



# Bridge to the Future

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The Noer Facility is divided into two halves by an urban drainage ditch which when full after a rainstorm, can stop work on half of the facility. The drainage ditch was not a problem seven to eight years ago. In the last several years, Madison has been expanding incredibly and the accompanied urban runoff can now fill the drainage ditch for up to a week after a large rain event. We knew a bridge was in our future but we were waiting for the city of Madison to deepen and widen the drainage ditch, which their city engineers said would happen soon. They finally admitted that the improvement was unlikely to happen so we decided to build the bridge and improve the waterway ourselves.

There was money designated specifically for a bridge from a sewer project installed through the Noer Facility in 1999. All the rain in August 2007 and the spring of 2008 made us realize we can't wait any longer to build our bridge. Fortunately we found a professor from the UW-Madison Department of Biological Systems Engineering, Dr Dave Bohnhoff, to design and build the bridge for us.

The project began in June. First we constructed a roadway for construction equipment including ready-mix concrete trucks to access the site. The bridge is completely cast-in-place concrete, and with the wet spring we needed the access road because we couldn't risk burying a ready-mix truck. The trucks first came to place footings for the support piers in holes that were augured six feet deep. Next the piers and deck support beams were formed. What amazed me the most was the amount of reinforcing steel bar that goes inside of a concrete structure. We tied steel rebar completely through one night to get ready for a concrete delivery the next day. Good thing we stayed on schedule with the delivery because the day after pouring the pier and deck support beams, a rainfall filled the waterway up over the concrete forms that would have washed them away had they not been poured.

The concrete was then left to cure for two weeks. Next a wooden frame to hold in the deck concrete was constructed and more steel was tied. The placement of deck concrete went according to schedule and was left to cure for another two weeks.

While the deck was curing, we proceeded to reconstruct the waterway to help transport water away from the Noer Facility quicker. The increase in urban rainwater runoff that was occurring past the Noer Facility needed the ability to flow in larger volumes. Otherwise



Constructing the access road to the bridge



Forms were constructed for pouring the concrete piers and deck support beams

it comes up over the banks and deposit silt on valuable research projects. We mowed down 1/3rd acre of reed canarygrass in the old waterway, reshaped the swale and birms, and seeded the waterway. This way we can mow the turf which along with widening the waterway will help the water flow past the Noer Facility quicker. The maintained turf is a 90/10 mixture of tall fescue and Kentucky bluegrass donated by Seed Solutions.

The seed has just germinated as of mid-August and the crew is busy keeping it watered. Next for the bridge project we will construct the ramps up to the deck and blacktop the service road leading to the ramps. Depending on finances, we may even cover the bridge with a wooden structure this winter, and once again Dr. Bohnhoff said he'd help us design and construct the covered bridge. We're so fortunate to have him help us. The research on the far side of the drainage ditch is no longer out of reach and floodwaters should stay within their banks and move away from the Noer Facility easier, making our bridge to the future fantastic. 🌱





The crew working through the night to tie reinforcing steel bar before the concrete arrives the next morning



The flood that occurred the day after pouring the piers and deck support beams



Building the forms for the concrete deck



Designer and builder, Dr. David Bohnhoff from the UW-Madison Department of Biological Systems Engineering, pictured center



Pouring the concrete deck



The deck left to cure for two weeks