

## Module 21: Topsoil / Subsoil

[§77.456(4)]

### 21.1 Topsoil Characteristics

- a) Identify the thickness of topsoil present at the site. If the thickness of the topsoil varies, key the thickness of the topsoil to Exhibit 18.

The thickness of the topsoil within the surface permit area averages 9". The average thickness of the subsoil on the site is 51". The values stated are from the Web Soil Survey of Greene and Washington Counties. The B and C horizons will be replaced as subsoil and can be used as a top-dressing material, as per Chapter 77.512-77.514, if needed. All site topsoil and subsoil will be saved and spread in an evenly distributed layer on the entire affected area for reclamation. The success of vegetation on reclaimed surface mines in this area of Washington County shows that these soils can support revegetation.

- b) Provide a 8 ½" x 11" copy of USDA Soil Survey Map delineating the proposed permit area.

See attached soil survey map.

### 21.2 Operations Plan

- a) Provide a plan for removal, storage and redistribution of topsoil and subsoil.

#### Removal

Topsoil and any subsoil will be removed from the first cut and stockpiled separately on the areas shown on the exhibits prior to mining or other surface disturbance. The topsoil will be removed first, followed by the subsoil. The piles will be seeded with seed mixture #1 to protect the pile(s) from erosion (if they are not redistributed on the backfilled areas by the end of the next growing season). Soils will be stockpiled only when it is impractical to promptly redistribute such material on regraded areas.

#### Storage

Soils will be stockpiled only when it is impractical to promptly redistribute them on a regraded area. Soils will not be mixed with other materials at the site and will be stockpiled within the permit area only. Stockpiled material will be protected from wind and water erosion by seeding with seed mixture #1 as per Module 23. Topsoil (removed first) and subsoil (removed after topsoil) from the remaining cuts will be distributed on regraded areas with the subsoil replaced first, followed by the topsoil.

#### Redistribution

Prior to the redistribution of soils, the regraded area will be scarified/spiked to promote root penetration and successful revegetation. The subsoil will be replaced first in an even, stable thickness to the approximate original depth. Topsoil will then be replaced in an evenly distributed layer. The topsoil will be loosened sufficiently so that germination and revegetation is enhanced. Compaction of soils prior to seeding will be avoided since this inhibits germination. Proper loosening by spiking and/or scarifying will be done prior to reseeded. Revegetation procedures will then be initiated per Module 23.

Overcompaction of the soils will be prevented by:

1. Track equipment will be used to spread soils, as opposed to rubber tire equipment, which tends to overcompact soils.
2. As per Module 23.3, soils will be spiked/loosened prior to seeding. This enhances germination and promotes vegetation.
3. The soil will be replaced when the soil moisture is low to prevent excess compaction. Timely seeding/mulching will then occur.

- b) If the B and C horizons will be segregated and replaced as subsoil, identify the thickness in inches of the B and C horizons to be removed, segregated and replaced.

The B and C horizons will be removed and replaced as the subsoil. The thickness of the B and C horizons on this site is approximately 51". The subsoils will be replaced prior to topsoil spreading and revegetation. See soils handling plan above for details. These areas will be reclaimed using a uniform redistribution of all site soils to maximize their use.

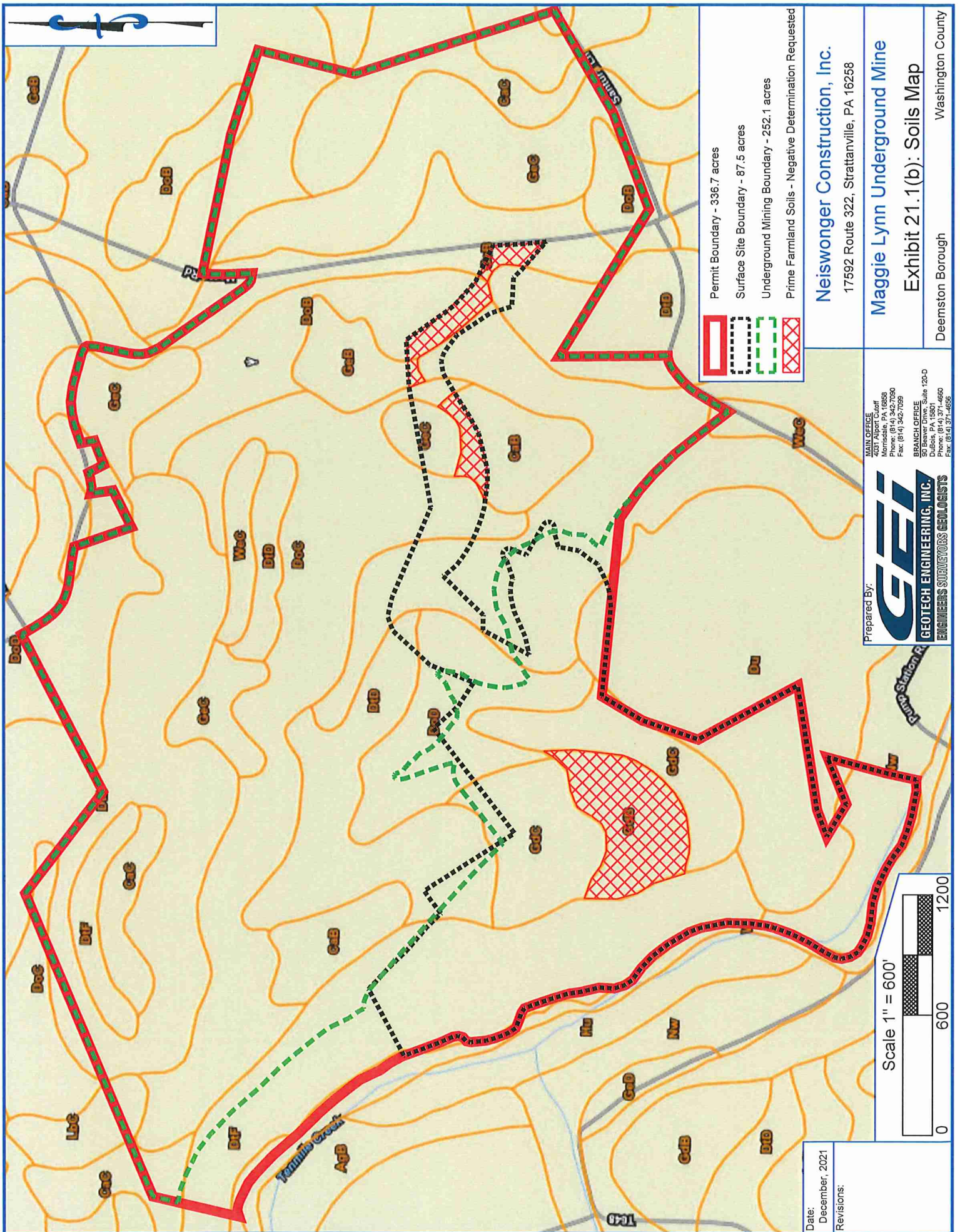
- c) If material other than the B and C horizons will be replaced as subsoil, identify the material and include test results demonstrating that this material will insure revegetation and soil productivity consistent with the postmining land use. Provide the name(s), address(es) and telephone number(s) of the individual(s) responsible for the collection and analysis of this data and a description of the methodologies used to collect and analyze this data

N/A - The subsoils on the site will be used for reclamation.

### **21.3 Previously Affected Areas**

If an area has been previously affected by mining and no topsoil or subsoil is present, identify the material that will be used as the final surface layer and provide a demonstration, including chemical analysis, that the material is capable of supporting the vegetation of the postmining land use.

Any area that was previously affected will have the topsoil from the remainder of the permit area used as the final surface layer. The haul road is to remain after reclamation activities; therefore, the topsoil will not be needed in that area.



Date:  
December, 2021  
Revisions:

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**Maggie Lynn Underground Mine**  
Exhibit 21.1(b): Soils Map

Deemston Borough  
Washington County