

# POLK TOWNSHIP, PA

A ROAD-HARD AND TERRA-ZYME DEMONSTRATION FOR STABILIZING ROADS





## FORWARD

IN MARCH 2018, JIM MANNO, SUPERVISOR FOR POLK TOWNSHIP, JEFFERSON COUNTY, PA, INVITED L&Q INTERNATIONAL AND NATURE-PLUS TO ASSESS SOME OF THE TOWNSHIP'S ROADS. LARGE AMOUNTS OF RAIN, FOLLOWED BY FREEZE-THAW CYCLES, CONTINUED TO WASH-OUT AND DAMAGE UNSURFACED DIRT AND GRAVEL ROADS YEAR-ROUND. DUST CONTROL WAS ALSO AN ISSUE THAT NEEDED TO BE ADDRESSED.

THIS PHOTO NARRATIVE DESCRIBES THE COLLABORATIVE EFFORT IN JULY 2018 THAT L&Q INTERNATIONAL, NATURE-PLUS, AND POLK TOWNSHIP LED TO REPAIR AND STABILIZE SECTIONS OF BOTH RUSSEL AND PLOTNER ROADS.

**ROAD-HARD®**  
NATURAL SOIL HARDENER  
WATER REPELLENT & DUST CONTROL

**TerraZyme®**  
Optimal Soil Stabilizer

# POLK TOWNSHIP



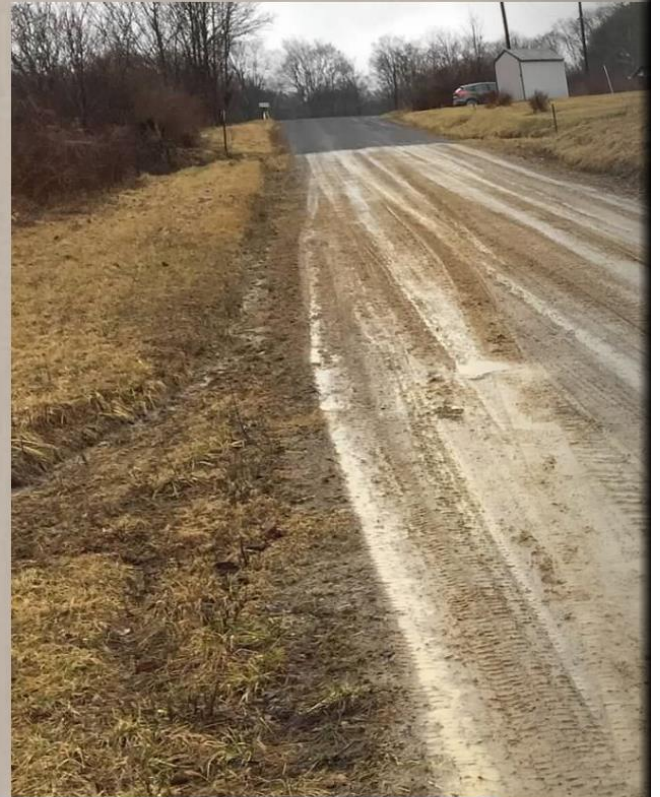
Jim Manno, Supervisor



Neil Davis, Supervisor, Road Master



Annie Chamberlin, Supervisor, Treasurer



Jon Sedgwick, President, Nature-Plus / TerraZyme



Roads were inspected and initial soil samples were gathered in March of 2018. Equipment required for the project was assessed, and it was found that Polk Township owned most of the necessary equipment. With these preliminary checks done, soil samples were laboratory tested with both ROAD-HARD and TerraZyme. Results were evaluated and a project time frame was set for that summer.



RUSSEL ROAD (UNTREATED)



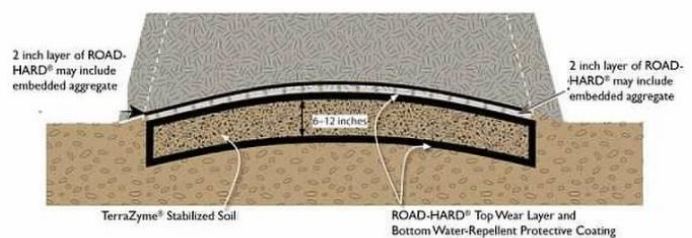
# THE DUROEARTH PROCESS

## BUILDING HIGH STRENGTH, WATER RESISTANT ROADS AND HARDSTANDS

The DuroEarth process is a layered, road building process that uses both eco-friendly bio-polymers and enzymes to produce a cost-effective, hardened, and weather-resistant soil structure. It is functional year-round, through all types of weather.

ROAD-HARD is used on both the top wear layer and the road base to encase the TerraZyme-treated soil body.

### DUROEARTH VALUE:



- > Prevents mud, wash-boarding, and potholes
- > Controls dust
- > Prolongs useful life of equipment
- > Reduces road maintenance costs
- > Improves access to homes, highways, and land





A tiller, a rake, a disk, or soil ripper is used to pulverize and prepare the soil. Later, these implements are used to mix the polymers and enzymes into the soil.





Ripping Soil in a serpentine pattern can be effective in breaking up hard-pan soil beds. This prepares the road-bed for treatment.

MIXING THE ENZYME AND  
SATURATING THE SOIL



A 1,000 gallon, U.S. Army surplus watering truck was purchased by Polk Township. The 2" water pump configuration ensures equal spray pressure.

The truck mixes and applies the TerraZyme by sprayer in a water-based solution. The loosened soil is saturated and turned in place to ensure uniform application.

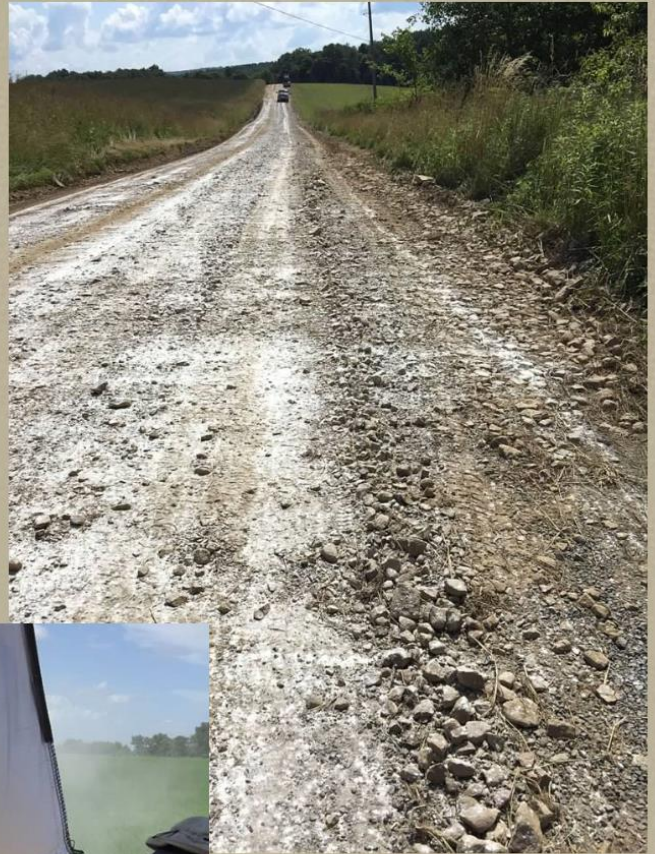




### CROWNING, WIND-ROWING, CURING



The newly treated soil is then pushed to the sides of the road in wind-rows while the road-bed is crowned or sloped with a grader blade.



The bottom layer of the road-bed is then treated with a 1" to 2" deep application of ROAD-HARD. The dry polymer is raked into the road-base.



Following the raking and mixing of ROAD-HARD into the soil the polymer is then activated with its water solution additive. The road-bed is then compacted.



After 24 hours, the TerraZyme treated soil is then bladed over the water resistant base. The road bed is then compacted.

Following compaction, the road is scarified in preparation for the application of a protective 2" wear layer.





ROAD-HARD SURFACE WEAR LAYER



Following scarification, a second 2" application of ROAD-HARD is applied, sprayed, and compacted. This layer protects the enzyme from water intrusion and controls dust.





#### FINISHING UP



Following compaction and drying, the completed road becomes a tightly compacted, TerraZyme-hardened body of soil that is encased in a water-resistant ROAD-HARD envelope.

The road will be suitable for traffic within hours, and the soil body will continue to cure and harden for weeks.





Terry Osenbach and Bob Truesdale



Ken Holt



Jim Manno



Jim Manno and Brad Billock



Brad Billock



Brad Billock

Working together, Polk Township's incredible team, L&Q International, and Nature-Plus finished Russel Road and Plotner Road using the DuroEarth process.

Best of all, Polk Township's Road Team is now trained in the use of ROAD-HARD and TerraZyme, and they can replicate the DuroEarth process on other roads.

Dave Wolfe  
and Neal Davis





RUSSEL ROAD





PLOTNER ROAD



Russel Road and Plotner Road were successfully completed, resulting in two cost-effective, hard-packed, water-resistant roads.



A BIG "THANK YOU" TO THE FOLKS AT POLK TOWNSHIP.



John Quackenboss, President

L&Q International, Inc.  
[www.L-Q-International.com](http://www.L-Q-International.com)

DuroEarth is a process for building durable, water-resistant roads, runways, hardstands, and berms. The patented process uses environmentally friendly polymers and enzymes to harden and create a water-resistant soil road bed that resists erosion, controls dust, and supports traffic year round.

