



PROJECT CASE STUDY

Location: South Bend, IN – St. Joseph River

Engineer: Keller Engineering

Consultant: Propex Global

Description

Heavy storms in the Spring of 2013 took down several trees in the area, including a large Cottonwood situated at the bottom of the slope. The uprooting caused movement along the slip plain of the slope, leaving the SW corner of the home in jeopardy.

Requirements & Challenges

The hillside had to be stabilized to secure the home and prevent slip plain movement. Approximately 110cy of sand, 50cy of top soil, and 30cy of rip rap was to be added to the face and toe of the hillside.

Keller Engineering and Propex engineers partnered to design an earth retention plan using the Armormax Pyramat, with more than 600 percussion anchors to depths of 6'-9'.

A steep slope and varying weather conditions, including early snow fall, presented many challenges for getting the additional aggregates in place and the Pyramat with anchoring system installed.

Solution

3D Structural installation teams developed creative ways for moving aggregate materials; including site-built gravity chutes, anchored ladders, and a small equipment winching system.

Once the aggregates were added to the face and toe of the slope, the hillside received Hydroseed. The Pyramat was then laid over the face of the hillside. All 600+ anchors were driven using hand-held 30lbs combo hammers with the help of ladders and site-built platforms.

Finally, the toe of the slope was secured with rip rap. All of the work was completed during the seasonal low water level.

Results

The installation, conducted over a 9-week period, conformed to all design specifications. A site visit in late Summer 2014 found the hills side to be completely stable with roughly 80% vegetative regrowth and no signs of continued failure along the slip plain.

The SW corner of the home has been stabilized and shows no signs of movement.

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