

Soil and Plant Science Division
Technical Soil Services
South Central Soil Survey Region

Altus, Oklahoma, Major Land Resource Area (MLRA) Soil Survey Office (SSO)

SPSD Investigates Soil Properties for the Construction of a Grade Stabilization Structure

Purpose

On Thursday, November 16th, 2023, Tyson Morley, MLRA SSO leader, and Tyler Kempf, soil scientist, from the Altus, Oklahoma, MLRA SSO, responded to a request for assistance from Charlie Colvin, NRCS civil engineer, from the Clinton, Oklahoma, Technical Office. Colvin asked the soil scientists to investigate soil properties at a site to determine if it was suitable for a grade stabilization structure.

Background

Charlie Colvin asked the soil scientists from the SSO to investigate the soil surrounding a large pond located in Jackson County, Oklahoma, which was used for livestock watering and flood water management. Recently, this pond had a failure in the dam, creating severe erosion problems downstream.

Key Outcomes

The primary objective of the investigation was to determine if the soil would be suitable for the completion of a new grade stabilization structure to prevent downstream flooding and create a permanent water source for the landowner. Morley and Kempf used soil sampling equipment to collect a large amount of soil to send to the Soil Strength and Mechanics Lab in Ft. Worth, Texas. They took numerous soil cores below the dam to send for laboratory analysis. Soils in southwestern Oklahoma can have high levels of sodium-based salts from the Permian-aged parent material, which makes the soil dispersive; therefore, soil testing will focus on the concentration of sodic salts present in the soil profile.



Figure 1. Tyson Morley, MLRA soil survey office leader, using a soil probe to collect soil samples for laboratory analysis.

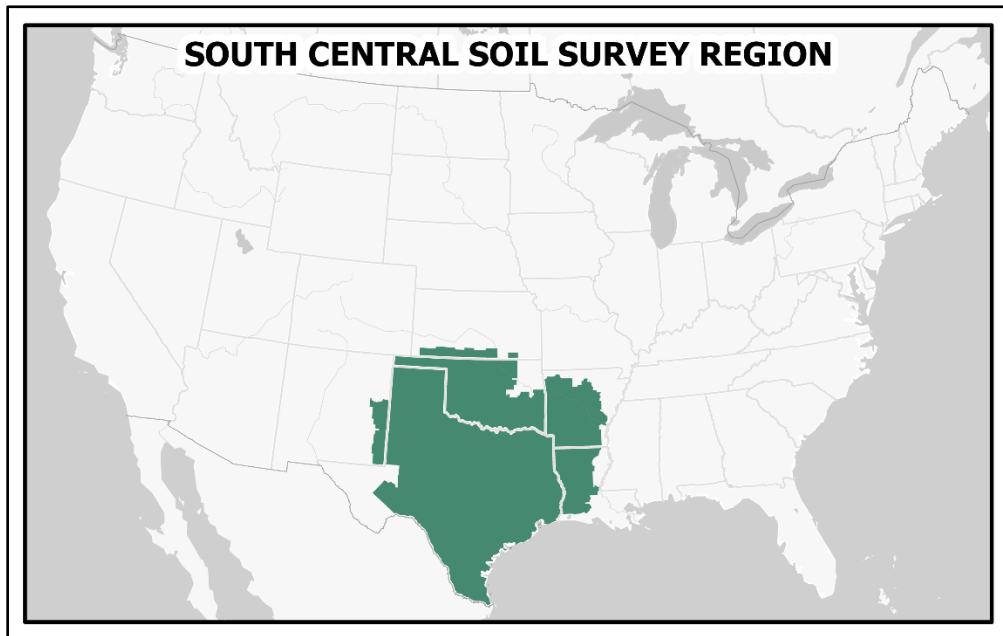


Figure 2. Map showing the South Central Soil Survey Region.