

NEWS RELEASE

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Flood Control Project Earns Prestigious Award

St Paul, Minnesota . . . The Minnesota Society of Professional Engineers named the Grand Forks/East Grand Forks Flood Damage Reduction Project as the 2010 Project of the Year at its annual Awards Banquet on February 19, 2010. The Project had previously been selected as one of the 2010 Seven Wonders of Engineering Award winners.

Designed by the St. Paul District of the US Army Corps of Engineers in close coordination with the Cities of Grand Forks, North Dakota and East Grand Forks, Minnesota, the \$412 million project was completed in 2008 and designed to protect to a 250-year flood event. It includes 17,000 lineal feet of floodwall, 28 miles of levee construction, 22 railroad and road closures and 23 pumping stations. The Greenway (the vacated land along both sides of the river and between the levees), includes 2200 acres of public land, 20 miles of paved multi-use trails, 13 trailheads, and 31 access points, all of which are handicap accessible. New diversion channels for coulees (or streams) flowing on both the Grand Forks and East Grand Forks sides of the Red River route flows around each city during flood conditions. The project is the largest flood damage reduction project ever completed by the St. Paul District of the Corps.

“We are very pleased and proud that the Cities’ and Corps’ hard work on this project has earned such praise from our peers in the engineering world,” stated Bonnie Greenleaf, the US Army Corps of Engineers Project Manager. “However, the best result of our efforts was the ease with which Grand Forks and East Grand Forks fought the significant flood event last year. The system worked exactly as it was designed and protected those two communities with minimal effort during a very high water event.”

The project took 10 years to design and construct and involved innovative design and a tremendous commitment to partnering. Numerous community meetings and difficult decisions to remove entire neighborhoods from the floodplain helped establish a line of protection for the project soon after the 1997 flood event that devastated the two communities. A linear system of parks, natural areas, and public land called the Greenway was created next to the river where houses once stood. This open space gives the river room to expand during floods and allows floods to be contained with lower levees and floodwalls. The scale of this urban floodplain restoration effort was unprecedented in the region.

A report by *American Rivers* cites the Grand Forks/East Grand Forks Project as a case study in how natural flood protection can work. The report explains, “These communities have reduced

or eliminated flood disasters while preserving the environment for present and future generations. They are now safer, healthier, and more livable.”

The project also required innovative solutions from a number of disciplines including civil engineering, geotechnical engineering, structures, hydraulics, mechanical engineering, and landscape architects. Some of the numerous challenges faced by the project included unique clay soils, numerous historic properties, extremely short construction seasons, and continuous accommodation of street and critical rail traffic.

The weak clay soils in the Red River Valley created some formidable design challenges including slope stability and settlement of the flood control levees and floodwalls. To combat this problem in one section of the project, the Corps constructed 95-foot deep, 6-foot diameter reinforced concrete drilled shafts. The closely spaced drilled shafts, called cylinder pile wall, allowed construction of a floodwall closer to the river and saved numerous historic properties.

A historic hospital and nurses residence on the Grand Forks side of the river, since converted to apartments (St. Anne’s Guest Home), was saved from demolition with an innovative idea to construct the floodwall immediately adjacent to the building. A concrete form liner with the stone pattern of the building and concrete staining allows the floodwall to blend in with the building. The creative solution for saving this historic property earned the St. Paul District Corps a 7 Wonders of Engineering in Minnesota Award in 2008 as well as a National American Council of Engineering Excellence Award. Other historic residences were moved to higher ground.

In another example of innovation, the Corps worked closely with the East Grand Forks City Engineering Firm FS Engineering, SEH Engineering, and Flood Control America to include a new floodwall concept along an 880 foot section of their downtown. Dubbed the “invisible floodwall”, this section of the protection system is installed only during high water events and otherwise allows the downtown an open view of the river. At the time, it was the largest installation of the invisible floodwall concept in the United States. The invisible floodwall was previously awarded a 7 Wonders of Engineering in Minnesota Award when that phase of the project was completed in 2000.

“Our relationship with the river is complex,” noted Greg Boppre, President of FS Engineering. “We obviously need to be protected during flood events, but the rest of the year it is an important and beautiful attribute to our community. The invisible floodwall allows us to stay connected with the Greenway and the river, while providing the level of protection we need. The Corps respected our desires, while maintaining their high standards for protection.”

Aesthetic considerations were an important part of the project from the start. Public meetings were held where citizens chose designs and finishes for the project structures in their neighborhoods. Pump stations were designed to compliment their settings. Floodwalls were patterned and stained with specific and unique facades – attended by strong horizontal elements to minimize the visual and psychological impact of their height. Implementing these simple tools gave the project its clean, attractive, and uniform appearance despite eight entirely separate construction phases and multiple contractors.

Perhaps the best testament to this enormous project is the flood events since its construction. In 2006, the region experienced the 5th largest flood on record. Although the project was only 85% complete and some emergency levees were constructed, it was estimated that over \$150 million in damages were prevented. In 2009, Grand Forks/East Grand Forks experienced the 3rd largest flood on record. This time the project was complete so emergency preparation was limited to installing closures and monitoring pump stations. If the project had not been completed, an expensive flood fight would have been necessary.

“We are proud of the efforts put forth by those who believed in our city and our future,” stated Grand Forks Mayor Michael Brown. “(We) can now boast of . . . above all, a multi-million dollar flood-protection project that ensures our residents will be better protected in the future.”

The Corps gives credit for the success of the project to the extensive partnering between all parties, including the Corps of Engineers, the Cities of Grand Forks and East Grand Forks, the State Historic Preservation Offices in both states, other Agencies, design consultants, and construction contractors. The Corps included city engineers in design meetings so they could provide input on the project that they maintain. Public meetings were held throughout the planning process so stakeholders had a chance to be involved with planning the project located in their community. Engineering design consultants including HDR Engineering, Stanley Consultants, Short Elliott Hendrickson, and Ayres Associates assisted the St. Paul District.

The Minnesota Society of Professional Engineers (MSPE) is a professional association of nearly 1,400 licensed professional engineers, practicing engineers, engineering graduates and engineering students in nine local chapters throughout Minnesota. MSPE is a state society of the National Society of Professional Engineers, which serves over 45,000 members through 53 state and territorial societies and more than 500 chapters.