

STATE ROAD 299 REALIGNMENT SLOPE WORKS
FRENCH GULCH, CAPSTONE, CA, USA

EROSION CONTROL

Product: Gabion Mats, MacTex® Geotextiles

Problem

State Route 299 runs across the northern part of California from Arcata to the Nevada state line. This highway is part of the California Freeway and Expressway System and sections of the highway are included in the State Scenic Highway System.

The road has been realigned many times in an effort to improve safety and accommodate the challenging and dangerous grades and curves through the mountains. As part of this project, slope erosion control solutions were required due to highway improvements between mile marker 0.3 and 7.1

The overall project incorporated:

- Decreased 43 horizontal curves to 15
- Revised the horizontal & vertical alignment
- Increased lane and shoulder widths
- Added a passing lane
- Put in place a 4 ft (1.2m) wide soft median

Steep mountainous terrain, combined with difficult geotechnical conditions caused rapid soil erosion during storm events. The management of storm water runoff from the highway was vital to prevent slope instability. The existing rock-lined ditches had shifted due to erosion and undercutting.

Solution:

Maccaferri's Gabion Mats were used in lieu of rock-lined ditches cut into the benches on the slope. These ditches were connected into "collector" ditches, again lined with gabion mats, running perpendicular to the benches, down the slope face. The ditch system collects storm water run-off in a controlled way and also reduces the velocity of flow during storm events. By encapsulating the rock fill within a gabion mat unit, the ditch shifting and undercutting will be prevented.

It is anticipated that the voids in the gabions will decrease sediment transport into waterways and that over time this sediment will enable natural vegetation to grow.

To complete this work, 1.3M yd³ (nearly 1M m³) of soil was excavated from 22 cuts and placed into 8 major fills.

The gabion mats are made from flexible double twist steel wire mesh (8x10 type). The steel wire is heavily galvanised and has an additional polymer coating to offer a long design life.

Client:

CALIFORNIA DEPT. OF TRANSPORTATION

Main contractor:

STEVE MANNING CONSTRUCTION

Designer:

CALIFORNIA DEPT. OF TRANSPORTATION

Products used:

GABION MATS, MACTEX®

Date of construction

2015



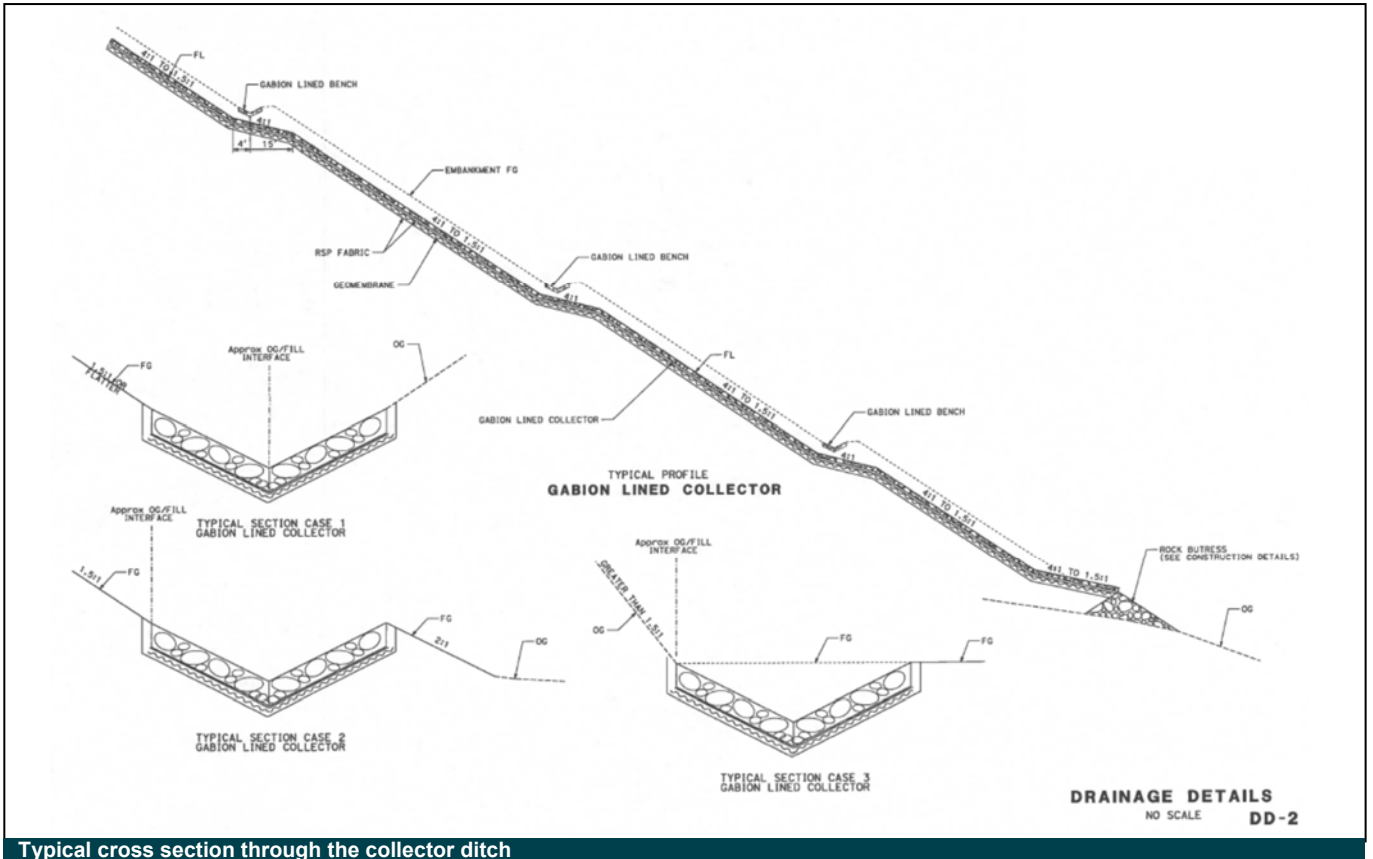
Site Prior to Work



After site clearing and preparation



Installation of the benches



Typical cross section through the collector ditch



Installation of the Gabion mats on the benches



Completed project with collectors and benches installed

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