

Project Overview

As a result of periodic culvert inspections the Virginia Department of Transportation (VDOT) identified the existing triple barrel steel plate culvert as requiring some action. Since the roadway above the existing culvert had just been repaved and new guardrail had been installed, VDOT wanted to avoid total replacement at this time. The worst corrosion of the steel was in the invert. In addition, the roadway had been widened in the past and newer pipe was added outside of the original culvert. Corrosion of the culvert was seen at the flow line and the shape of the culvert appeared to be in its original geometry. The roadway embankment was stable and there were no signs of soil movement or cracking.

Solution

Due to the access limitations, the VDOT maintenance crew chose to install the Concrete Cloth GCCM perpendicular to the direction of flow. This allowed the maintenance crew to carry smaller pieces rather than installing long pieces parallel to the flow. Water from streams was diverted through another barrel & Concrete Cloth GCCM was installed in the dry. A power actuated fastening system was chosen to secure the Concrete Cloth GCCM to the existing plate structure because of the thickness of the plate. This method led to a rapid installation and the un-hydrated Concrete Cloth GCCM was installed in less than a day.

Strips of the Concrete Cloth GCCM were lowered from the roadway above to the berm just outside the inlet of the culvert using an excavator. VDOT had the choice of hydrating the Concrete Cloth GCCM by either pumping water from the nearby stream or bringing a water truck to the site.

Results

VDOT will evaluate the performance of the Concrete Cloth GCCM to determine whether to line the flow line of the other two barrels of this triple barrel culvert.

Project Details

Location: Beulah Rd, South of Richmond

Application: Culvert Repair

Client: VDOT

Product Used: CC13, approx. 500 sf

Installation: September 2013



Concrete Cloth™

Geosynthetic Cementitious Composite Mat (GCCM)

