



CONCRETE CANVAS™

Concrete Impregnated Fabric...

BOAT RAMP EXTENSION



ROAD



RAIL



AGRO



POWER



OIL&GAS



MINING



DESIGN



OTHER



NATIONAL WINNER
National Winner
Chambers of Commerce
Award 2011



Top Innovation
BRE Insite 2011



2011 Expert's Choice Winner
Most Innovative Product



MTP Gold Medal Award
BUDMA 2011



2009 Winner
Material ConneXion Medium Award
Material of the Year



2011 Nominee,
2007 Finalist
Design to Improve Life Award

Project Info



Autumn 2011



CC13 bulk rolls



100sqm



5 hogringed layers



Olney, IL, USA



Milliken



East Fork Lake boat ramp extension project.

CLICK TO WATCH VIDEO



Background

The East Fork Lake in the City of Olney, IL, is a significant recreational draw for boating and fishing enthusiasts. The lake has only one public access boat ramp, which was built in the 1970s to accommodate small fishing boats and recreational watercraft. Over time, as recreational and fishing boat sizes increased, the city found that the ramp was not long enough to accommodate longer boat trailers, especially when water levels in the lake dropped. Longer boat trailers would drop off the end of the ramp, requiring specialized equipment to lift and remove trapped trailers. The City first addressed the problem by extending the ramp with gravel, but this solution was temporary, as the gravel would be pushed away from the end of the ramp. This required frequent maintenance (either by regrading the gravel, or filling with additional gravel) on an ongoing basis. As a result, the City began investigating permanent alternatives to solve this problem. The City intended to perform this extension effort using a portion of a state grant.

Options

1) Extend the ramp with additional poured concrete.

The City solicited bids for extending the ramp with poured concrete. This approach required that the contractor build a coffer dam, de-water the area around the ramp, build forms and pour the concrete in the dry and then allow the concrete to cure for 1-2 weeks. The result would close the lake for 2-3 weeks at a minimum (with the potential for a one-month closure). Bids for this work ran approximately £36,500, far exceeding the grant budget.

2) Extend the ramp with Concrete Canvas (CC).

An alternative approach was to extend the ramp with a prepared gravel bed, capped by a layer of CC to provide the hard, trafficking surface and to protect the prepared gravel subgrade. This approach was estimated to take between 1 and 2 days. With two days of excavation contractor work and one day of underwater contractor work, the approach appeared to be less costly than extending the ramp with poured concrete, especially since the work could be done without de-watering. In addition, it was expected that the lake would be open within a week of starting the project.



Decision

The City of Olney chose to extend the ramp using Concrete Canvas.

Project Overview

Day 1 of the project involved site preparation. The excavation contractor, using a backhoe with 20m reach, removed the existing gravel and some subsurface mud/soil to provide a consistent base for the new gravel underlayer. The contractor then prepared a bed of new stone to 45cm depth, graded to extend the angle of the existing concrete ramp. The dimensions of the area to be added were the full ramp width of 10m and length extension of approximately 6m.

Day 2 of the project began with fine site prep work, with the underwater contractor (diver) surveying and guiding the excavation contractor. The underwater contractor made fine adjustments to the gravel surface and ensured that it was level and consistent. The excavation contractor then fabricated two large panels of Concrete Canvas, each from five standard 1.1m widths of CC13 that were connected by hog rings at 30-45cm intervals to hold the panels together. These large panels were then pulled into place using the back hoe, with the underwater contractor guiding the installation. A final CC layer was placed perpendicular to and under the large panels at the interface between the concrete slab and the gravel bed to provide additional stability. The panels were secured to the existing concrete slab by fastening a 7cm wide steel hold-down bar across the width of the ramp, and anchoring to the concrete slab using Tapcon screws, which were inserted through the hold-down bar and CC layers into the underlying concrete slab. Work was completed by 4:30pm on Day 2.

The site was surveyed by touch on Day 3 and verified to be curing effectively. The City chose to keep the ramp closed for several more days but the ramp was reopened to the public in a week from the beginning of the project.

Project Cost

Including Concrete Canvas, surface and underwater contractors and miscellaneous supplies, the total project cost was £16'500. In addition, the boat ramp and lake were only closed for a week.

Summary

Concrete Canvas solved an ongoing challenge for the City of Olney in a cost and time effective manner using this versatile, innovative new construction material.

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