

STORMWATER SOLUTIONS: CHANNEL LINING

GEO PRODUCTS, LLC | CONCRETE CANVAS®

Background

Concrete Canvas® (CC) is a Geosynthetic Cementitious Composite Mat (GCCM) that was specified by the United States EPA to line a drainage culvert in Walker, Arizona. The project was completed to address an acid rock drainage issue of storm water coming into contact with mining contaminants. The existing cap and drainage system was in disrepair and no longer functioning. As a result, it was no longer serving its purpose of isolating contaminants from the stormwater runoff. Around 99% of this drainage channel was unlined; shotcrete had been previously used in some areas, but had since deteriorated. A long term, durable solution was needed to prevent hazardous chemicals from contaminating a residential area and nearby creek.



The completed drainage system

Technical Information

MATERIALS USED:

CC5™ BULK ROLLS

PRODUCT AMOUNT:

12,916sqft / 1,200sqm

OVERALL DURATION:

3 DAYS

CC INSTALLATION:

9 HOURS BY A TEAM OF 4

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CONCRETE CANVAS® USA

Geo Products is a proud distributor of Concrete Canvas® products. Contact a member of our team for more product information.

Low Carbon Solution

Shotcrete was initially considered, but the previous failure along with the material cost caused that solution to be ruled out. CC was the chosen solution due to its ease and speed of installation and lack of requirement for specialist labor, equipment and ground preparation works.

Installation Process

CC can be installed in most weather conditions, so rainy or cold weather would not halt the installation process. A simple profile was excavated on the upper portion of the channel to accommodate clean drain rock which would surround an 18" perforated pipe. A simple V-shaped channel was excavated in the lower section. Roots and vegetation were excavated, and an anchor trench was dug on each side. CC was laid and the overlapping layers were joined using screws at 5.9-inch intervals. 7.8-inch spikes were used to secure the edges of the CC and perforated pipe was installed and surrounded by drain rock. Lastly, the material was hydrated to activate the curing process.

A time saving of 50-60% and a significant cost savings resulted from choosing CC over alternative methods of channel lining. The client stated that installing the material was simple and efficient, as one section of CC could be hydrated while work began on the next portion.

