

NaturalPaving Case Study

Stabilization of Utility Access Roads and Pads



Project Background

A large utility company partnered with Midwest and a local contractor to construct and stabilize a permanent access road and several work pads along a remote hillside. The utility company was seeking an environmentally friendly solution that could be incorporated into the in situ soil to produce reliable, year-round access to their structures. The stabilized areas were essential to transporting, installing, and maintaining large transmission towers and power lines.

The following areas required stabilization:

- (4) 50' x 50' work pads
- (1) 100' x 100' work pad
- 1,000' x 16' permanent access road

Challenges

The following challenges were encountered when designing the solution:

- **Poor Native Soils** – The in situ soils were composed of lean clay and provided little structural support and strength, especially when wet.
- **Extreme weights** – The stabilized road and work pads must be designed to support up to 50-ton trucks and equipment during the installation of the transmission towers.
- **All Weather Friction** – Since the existing soils were clay and prone to becoming slippery when wet, concerns were raised about the stabilized surface's friction, especially during or after rainfall. The access road must be easily accessible year-round, rain or shine.

Design

After the vegetation was cleared, Midwest's project manager and the contractor met on site to discuss the project requirements, plan, and scope of work. During the meeting, Midwest collected several soil samples for testing and analysis at Midwest's Geotechnical Laboratory. Based on the results of the lab mix design testing, Midwest determined that Soil Sement Engineered Formula 89PBc (SSEF89PBc) installed to a depth of 6" would provide the necessary strength and stability required to withstand the traffic demands.



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Soil Sement Engineered Formula

Soil Sement Engineered Formula 89PBc is an environmentally friendly polymer emulsion used to stabilize roads, pathways and any other unpaved trafficked area that requires structural improvement. SSEF89PBc is engineered to achieve superior strength, durability, and longevity with all types of soils and aggregates. SSEF89PBc's water resistant properties are specifically designed to improve the strength performance of moisture susceptible soils in wet climates or areas with poor drainage. When blended into native soils Soil Sement Engineered Formula creates a hardened soil layer with superior strength, weatherability and resilience. The SSEF89PBc stabilized layer can be used as a final surface coarse or as a stabilized base.

Installation

After the contractor performed their initial earthwork and shaped the roads and pads, SSEF89PBc was applied and incorporated into the upper 6" of the newly cut surfaces. In areas that couldn't be reached by truck, SSEF89PBc was carefully hand sprayed to ensure a uniform application. The SSEF89PBc treated surfaces were immediately graded to the design profile and compacted. Following compaction, the surface was not trafficked for several days to allow the SSEF89PBc treated layer to begin the curing process. Before the curing process was complete, a 1" thick layer of #57 stone was evenly spread on the treated surfaces and compacted to create an embedded aggregate wear course for all-weather friction. The surfaces were finished with a topcoat of Soil Sement Engineered Formula 69PBc to further lock the embedded aggregate into the surface.

Results

The utility company was very satisfied with the outcome and were able to perform all their work without issues or concerns about the integrity of the stabilized road and pads. To demonstrate the effectiveness of the SSEF89PBc stabilization, the photo on the left shows where a heavy truck went off the stabilized area and immediately sank almost 12" into the native soil. Without a quality stabilization design and installation, the utility company would not have been able to perform their needed work.

