Elastizell EF Repairs Slip Plane on Interstate Highway

Portion of slip material excavated and replaced with lighter long term solution of Elastizell EF

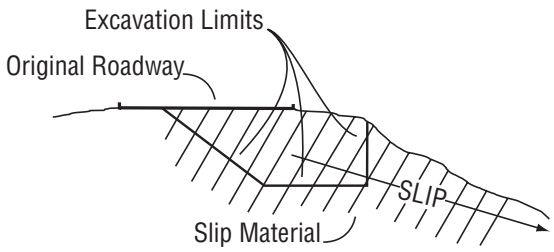
Problem

A failure surface developed below a roadway and caused movement of the entire mass down the slope. How can a slip area be repaired and prevent future slippage?

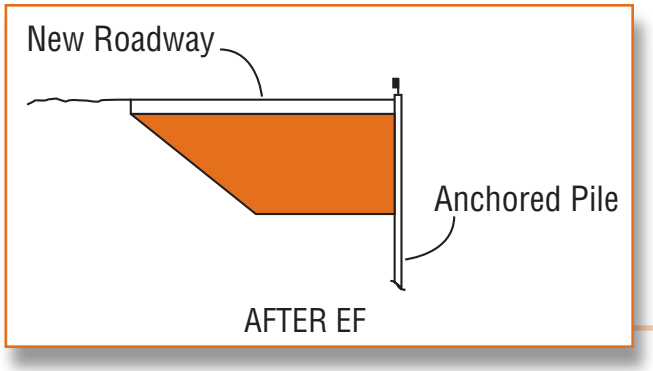
Discussion

The driving force of the soil mass needs to be reduced to prevent future movement. Installing additional fill to bring the slip back to original level would increase driving forces which may create another deeper slip surface.

Attention must be directed to both the proper anchorage of the pile system and the free water drainage through and around the site.



BEFORE EF



AFTER EF

= ELASTIZELL EF

Solution

A portion of the slip material was excavated. Then a pile and waler retaining system provided the permanent form and lateral resistance, while Elastizell EF was able to fill the void and return the roadway to the appropriate grade. This process also reduced vertical loads on the sub grade to further reduce the recurrence of a slip plane.

Even though Elastizell EF has a low permeability of 10^{-5} to 10^{-6} cm/s, drains were also installed to prevent water from collecting behind the pile wall.

Advantages

- *Elastizell EF reduces the vertical dead load on the slope.*
- *Lighter retaining wall systems are used with Elastizell EF since it does not exert horizontal forces on the wall when set.*
- *Tight work areas or remote locations can easily accommodate the Elastizell EF batching system for fast installation.*
- *Fastest permanent solution for landslip repairs.*

BASIC PHYSICAL PROPERTIES

Elastizell EF

*Greater values may be obtained if required per Elastizell Corporation design.

CLASS	MAXIMUM CAST DENSITY pcf (kg/m³)	MINIMUM COMPRESSIVE STRENGTH* psi (Mpa)	ULTIMATE BEARING CAPACITY Tons/sf (kN/m²)
I	24 (384)	10 (0.07)	0.7 (69)
II	30 (480)	40 (0.28)	2.9 (276)
III	36 (576)	80 (0.55)	5.8 (552)
IV	42 (672)	120 (0.83)	8.6 (827)
V	50 (800)	160 (1.10)	11.5 (1103)
VI	80 (1280)	300 (2.07)	21.6 (2068)

Comparison of Maximum Fill Material Densities

ELASTIZELL EF

Class I	24 pcf (384 kg/m³)
Class II	30 pcf (480 kg/m³)
Class III	36 pcf (576 kg/m³)
Class IV	42 pcf (672 kg/m³)
Class V	50 pcf (800 kg/m³)
Class VI	80 pcf (1280 kg/m³)

Water	62.4 pcf (1000 kg/m³)
Lightweight Aggregates	60-90 pcf (961-1442 kg/m³)
Flowable Fills	90+ pcf (1442+ kg/m³)
Soils	120 pcf (1922 kg/m³)
Aggregates, Asphalts	125 pcf (2002 kg/m³)
Lean Concrete	145 pcf (2323 kg/m³)

For specific design values and more detailed specifications, as well as design assistance, please contact the ELASTIZELL CORPORATION OF AMERICA or our local applicator below.

Elastizell Cellular Concrete

ENGINEERED FILL

www.elastizell.com

Corporate Office
PO Box 1462 • Ann Arbor, MI 48106 • PH (734) 761-6900 • FAX (734) 761-8016

Research Center
7900 Second Street • Dexter, MI 48130 • PH (734) 426-6076 • FAX (734) 426-6078