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J L A   E X P L A I N E R  
B A C K G R O U N D   R E S E A R C H :  
W E B   S O I L   S U R V E Y

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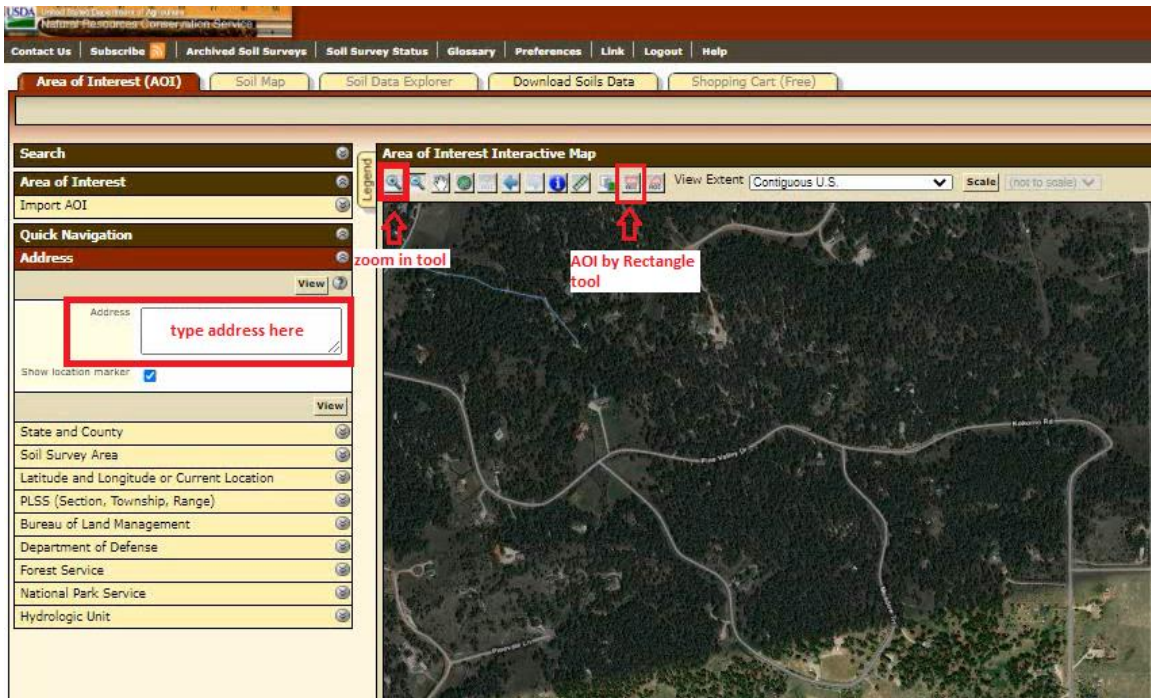
Knowing the characteristics of the soil at a building site is critical during the pre-design and design process. The soil characteristics influence the design of any foundations to be constructed at the site. It is essential to understand the soil type to ensure that the foundation will be designed in a way that will be able to support the weight of the structure. Additionally, soil types at the site will influence the ease (or difficulty) of excavation work, the design of driveways, and the stormwater drainage from the site. Knowledge of the soil types at the site is obviously extremely important for a building or site owner.

JLA design recommends that a geotechnical engineer perform exploratory borings, and prepare a geotechnical report, for most projects. However, the owner can also conduct some desktop research prior to obtaining a Geotech report. This initial desktop research can be very useful, especially when deciding whether or not to purchase a site or deciding whether or not to build on a site. If the soils are especially poor, you might save yourself the cost of a Geotech report! To do this research, you'll need to obtain a soil map from

the Web Soil Survey operated by the USDA Natural Resources Conservation Service.

Here's a step-by-step guide in obtaining a soil map:

- Open the Web Soil Survey website (<https://websoilsurvey.sc.egov.usda.gov/>)
- To start the application, click on the "Start WSS" button
- In the Area of Interest Tab, look for the Quick Navigation panel located at the left side of the window, and enter the site address in the "Address" field. Once information is being entered, click "View"
- Use the Zoom in tool to put the map in Zoom in mode. Click on the area where you want to zoom in. Zoom in as close as you need
- Before the soil data can be viewed, you must define the Area of Interest or AOI. You can set your AOI by clicking on the Define AOI by Rectangle tool. Then click and hold the left mouse button and drag a rectangle on the map. When the mouse button is released, the rectangle that is drawn will be the AOI. See images below



- Click on the Soil Map Tab, the AOI will be divided into different soil types divided by orange lines with the soil type's abbreviation shown in the map.
- To create a printable document containing the map and information, click on the Printable version button at the upper right portion of the window and click “view”.
- Click on Printable Version on the upper right portion of the screen (make sure to unblock pop up messages). In the subtitle field, enter the Client's name and click “view”.

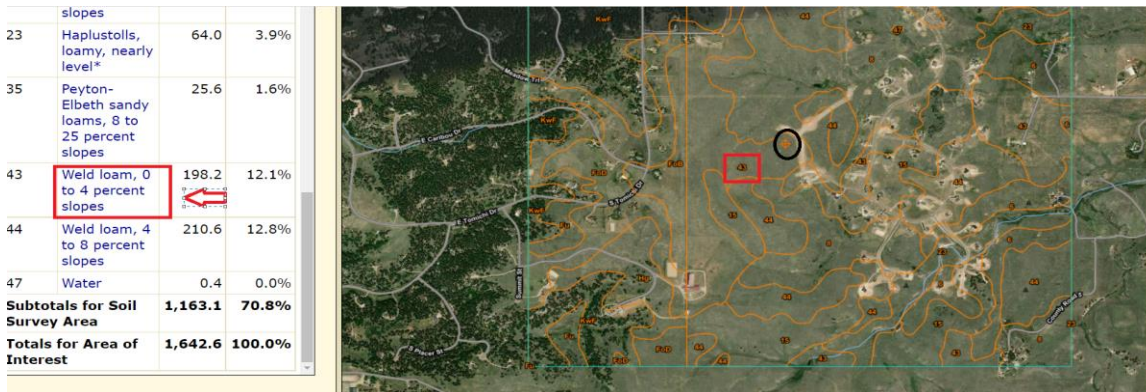
The screenshot shows the Web Soil Survey interface. On the left, there is a legend table for the 'Substrate for Soil Survey Area' in Elbert County, Colorado, Western Part. The table lists various soil units with their names, areas, and percentages. A 'printable version button' is highlighted in the top right corner of the interface.

Map Unit Symbol	Map Unit Name	Area in AOI	Percent of AOI
6	Bresser sandy loam, cool, 5 to 9 percent slopes	56.9	5.8%
8	Bresser-Stadleton sandy loams, 8 to 25 percent slopes	269.0	27.4%
15	Cushman-Hangrave complex, 8 to 15 percent slopes	92.9	9.5%
23	Haplutolls, loamy, nearly level*	36.7	3.7%
35	Peyton-Elbeth sandy loams, 8 to 25 percent slopes	0.4	1.0%
43	Wald loam, 0 to 4 percent slopes	148.1	15.1%
44	Wald loam, 4 to 8 percent slopes	144.3	14.7%

- The printable document will be opened in a new window. Click on the download button at the upper right, insert filename and press save.

The screenshot shows the Web Soil Survey interface with a 'download file here' button highlighted in the top right corner. The interface displays a soil map of the Castle Rock Area, Colorado, and Elbert County, Colorado, Western Part. The map includes a legend, a scale bar, and a north arrow. The 'download file here' button is located in the top right corner of the map area.

- Go back to the Web Soil Survey website window and on Map Unit Legend sub tab, click on the corresponding Map Unit Name where the site address belongs



- A Map Unit Description Window will appear. Click on the printable version button and click view.
- The printable Map Unit Description will be opened in a new window. Click on the download button at the upper right, insert filename and press save

Map Unit Description: Weld loam, 0 to 4 percent slopes—Castle Rock Area, Colorado, and Elbert County, Colorado, Western Part

**Elbert County, Colorado, Western Part**

**43—Weld loam, 0 to 4 percent slopes**

**Map Unit Setting**  
 National map unit symbol: Zx0hz  
 Elevation: 4,550 to 6,900 feet  
 Mean annual precipitation: 13 to 20 inches  
 Mean annual air temperature: 45 to 52 degrees F  
 Frost-free period: 115 to 155 days  
 Farmland classification: Prime farmland if irrigated

**Map Unit Composition**  
 Weist and similar soils: 85 percent  
 Minor components: 15 percent  
 Estimates are based on observations, descriptions, and transects of the mapunit.

**Description of Weist**

**Setting**  
 Landform: Interfluves  
 Landform position (two-dimensional): Summit  
 Landform position (three-dimensional): Interfluve  
 Down-slope shape: Linear  
 Across-slope shape: Linear  
 Parent material: Calcareous loess

**Typical profile**  
 Ap - 0 to 8 inches: loam  
 Bt1 - 8 to 12 inches: clay  
 Bt2 - 12 to 15 inches: clay loam  
 Bt3 - 15 to 28 inches: loam  
 Bt4 - 28 to 60 inches: silt loam  
 C - 60 to 80 inches: silt loam

**Properties and qualities**  
 Slope: 0 to 4 percent  
 Depth to restrictive feature: More than 80 inches  
 Pedon name: Weist A1001

download file here