertex and proceed by dragging the line eastward along the boundary, adding vertices when you need to change directions. Double-click before the boundary turns south to end the segment. Type a **Project Name** in the Elevation Profile window and click **Create Report**.



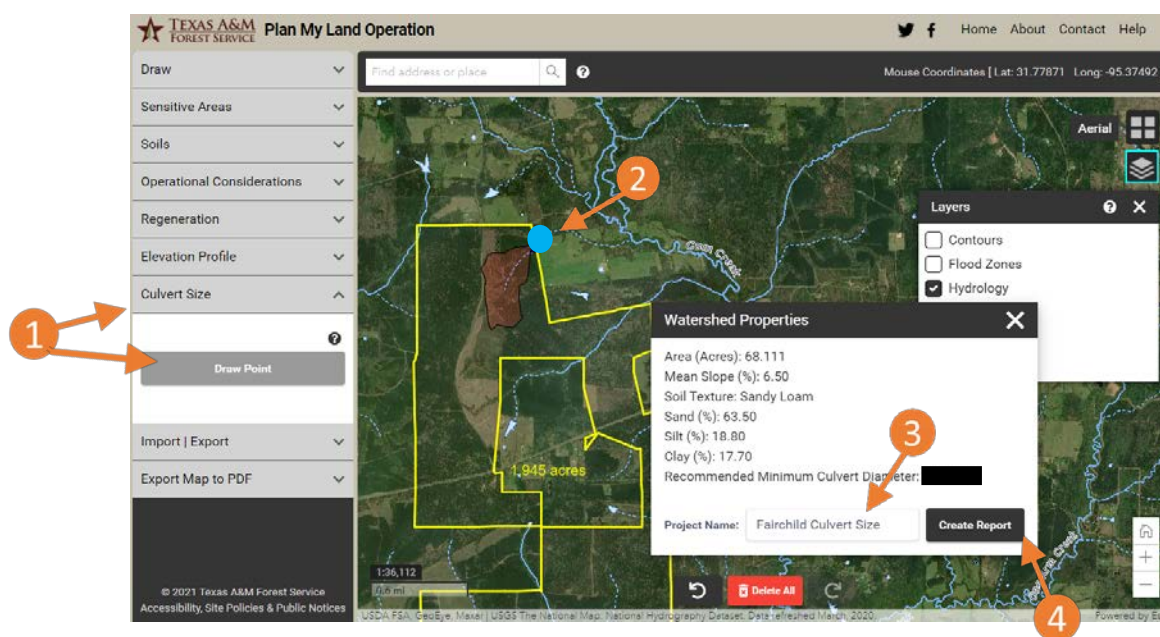
The elevation profile is automatically calculated for the delineated road segment. The interactive graph shows the altitude, distance from start, and percent slope along points in the profile. The Elevation Profile Report is generated and summarizes results of the analysis. This information can be used as inputs for the waterbar and wing ditch spacing charts in the [Texas Forestry BMP Handbook](#) or [mobile application](#).

Use the Elevation Profile Report to answer the following question:

Question 10: What is the maximum percent slope for this road segment? _____ %

Exercise 5: Determining the appropriate size of a culvert for a stream crossing.

1. Close the “Elevation Profile” popup window to remove the elevation profile.
2. Click the “Layers” tile and check the box next to “Hydrology”. You may need to zoom out in order to see the hydrology layer.
3. Click on the **Culvert Size** tab, and then the **Draw Point** button. This will allow you to place a point in the map to calculate the culvert size for a stream crossing. Place the point along the stream where it crosses the tract boundary. The watershed is automatically delineated for the placed point.
4. Type a **Project Name** in the Watershed Properties window and click **Create Report**.



The Watershed Size/Culvert Size Report is generated and shows the recommended culvert size.

Use the Watershed Size/Culvert Size Report to answer the following question:

Question 11: What size culvert is recommended for this stream crossing? _____ inches

Exercise 6: Measuring area and distances in the application.

1. Close the “Watershed Properties” and “Layers” popup windows to clear the screen.
2. Zoom out so you can see the southwestern portion of the tract (yellow rectangular box).
3. Click the **Measurement** tool tile and then click the **Measure Area** button.
4. Start to measure by clicking in the map near the corner of the yellow boundary and continue by clicking in the other corners while dragging the line around the rectangular box. Double-click at the end to close the polygon.



The measure tool quickly calculates area (acres) of delineated polygons or circles and distance (feet) of line segments.

Use the measure tool to answer the following questions:

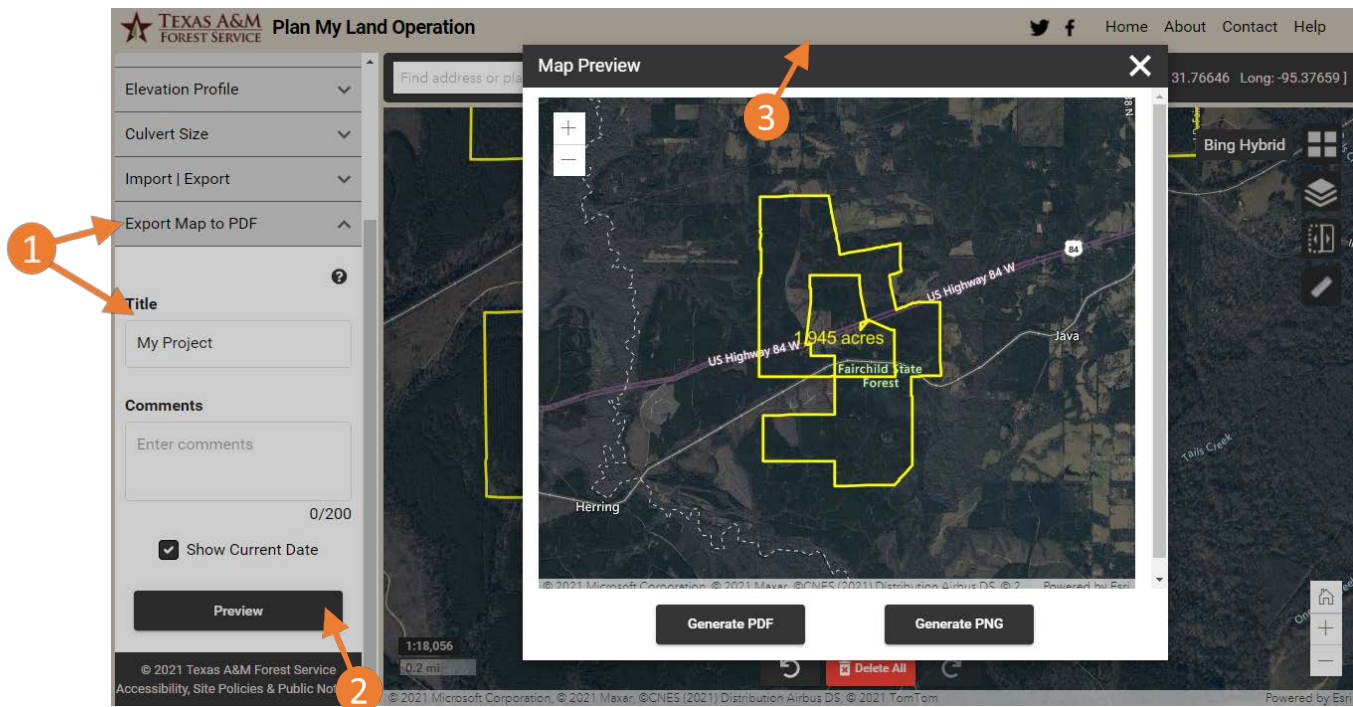
Question 12: How many acres are in the rectangular box? _____ acres

Question 13: What is the distance of the eastern border of the rectangular box? _____ feet

Hint: You may need to select a different option in the measure tool to answer Question 13.

Exercise 7: Saving the map to a pdf file.

1. Close the “Measurement” tool to remove the area calculation.
2. Click on **Export Map to PDF** tab, enter a name in the **Title** box, and click the **Preview** button. The map features shown on the screen will be displayed in a **Map Preview** popup. You can pan and zoom to make the map fit the page.
3. Click **Generate PDF** to create a pdf file of your map that will open in a new tab.



At any time, if you have questions, feel free to refer to the help icons within each one of the tools (?).

