

## I-35W ST. ANTHONY FALLS BRIDGE MINNEAPOLIS, MINNESOTA, U.S.A.

### Reinforced Soil Walls and Slope Reinforcement

#### Problem

The I-35W Mississippi, officially known simply as 'Bridge 9340', was an eight-lane steel truss arch bridge that carried Interstate 35W across the Mississippi River in Minneapolis.

Completed in 1967 and maintained by the Minnesota Department of Transportation (Mn/DOT), the bridge carried a daily average of 140,000 total vehicles north and south, which made it one of the busiest bridges in the country over the Mississippi River, and one of three principal arteries into downtown Minneapolis, a city with one of the highest population densities in the Midwest.

Just after 6 p.m. on the evening of August 1, 2007, the 40year old bridge collapsed into the river and its banks without warning, killing 13 and injuring 145 others. At the time, there were approximately 120 vehicles, carrying 160 people, on the bridge. The impact of the fall broke the span into multiple planes of broken steel and crushed concrete.

Cars, buses, and trucks all resting precariously along guardrails or suddenly unprotected edges, crashed into other vehicles.

#### Solution

Maccaferri was first contacted by FIGG Engineering Group and Flatiron Construction in November 2007 to see if we could provide a product to meet the structural and aesthetic requirements of their project, along with a design life for corrosion protection of all components of the wall of 100 years. Maccaferri's solution for the MSE walls was the Terramesh® System and for the bridge abutments the Terrawall™, which have both been evaluated by HITEC. Both patented systems had to be modified in order to meet structural and aesthetic requirements. The Terramesh® System had to be produced with a welded panel at the front face. A special, factory-made connection joins the welded fascia panel to the Terramesh® double-twisted mesh, in order to eliminate any additional work for Flatiron at the jobsite, saving installation time. Both systems were produced with a much heavier gauge wire than the typical units due to the 100 year life-span requirement.

The new bridge, which is actually two side-by-side spans, is made of concrete box girders tied together with high tension steel cables.

**Client:** Mn/DOT

**Designer / Consultant:** FIGG Engineering Group

**Contractor:** Flatiron-Manson Joint Venture

#### Products used (Qty.)

|             |       |
|-------------|-------|
| - Terramesh | 1800  |
| - Terrawall | 1100  |
| - ParaGrid  | 33500 |

**Date of construction:** 11/2007 - 09/2008



Initial Site



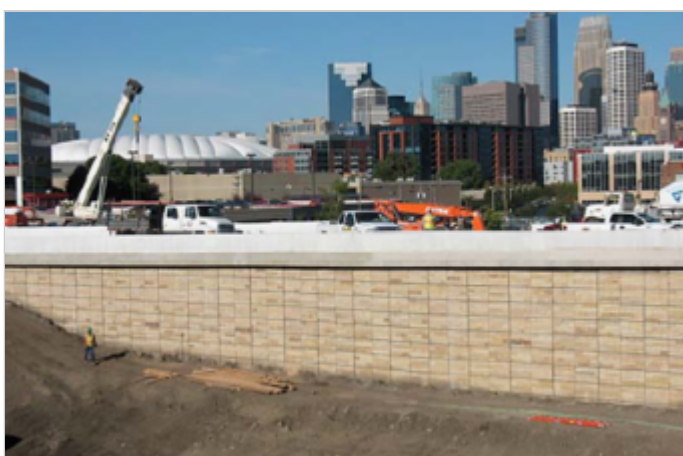
During construction



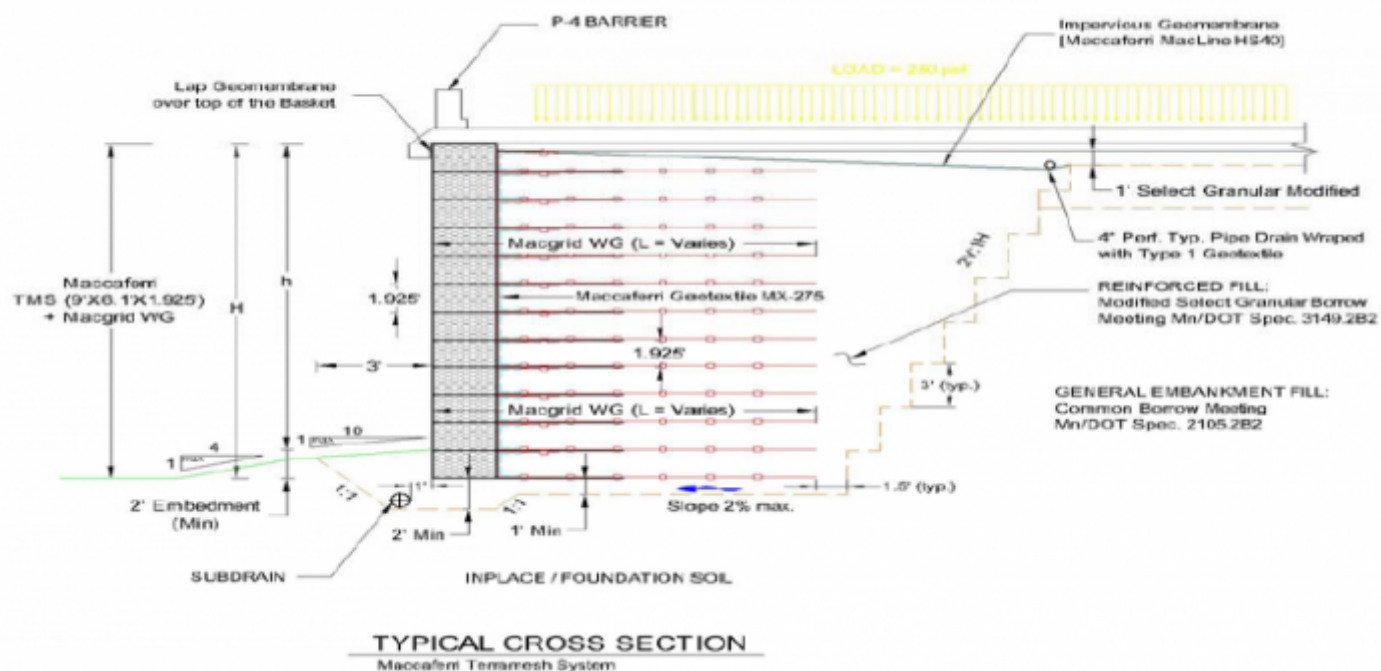
During construction



After construction



Recent View of the Structure



## Typical Cross Section

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