



Project Name: Access Road Upgrade and Surface Seal

Location: Tanzania

Date: June 2018

Client: Acacia Mining Buzwagi Mine

Application: EBS Surface Seal

Area: *Buzwagi Mine* is located in North-west Tanzania in the Kahama District of the Shinyanga region approximately 6km Southeast of the town of Kahama.

Background: Having been familiar with Soil Solutions approach to the upgrade of gravel airstrips and roads after having worked together during September of 2011 on the upgrade of the airstrips at Buzwagi, Bulyanhulu and Tulawaka mines, Acacia Mining informed Soil Solutions of their intent to improve the road surface of their access road from the main gate to the village at Buzwagi Mine by applying an EBS (Engineered Base Stabilizer) surface seal in order to provide dust prevention, soil stabilization and erosion control in order to preserve the finished surface from degradation and loss of fine material resulting in an all weather surface requiring less maintenance.

The access road was originally surface sealed with EBS in 2011 simultaneously with the Kahama Airstrip and after four (4) years with virtually no maintenance the mine began routinely watering and grading the surface, eventually deciding to attempt to apply a maintenance coat of EBS themselves resulting in mixed results as this attempt at applying an EBS Surface Seal was not completed in accordance with Soil Solutions EBS Surface Seal Application Specification. Soil Solutions was contacted, an order for EBS was placed and upon arrival of the EBS at Buzwagi a plan was implemented to prepare the access road for a surface seal using the EBS Soil Stabilizer as outlined below.



Project Description: An inspection of the access road itself was conducted where it was found that the surface still contained a considerable amount of loose material and it was confirmed that there had been a previous attempt by the mine to apply EBS resulting in inconsistencies throughout the road surface including varied compaction and densities. Furthermore, it was confirmed that in preparation for this EBS Surface Seal V-Drains were put in alongside the road where possible and a diversion road was created to divert traffic during the application. When the V-drains and diversion road were created material was placed on the road surface and compacted resulting in a “biscuit” layer in many areas.

A grader was used for skimming of the surface, removal of the biscuit layer (where required) and re-shaping of the surface to ensure for proper drainage. After the re-construction of the surface layer the surface was compacted using a smooth drum roller with no vibration creating a smooth surface for the EBS Surface Seal application. Once the water truck was loaded with the correct dilution the 1st coat referred to as the “tack” coat was applied. This tack coat allows any loose material to be tacked to the surface and to bring out any further discrepancies in the surface. This showed areas where a skin layer from the previous EBS application attempt had developed as well as some inconsistencies in the compaction of the surface where patching would be required. After the tack coat was applied patching was completed where required and then the surface was ironed using the smooth drum roller with no vibration to compact the patched areas. Once the patching was completed and the surface ironed with the roller the remaining coats of the EBS were applied. Each coat was given sufficient time to penetrate before application of the next coat. The point of refusal was reached after four (4) coats in most spots and five (5) coats in the remaining areas.



Result: a re-constructed surface layer with a newly created wearing course with complete dust elimination, improved skid resistance, total preservation of fines and material, is non-slippery, water and UV resistant, free from the formation of potholes, rutting and corrugation, improved load bearing capacity, increased tensile strength and a reduced environmental impact.

THE EBS SURFACE SEALED ROAD SURFACE IS NEVER TO BE GRADED OR WATERED ...

The objective of the EBS Surface Seal is to eliminate the requirement for any future watering or grading of the surface.

After 18 months (or when required) the surface may need a maintenance application of EBS at a reduced application rate.



Further benefits of the EBS surface seal on the Access Road include the following:

EBS BENEFITS:

- ✓ Total Preservation of Fines and Material
- ✓ Erosion Control
- ✓ Dust Control – complete elimination
- ✓ Water resistant surface
- ✓ UV resistant
- ✓ Increased load bearing capacity
- ✓ Reduction in rolling resistance
- ✓ Increased CBR and UCS strength
- ✓ Elimination of corrugation and rutting
- ✓ Increased tensile strength
- ✓ Abrasion resistant
- ✓ Increased Skid resistance
- ✓ Reduced freeze thaw heaving

*Soil Solutions...
Consider It Solved.*

EBS Soil Stabilizer is used for:

- ✓ Base Layer Stabilization for Road Construction
- ✓ Wearing Course Layer Construction
- ✓ EBS can be used in conjunction with our Recycler Attachments for stabilization
- ✓ Surface Seal on Unpaved Gravel Roads for Dust Control
- ✓ Base Layer construction for Airstrip and Runways
- ✓ Surface Seal for Gravel Airstrips and Gravel Runways
- ✓ Erosion Control
- ✓ Mine Haul Roads, Mine Tailings Dust Control
- ✓ Radio Control Race Tracks
- ✓ Port Facilities

Contact us and See the difference.

While the initial objective may be Dust Control...
we guarantee that we will provide this PLUS so much more including:

- ⊕ Improved Roads ⊕ Increased Efficiency in Work Cycles ⊕ Improved Safety & Decreased Liabilities ⊕ Detailed Cost & Benefit Analysis ⊕ Environmental Analysis of Water Use and CO2 reduction

COST AND BENEFITS

