

# Fortrac® 3D

## An Advancement In Erosion Control and Slope Repair

Revegetation  
and Erosion Control  
going hand in hand

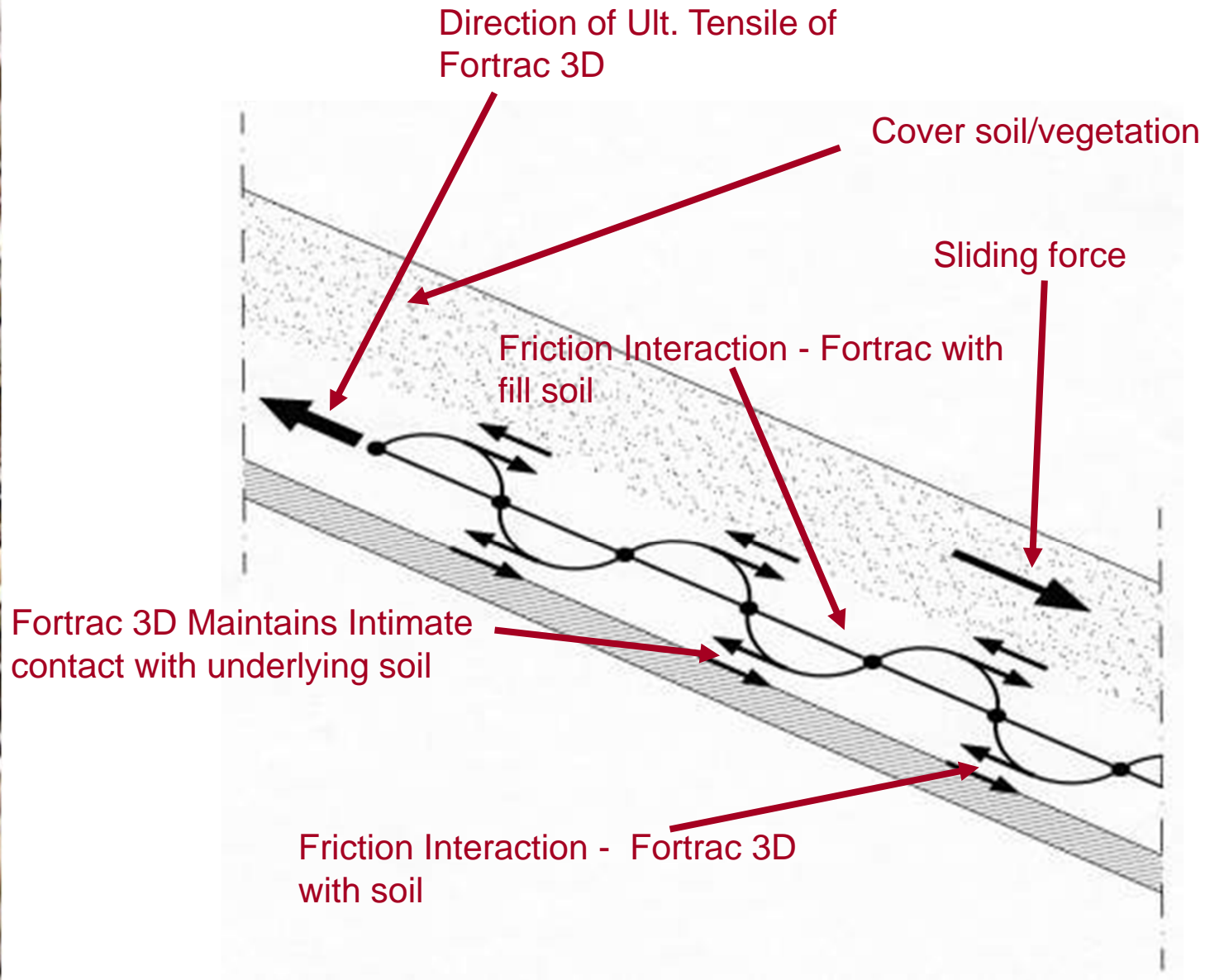


# Applications for Fortrac 3D

- **Fortrac 3D** - Erosion Control – slopes, channels, stream banks, levees
- **Fortrac 3D-A** - Engineered Slope Repair and Reinforcement – Repairing shallow slope failures with Fortrac 3D and earth anchors

## Benefits of Fortrac 3D verses other TRM's

- **Strength Options** of Uniaxial Geogrid
  - Fortrac 3D 30,60,90,120 - combines high wide width tensile strength options (2055 lb/ft – 8220 lb/ft per ASTM D-6637)
- **Low Elongation** (12% Maximum vs. up to 65% in other TRM's)
- **Variable Mesh Density** to match soil and vegetation type to be used
- **Wider and Longer Roll Size** (14.76' x 328.1' = 538 yd<sup>2</sup> per roll) Allows for longer continuous runs and reduces overlaps and end laps



The roots of plants intertwine with the grid structure of Fortrac 3D adding reinforcement to surface



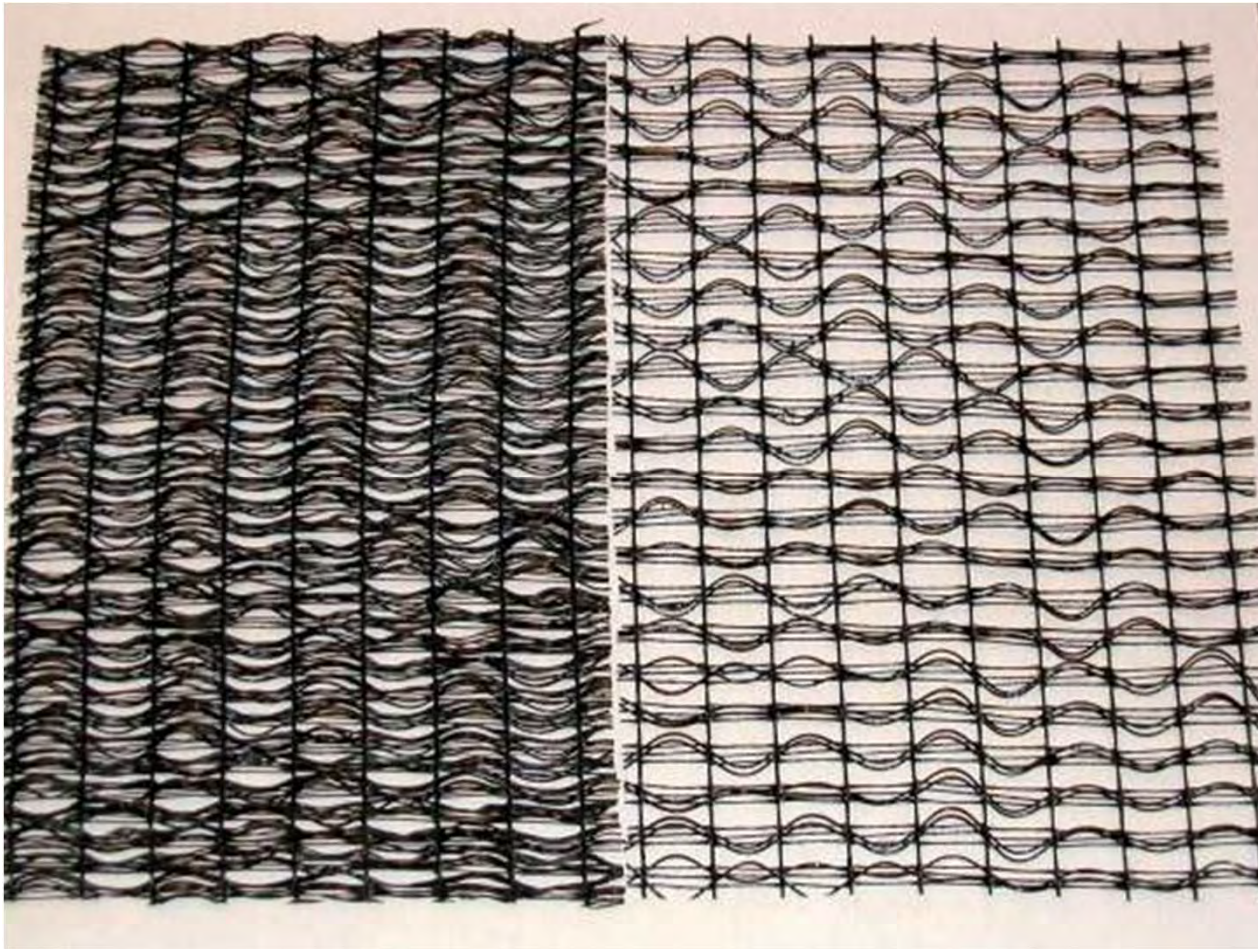
# **HUESKER**  
Engineering with Geosynthetics



# **HUESKER**

Engineering with Geosynthetics

## Variable Density Options on Fortrac 3D



# Benefits of Fortrac 3D-A System

- Designed for Shallow Plane Slope Failures
- Low impact solution, no large equipment or slope cut/fill required
- Slopes can be vegetated creating a storm water Best Management Practice
- Huesker Design support
- Aesthetically pleasing
- Less costly than traditional repairs



# Typical Slope Failures

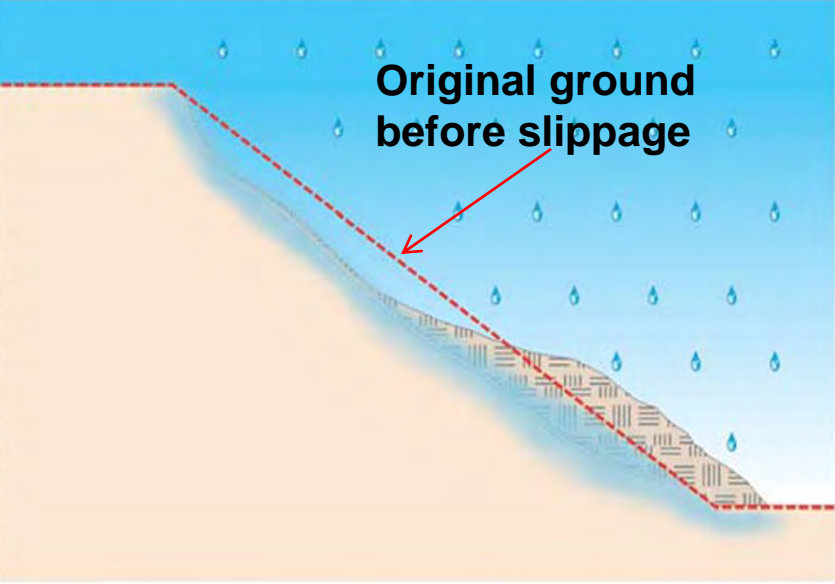




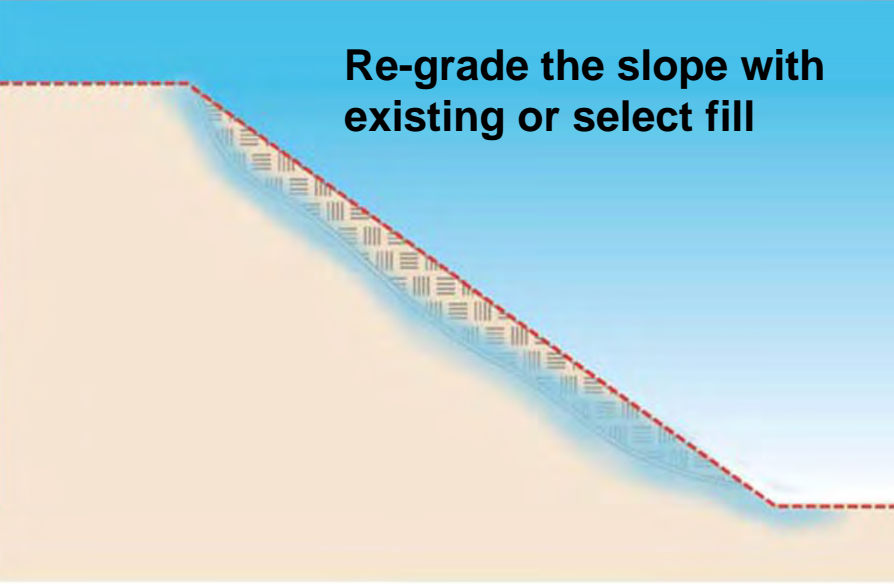
# # HUESKER

Engineering with Geosynthetics

Original ground  
before slippage

A cross-sectional diagram of a slope. A dashed red line represents the original ground surface. Below it, a blue shaded area represents water saturation. Blue water droplets are scattered throughout the soil. A red arrow points from the text to the dashed line.

Re-grade the slope with  
existing or select fill

A cross-sectional diagram of a slope. A dashed red line represents the new, re-graded ground surface. The area below is filled with a hatched pattern representing soil or fill. A blue shaded area below the hatched pattern represents water saturation.

Install Fortrac 3D over face of slope

A cross-sectional diagram of a slope. A green line represents the Fortrac 3D geosynthetic material installed over the face of the slope. Two 'Anchor Trench' labels are positioned at the top and bottom of the slope, connected to the green line. The hatched soil and blue water saturation are visible below the geosynthetic.

Install earth anchors and  
drains as designed

A cross-sectional diagram of a slope. The Fortrac 3D geosynthetic (green line) is shown with several earth anchors (dashed lines) extending into the soil. Blue arrows indicate the direction of water flow through the anchors. Two 'Anchor Trench' labels are positioned at the top and bottom of the slope. The hatched soil and blue water saturation are visible below the geosynthetic.

## Recent Projects with Fortrac 3D-A System

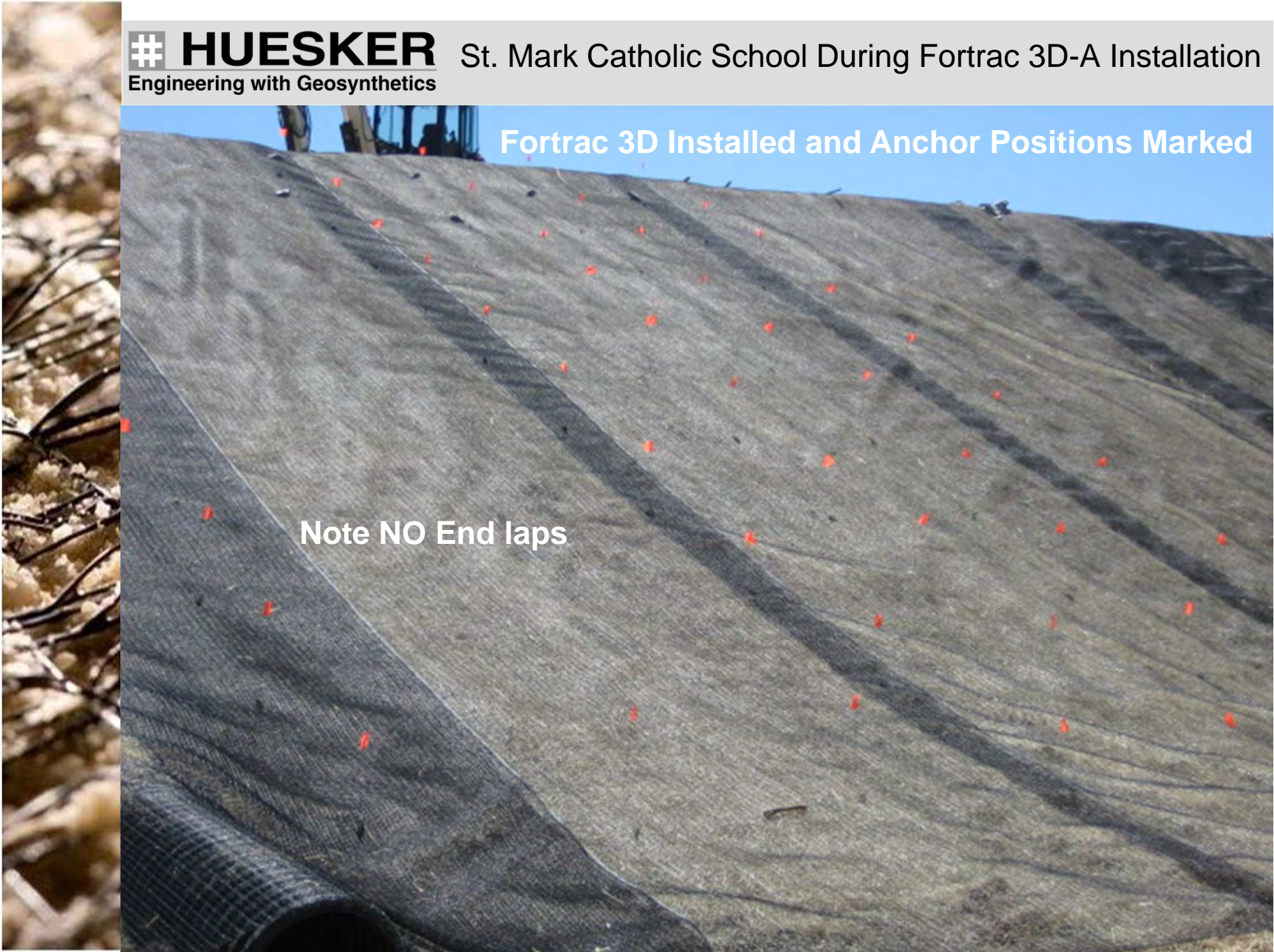
- St. Mark Catholic School, Huntersville NC
- Carolinas Medical Center, Northcross NC



Preparing Failed slope

Fortrac 3D Installed and Anchor Positions Marked

Note NO End laps





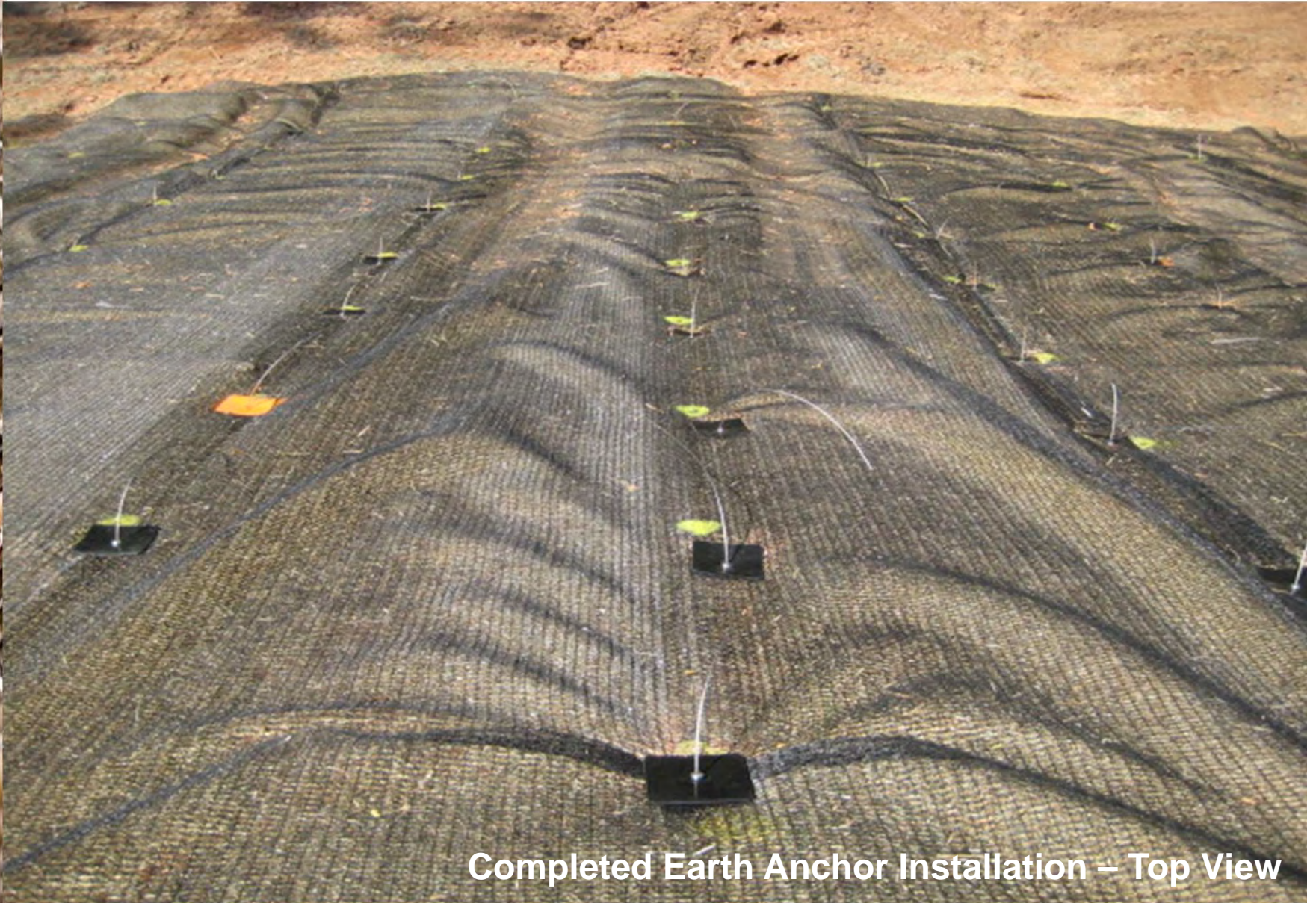
Fortrac 3D Installed and Anchor Positions Marked



↑  
Note Rubber Tracks ONLY

1000 lb. strength Earth Anchors being installed





Completed Earth Anchor Installation – Top View

Completed Installation 5 weeks after seeding



Vegetation after Approximately 6 months



Vegetation after Approximately 1 year







6 weeks after Installation  
**ALL VOLUNTEER VEGETATION**



# **HUESKER**  
Engineering with Geosynthetics

**Carolinas Medical Center Fortrac 3D-A Installation**

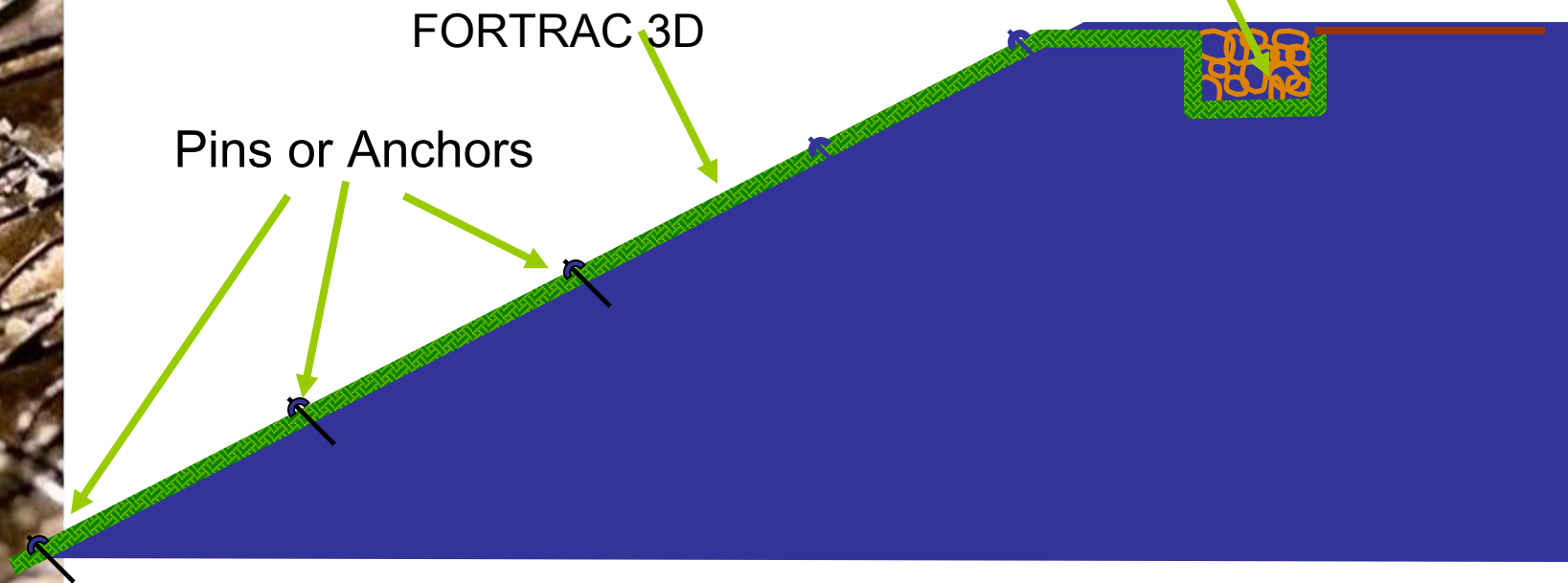
**6 weeks after Installation  
ALL VOLUNTEER VEGETATION**





# Fortrac 3D Installation

Anchor trench at the top edge of the slope

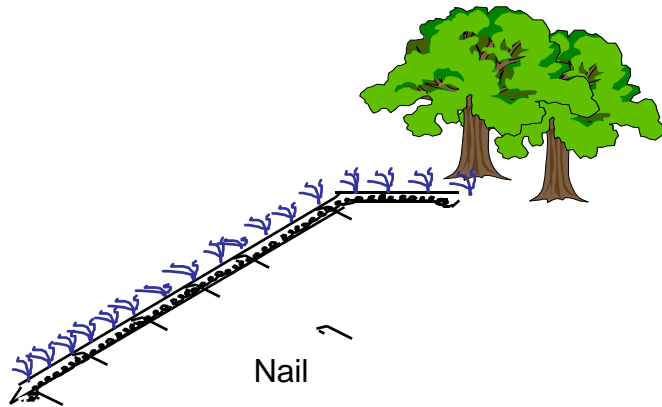


Properties of the material against erosion, as well as the number of pins or anchors will be calculated in the design.

## Anchor trench at the top of the slope



# Erosion Control of Slopes



## Further examples from other markets



Problem

# Erosion Control and Slope Reinforcement



Note Long Continuous Runs Down Slope  
With NO End laps



Before Fortrac 3D Installation

Approximately 1 Year After Fortrac 3D Installation



## Field testing of Fortrac® 3D reinforced levee









# Usage at bridge slopes



## Reinforcement of the river shore and reservoir





Reduction to Strain and Movement

Questions ?