

## CASE HISTORY

Rev:01, Date : 04.06.2020

**IMPROVEMENT TO JEJURI - MORGON ROAD MDR-65 KM 6/100 TO 6/500 & 8/065 TO 8/475, TALUKA - PURANDHAR, PUNE, MAHARASHTRA**  
PUNE, MAHARASHTRA, INDIA



### Pavement Stabilization

Client:	Products used & Quantity Supplied:
PUBLIC WORKS DEPARTMENT, PUNE / INTEGRATED PUBLIC WORKS DIVISION, PUNE	WOVEN GEOTEXTILE TFI-5300 (MEETS REQUIREMENT OF TYPE – I OF IRC SP 59-2002 & CLASS 1 OF AASHTO M288) - 12150 SQM
Main contractor:	
H.J.TEKAWADE, PURANDHAR, PUNE	
Manufacturer & Supplier:	Year of construction:
TECHFAB (INDIA) INDUSTRIES LTD.	MAY 2011

### Project description & Challenges:

Public Works Department P.W.D, Pune had awarded the Improvement of Jejuri - Morgon Road MDR-65 in Km 6/100 to 6/500 & 8/065 to 8/475 in Purandhar Taluka of Pune District to M/s. H.J.Tekawade, Taluka Purandhar; District Pune. The given stretch of road was passing through rich black cotton soil area having a very low CBR value of 0.67. Also the pavement was surrounded by sugarcane fields on both sides, which was causing heavy water logging in the area. The same stretch was also an approach to Someshwar Sahakari Sugar Factory Ltd and Indian Seamless (ISMT), which led to a heavy traffic intensity of a maximum vehicular load of 80 MT.

As clear from the photographs, the existing pavement was seriously damaged due to existence of black cotton soil, water logging, heavy vehicular load & presence of sugarcane fields. Fatigue cracks (both crocodile & block types in longitudinal & traverse directions), raveling, rutting, stripping, potholes, settlement, shoulder drop-off are amongst the few failure types that were observed.



Distressed Pavement with Cracks



**Black Cotton Soil & Sugarcane Field in Vicinity**

**Solution proposed:**

TechFab (India) Industries Ltd suggested the use of Woven Geotextile TFI-5300 for the Subgrade stabilization at the given site comprising of black cotton soil, water logging & heavy vehicular traffic loading.

The design and the use of TechFab India Industries Ltd Woven Geotextile for Subgrade stabilization was approved by the Executive Engineer and the Superintending Engineer of P.W.D, Pune.



**Black Cotton Soil Slightly Removed at Site**



Laying of TFI-5300 at Subgrade

Woven Geotextile TFI 5300 is Polypropylene Woven Geotextile with slit-film (tape) yarns in the warp and fibrillated tape yarns in the weft direction. These engineered geotextiles are stabilized to resist degradation due to U V exposure and are resistant to commonly encountered soil chemicals, mildew and insects, and are non-biodegradable. Polypropylene is stable within a pH range of 2 to 13, making it one of the most stable polymers available for geotextiles today.

TFI 5300 meets the requirements for AASHTO M288 Class 1 / IRC SP 59-2002 Type – I.

### Execution:

Black cotton soil was slightly removed from the site; surface was prepared with appropriate camber and longitudinal slope achieved. Thereafter, TFI-5300 was laid over the prepared surface with no wrinkles to generate the required tension in the woven geotextile. The designed thickness of various courses for a pavement i.e. sub-base, base course, wearing course etc were then laid and properly compacted. The design of the pavement courses were done based on IRC: SP: 37. Due to high traffic intensity, execution was carried out in three 5m wide stages in two stretches of 410m and 400 m.



**Sprinkling of Water & Compaction of Pavement**



**Unrolling TFI-5300 in 5m Widths**



**Heavy Vehicular Traffic at the Site**

Woven Geotextile TFI 5300 deployed at the interface between granular sub-base/ base course and the sub-grade can improve the pavement performance by a combination of the following:

- Separation
- Reinforcement
- Filtration
- Drainage

### **Benefits**

- Prevents contamination of granular sub base/ base and prevents loss of aggregate to the sub-grade during placing and compaction.
- Sub-grade stabilization.
- Increases the structural strength of the pavement by means of the tensile strength and shear interaction of the geotextile.
- Minimizes rutting and disturbance of the sub-grade during compaction.



Prepared Surface

**Conclusion:**

The project was successfully completed in May 2011.

**For further details kindly contact :**

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