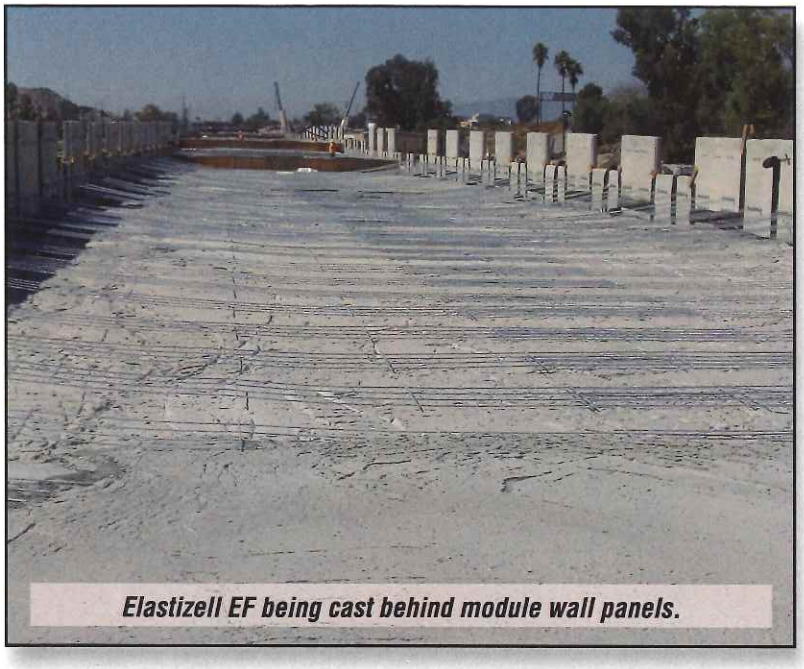
Elastizell EF Increased Grade Without Excessive Settlement



Elastizell EF being cast behind module wall panels.

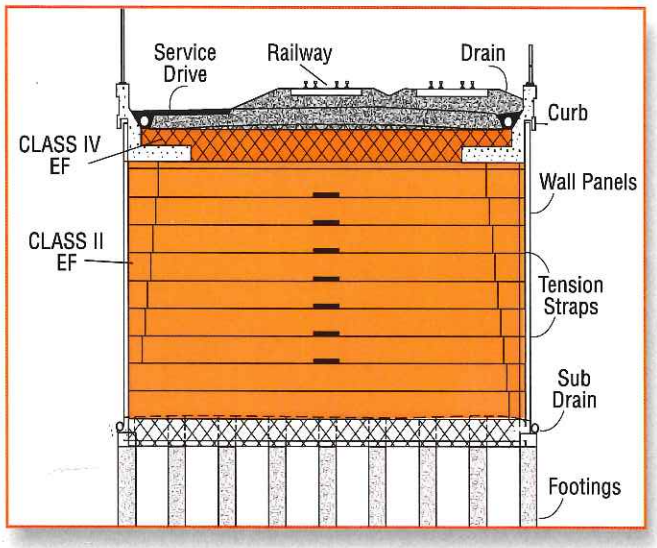
Elastizell EF provides grade separation for railroad crossing.

Problem

Two rail lines that each had high volumes of traffic crossed paths and were causing disruptions in both routes.

Discussion

Located in a densely populated area and within close proximity to an expressway, a traditional embankment would not meet site requirements. The required side slope would extend beyond the railways right of way. The soil beneath the new route would also require ground improvement. Additionally, traffic needed to be maintained on the existing rail lines during construction.



= ELASTIZELL EF

Solution

Elastizell EF was used to fill a flyover for one rail line allowing both lines to operate continuously without any interruptions saving $241 million in annual costs. Two precast modular walls were constructed and used to form a structure that was then filled with Elastizell EF. Since Elastizell EF does not transfer loads laterally, minimal support was required. In total 220,000 cubic yards of Elastizell EF created a grade change over 1.5 miles long and reached a peak height of 39 feet.

Advantages

- *Elastizell EF saved $45 million and 8 months of construction time over alternatives.*
- *Only 66,000 yd³ of fill material was transported to the site where it was batched to include 70% air to ultimately fill the entire 22,000 yd³ project, thereby saving on transportation cost.*
- *Increased grade without soil failure or excessive displacements.*
- *Support railway and evenly distribute loads to existing soil.*
- *No need for soil improvements or compaction saving time and money.*
- *Minimal bridge span distances, therefore low maintenance costs.*

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)	Water	62.4 pcf (1000 kg/m³)
Class II	30 pcf (480 kg/m³)	Lightweight Aggregates	60-90 pcf (961-1442 kg/m³)
Class III	36 pcf (576 kg/m³)	Flowable Fills	90+ pcf (1442+ kg/m³)
Class IV	42 pcf (672 kg/m³)	Soils	120 pcf (1922 kg/m³)
Class V	50 pcf (800 kg/m³)	Aggregates, Asphalts	125 pcf (2002 kg/m³)
Class VI	80 pcf (1280 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

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