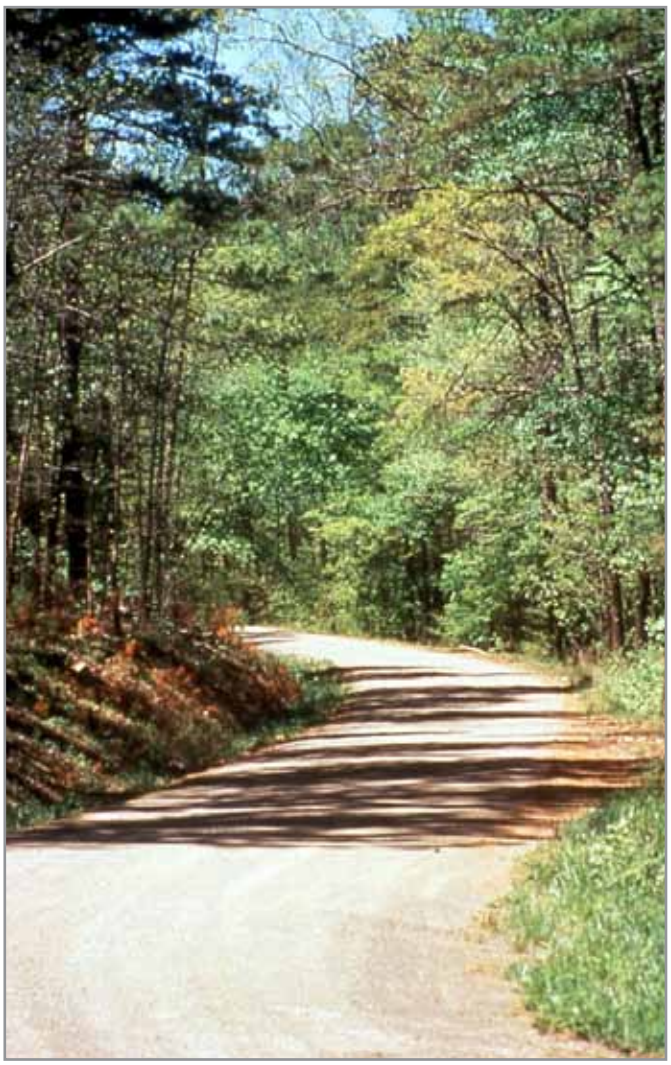
Arkansas Success Story

USDA National Forest Service Project

SUCCESSFUL TREATMENT OF FROST AND MOISTURE SUSCEPTIBLE AGGREGATE IN ARKANSAS



22 Years of Service

Before Stabilization Treatment

"During the winter months, freezing and thawing, shrinking and swelling of the clay soils and the steep grade would make the road almost impassible."

After Stabilization Treatment

"The freezing and thawing of the clay soils are no longer a problemwith the road."

"...the stabilized aggregate remains solid, providing a safe and stable running surface on a winding road running through steep terrain."

A forest road improvement project was completed in 1988, upgrading a heavily traveled surfaced road with a new aggregate surface course material which was treated at the time of placement with EMC SQUARED® Stabilizer. A copy of the letter from Gary McElroy, Road Engineer for the Ozark-St. Francis National Forest, summarizes the construction and performance of the stabilized road is provided on the following page. In review of this EMC SQUARED case study, the permanency of this stabilization treatment throughout a monitoring period of more than twenty years has been obvious and impressive. Moisture and frost susceptibility have been effectively addressed and the shale/aggregate blend has been strengthened to provide an all-weather running surface for truck and vehicular traffic. These service conditions are far more severe than would be appropriate for conventional stabilization treatments such as cement and lime; products which are rarely, if ever, used for stabilization of unpaved roads (much less a gravel surfaced road with grades in excess of 12%). Given the challenging conditions, as Road Engineer Gary McElroy commented during a review of the project, it is not likely that a six inch thick asphalt pavement would have survived a similar length of time with so few repair requirements on this winding road running through steep terrain.

According to a January, 2010, update from Gary McElroy, the original stabilized aggregate running surface was still intact twenty years after installation, with only a few localized repairs needed. Significant surface wear began only after twenty years following a major flood event in spring of 2008, and then an abnormally wet 2009 year when the area received approximately 32 inches of rainfall above normal annual rainfall. Other than accumulated surface wear and minor localized repairs, the stabilized road continues to support traffic loadings after 22 years.

These improvements have been achieved as the result of a single treatment with the economical and environmentally friendly EMC SQUARED Stabilizer product. The investment in application of stabilization treatment has been repaid many times over, just by the reduction in grading maintenance. The savings to road users in auto and truck operating costs and the safety benefits of the smooth running surface have been significant. The initial investment in construction costs and in gravel surfacing materials has been retained. Nearby streams have been protected from road generated sedimentation. This well designed and well constructed Forest Service project certainly deserves the title the USFS engineer gave it in his summary letter on the following page: Arkansas Success Story.

Letter from USDA Forest Service Road Engineer

September, 2005

Soil Stabilization Products Company, Inc.
P. O. Box 2779
Merced, CA 95344

Re: Arkansas Success Story
Ozark-St. Francis National Forests - Mount Magazine Ranger District, Paris, Arkansas

This is an update on the reconstruction of the 2.0 miles of New Blaine Road No. 1600, which was completed in spring of 1988. This road was reconstructed by constructing a 6-inch compacted base using shale material. The surface course was created by mixing 6 inches of shale plus a 6-inch depth of 1" minus aggregate with the fines within the 12% range. EMC Squared was incorporated with the surface course materials, mixed, brought to optimum moisture, and compacted with a steel wheel drum roller.

In 2001, we had some minor rutting and erosion due to poor maintenance practices. We addressed this problem by adding additional aggregate and scarifying the existing damaged area to a depth of 12 inches. Again, we added the EMC Squared soil stabilizer, mixed, and compacted the surface course.

This road receives maintenance only twice a year. At this time, the road continues to service the forests with outstanding performance. The original surfacing is still intact. The 12% plus grades remain free of corrugations and we continue to maintain a smooth running surface to support an arterial transportation system, which supports management of national forest resources. Since seeing the early success with the New Blaine Road, we have continued to use these products with the same results. At this time, we have approximately 20 miles of roads in our inventory with soil-stabilized surfaces.

I do wonder why more folks are not on board with these products. The savings in surface replacement and reduced maintenance in addition to increased road strength far exceed the additional cost incurred during reconstruction.

For comparison, I am attaching an updated picture taken near the area of your original photo.

Sincerely,
/s/Gary Mc Elroy

Road Engineer
Ozark-St. Francis National Forests
Supervisors Office
Russellville, AR 72801

Soil Stabilization Products Company, Inc.
PO Box 2779, Merced, CA 95344-0779 Phone: (800) 523-9992 or (209) 383-3296 Fax: (209) 383-7849
Email: info@sspco.com Website: www.sspco.com
EMC SQUARED, EMC2 and the SSPCo globe logo are registered trademarks of Soil Stabilization Products Company, Inc. Inc.
© 2010 Soil Stabilization Products Company, Inc. - All Rights Reserved