MLRA Soil Survey Office: 9-BRY

Sand and Gravel Exploration in MLRA 87A Results in New NASIS Soil Interpretation

Purpose

On January 25th, the MLRA 86 & 87 Soil Survey Office in Bryan, Texas was contacted by a realty and sand and gravel group about the selection of a suitable fill material site that would meet specific soil requirements, and be located in or around the Bryan-College Station area. Originally, this group was looking for a specific site that had a Plasticity Index of less than 20, and little to no silt.

Initially, Richard Reid, MLRA Soil Survey Office leader, prepared a few products to determine what sites would meet the unique needs of this group. These products included an output for the specified 20 miles radius for “Sand Source”, “Plasticity Index Rating - 0 to 60 inches”, and AASHTO Group (Surface). These products provided a glimpse of what type of services USDA-NRCS soil scientists can offer and captured the interest of the group.

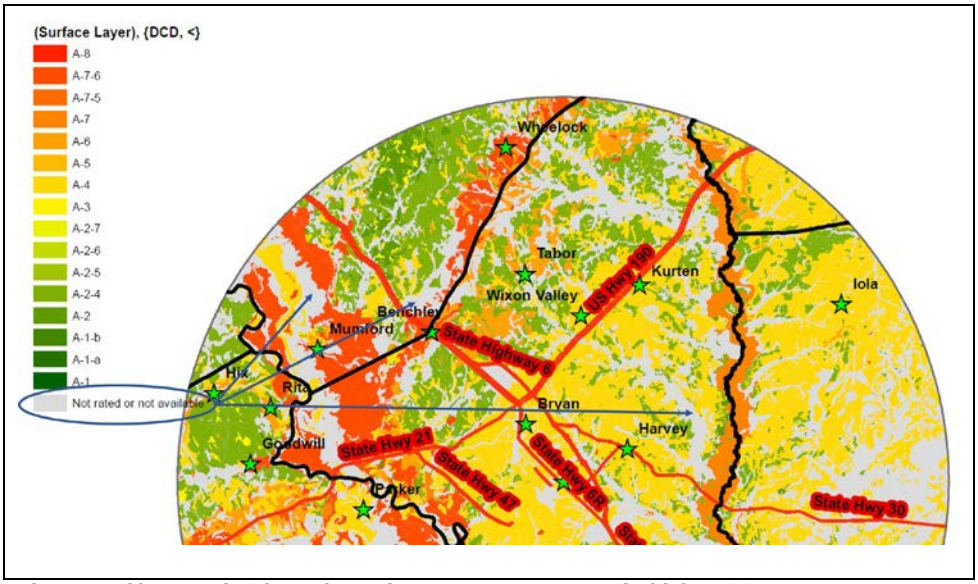
After reviewing the initial products, the group decided that they had some additional needs regarding the site selection. The group needed a soil with a Plasticity Index of less than 20, a Liquid Limit of less than 40, and a percent passing the #200 sieve of less than 50 percent They also wanted safe access of roadways and farm to market road access if possible, within a 20 miles radius surrounding the Bryan-College Station area.

Heather Hall on the laptop, demonstrating the soil types at each mine location to Kelly Burt.

Key Outcomes

On February 26th, 2019, soil scientists Heather Hall and Richard Reid from the Bryan Soil Survey Office held a joint meeting with Phyllis Young of Longitude Real Estate and Brian and Kelly Burt of Burt Dozer to discuss possible select fill locations across a 20-mile radius surrounding the Bryan-College Station area. We talked about how soil maps are made, the mapunit design, the concept of components within mapunits, and the specific soil parameters. We reviewed the three products and discussed the different locations, and how the soils compared to the soils in their current mining operations. Finally, two options were discussed to provide acceptable outcomes to the team. The first product that we would provide would be a soil map of the soil types that occur where their current mining operations are located, as suggested by Heather Hall. The second product we would provide would be the soil mapunits with components, meeting the specific requirements that they requested. Review of their locations revealed

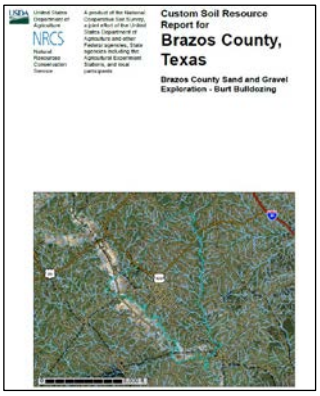
similar geology at their current mining operations. By combining those geologic units and queries based on their plasticity index requirements, a suite of geographically-associated soils on those same geologies was created to determine other potential sites. The search was limited to Brazos County, due to expressed concerns over transportation costs.



The area of interest (AOI) overlapped seven survey areas, of which 742,244 acres were identified with AASHTO surface errors "null" or "not rated". The staff will repair those errors to produce the intended results, as continued update and maintenance of the soils database is required to provide the best possible soils information to our customers.

In creating the AASHTO Group (Surface) product, Richard began seeing errors in ASSHTO Group classifications. The ratings for many soil component horizons across the area of interest (AOI) are "null" or "not rated". Upon further investigation and research, it was noted that the AASHTO Group in the surface layer of the legacy data had not been checked as "representative". This causes the soil interpretation to produce a "null" or "not rated" rating. It is important to note that these mapunits have not gone through extensive evaluation through the Soil Data Join and Recorrelation initiative, Evaluation, or MLRA field projects.

Because of this request, a new NASIS soil interpretation *(9BRY-ENG - Construction Materials; Sand and Gravel 0-200cm)* was created to handle their specific soil property requests. The final product provided was a customized Soils Report developed from Web Soil Survey, that provided descriptive information as well as a thematic map of the results in the specified area. The Bryan Staff will continue to work with Brian and Kelly Burt to ensure that the Web Soil Survey products provided are producing good results, and to make any necessary changes for their specific requirements in finding suitable areas for sand and gravel exploration. Soils staff now have access to the new NASIS soil interpretation to use for similar requests.



Customized Soils Report created in Web Soil Survey and delivered to Customer.