



CASE STUDY

Roadside Irrigation Channel Lining

LOCATION: California, USA

PROJECT TYPE: Product Supply & Installation

PRODUCT USED: CCX-M™



▼ CHALLENGE:

The Henry Miller Reclamation District (HMRD) No. 2131, located in Dos Palos, California, is responsible for providing water to over 47,000 acres of farmland through more than 370 miles of main irrigation canals, lateral canals, and surface ditches. The irrigation system primarily consists of compacted unlined earthen canals. HMRD's main goals are to minimize seepage and promote water conservation.

Signs of degradation were observed in the shotcrete lining of this critical roadside channel.

The client required an immediate and long-lasting solution.



Damaged Channel



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TITAN SOLUTION:

Titan introduced CCX-M™, a revolutionary solution to address the failure of conventional shotcrete and liner that had been used. CCX-M™ is a type of geosynthetic material that is filled with concrete and becomes hard when hydrated. This material can be rolled out and used to create a thin and durable waterproof layer of concrete. It is a fast, cost-effective, and long-lasting option for lining canals, and is a better alternative to using shotcrete or a membrane.

The damaged concrete lining installed in 2004 was cracked and leaking; it was removed before the canal was re-excavated, compacted, and the CCX installed.

CCX-M™ can be joined using various methods depending on the desired level of permeability. For this specific installation, thermal bonding was utilized to join the CCX layers. This method provides the lowest permeability and is well-suited for applications where preventing canal seepages is crucial. It helps in water conservation and prevents salinity logging.

CCX-M™ not only addressed the immediate issue but did so with significant carbon reductions, paving the way for a more sustainable solution. The ease of installation added another layer of innovation, allowing irrigation districts to swiftly install assets between seasons. Project timelines were reduced and water supply disruptions were minimized with minimal impact on the local community.



Damaged Channel





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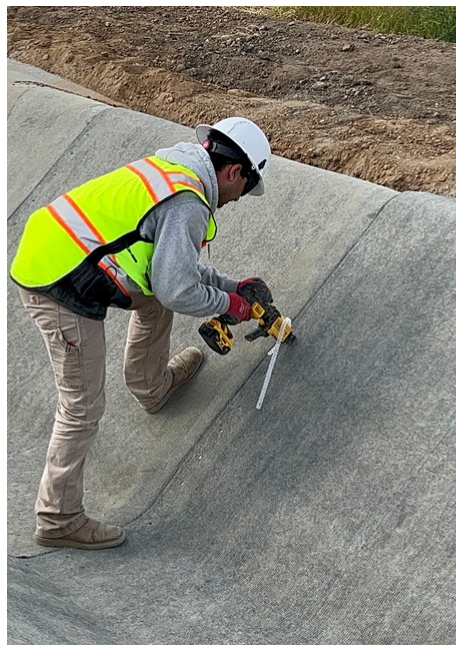
Site prior to installation



CCX™ deployed transverse using an excavator and spreader beam



CCX™ deployed transverse



Stainless steel screws placed every 4"



CCX™ hydrated using hose and water truck





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ACHIEVEMENT:

Titan took the lead in organizing a special product installation demonstration to give county/city officials, engineers, and contractors a live opportunity to see a CCX-M™ application. Approximately 28,000ft² of CCX were installed in just over four days and used to transform roughly 1,440Lin.Ft. (427m) with a depth of nearly 2.5' of deteriorating channel lining, breathing new life into the infrastructure. The canal was returned to service less than 24 hours after installation. Seepage tests conducted on the lined canal showed a seepage reduction of 96%. Titan, once again, proved that with the right solutions, we can not only fix problems but do so with an eye toward sustainability, efficiency, and community harmony.



Completed Installation



Completed Channel



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CLIENT TESTIMONIAL

“From the first time I saw the product in a water conference, I thought CCX could be a good lining alternative for our district. CCX is definitely an innovative product and one I could see irrigation districts use for multiple applications. It has some unique attributes: It is easy for our crew to install with simple tools. Cost, performance, the ability to be installed by the district’s personnel and the speed and ease of installation are important factors for every district. We were able to install CCX on a 1,440 feet long ditch and it looks great. The installation process was quick and easy compared to pouring concrete, which we would have had to contract out. I expect the CCX to perform very well and can see multiple uses for the irrigation districts including canal lining and seepage control, vegetation control, general erosion, and bank stabilization. I recommend irrigation districts check this product out.”

Alejandro Paolini,
Water Conservation Specialist,
Henry Miller Reclamation District No.2131

PROJECT INSTALLATION VIDEO

