

THE MSA MAINTAINER ...

Stabilize a Failing Road Faster Than a Speeding Bullet

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How can a failing road or hillside be stabilized fast? If you have enough time and resources, the answer to the first part of the above question is soil nailing; a process of excavation, drilling, and setting of steel nails with epoxy. However, in most instances of a failing road or hillside there is limited time and funding. One would think that by the year 2005 there would be an improvement to this old technology. There is, and it is appropriately titled the Soil Nail Launcher.

The Soil Nail Launcher is an excavator mounted launching device created by the British military in the late 1980's. The soil nails (steel rods 2 inches in diameter and up to 18 feet long) can be "launched" into the failing slope at speeds in excess of 200 miles per hour and at an average rate of about 15 nails per hour. Because of the articulating boom, the Soil Nail Launcher can reach slope failures without the need for excavation or full road closure.

This leap in speed and efficiency makes Soil Nail Launching a preferable choice to traditional soil nailing. Soil Nail Launching cannot only perform one week of traditional soil nailing in a few days, but can reduce costs by 50% or more. The most recent example of this savings and value is the Hawkins Bar Road project in Trinity County, California.

The Hawkins Bar Road project is a good example of a preventative erosion control application for the Soil Nail Launcher. Hawkins Bar had a section of road that eroded to a sheer drop off, which would have eventually caused road failure. Trinity County planned to resolve this problem by importing fill soil to restore the slope. However, this plan would have taken months and over a hundred thousand dollars. The County considered Soil Nail Launching as a viable alternative for stabilization.

Using soil nails ended up saving Trinity County time and money. In all, 46 nails were drilled and grouted, because of the rocky soil conditions, and the slope was coated with shotcrete to help provide lateral stabilization. The entire project finished in less than a week while costing approximately \$50,000 less than importing soil. The project was accomplished from the roadway without disturbing the steep slope below the road.

The Launcher has acquired the nickname of "The Green Machine" because of its minimal site disturbance. It has been used across the West to repair failing slopes and roads near creeks, rivers, and other environmentally sensitive areas.

Soil Nail Launching can have many applications such as repairing landslides, adding roadway width, repairing failing retaining walls, mitigating scour, and installing anchors and tiebacks. For more information, feel free to contact THUNDER MOUNTAIN ENTERPRISES, INC. at 916.381.3400 or visit us online at tme1.com. For more information on the performance of Soil Nail Launching on the Hawkins Bar Road project, contact Bill Taggart, Trinity County Deputy Director of Engineering, at 530.623.1365.



Above: Soil Nail Launcher used to stabilize rural road in Ohio

Below: Soil Nail Launcher in action at the Hawkins Bar Road slide in Trinity County, Northern California

