

LANDFILL PROJECT AT GYASPUR DISTRICT AHMEDABAD,INDIA

ENVIRONMENTAL/ LANDFILLS

Product: HDPE Geomembrane

Problem

The Vision of Ahmedabad Municipal Corporation is to make the city dynamic, vibrant, self reliant and self sustainable with all basic amenities to provide a better quality of life that is environment friendly to the inhabitants. Solid Waste Management is one of the key services that Ahmedabad Municipal Corporation is assigned to provide. The city cleaning work is divided into two Departments, namely the Conservancy Department and the Solid Waste Management Department. The Conservancy Department is responsible for the door to door collection of biodegradable waste on a day to day basis whereas the Solid Waste Management Department handles the secondary storage, transportation, processing and final disposal of Solid Waste.

The City of Ahmedabad with an area of 449 sq km and a population of 56 lakhs produces about 1200 tons of waste per day. It faced severe problems related to the diseases caused by unscientific handling of solid waste. In view of the environmental impacts resulting from uncontrolled dumping of solid waste, AMC identified a remote location in Gyaspur District for a land fill site for building a secured Engineered Land Fill.

Solution

The capacity of this landfill is about 500MT per day. The bottom size of the land fill is about 42000 sqm . The secured land fill consists of 4 slopes of 50m height.

The scope of work for Maccaferri was the supply,laying and joining of Geomembrane 1.5mm thick at bottom and slopes .

The Geomembrane used contains 97.5% Polyethylene & 2.5% Carbon Black content. This membrane has good environmental crack resistance. Its excellent UV resistance,made it possible to lay it on exposed conditions also.The Physical & Mechanical Properties of the membrane used are as follows:

- Density-0.94g/cm³
- Strength at break-43 N/mm
- Elongation at break- 700%
- Tear Resistance-187 N
- Puncture Resistance-530 N
- Roll Size: 7mX 140m

Client name:

AHMEDABAD MUNICIPAL CORPORATION

Main contractor name:

M.P.PATEL INFRASTRUCTURE PVT LIMITED

Consultant:

GUJARAT INSTITUTE OF CIVIL ENGINEERS AND ARCHITECTS

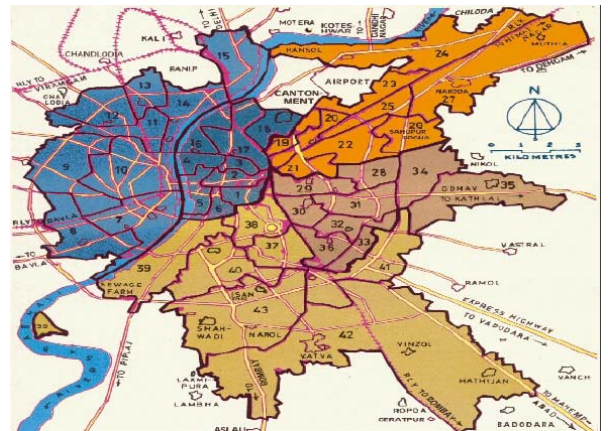
Product used:

90,000 SQM OF HDPE GEO MEMBRANE (1.5mm THICK)

Construction info

Construction Start: April 2007

Construction end: April 2008



The City map of Ahmedabad



Photo 1.Site Conditions before construction



Photo2. HDPE Geo-membrane rolls



Photo 3,4. Unravelling the HDPE Membrane



Photo 5. Preparation of the joints for stitching .



Photo 6. The Stitching Machine



Photo 7. The joining process



Photo 8. Drainage Arrangement for the surface runoff



Photo 9,10. Leachate Collection tank



The Construction Process.

1. Since the leachate is to be prevented to seep from the bottom of the landfill, the client proposed some layers to achieve this objective. The layers constituted of a 1000mm embankment, 1.5 mm thick Geomembrane, 300mm coarser material & 2 mm drainage aggregate. The Geomembrane was anchored at top with a layer of cement concrete and with a lap of 3m.
2. A network of pipes and two sumps were adopted for the collection and disposal of leachates and land fill gas.
3. Proper Drainage system was planned and provided around the landfill to prevent the seepage of rainwater. This can also reduce the quantity of leachate generation from landfill.

Present Status of the Project The Project was completed within 1 year. Maccaferri could complete the supply of materials in a record span of 3 months. The joining was done by the fusion wedge welding method. The speed of joining was 280 RM/ hr.

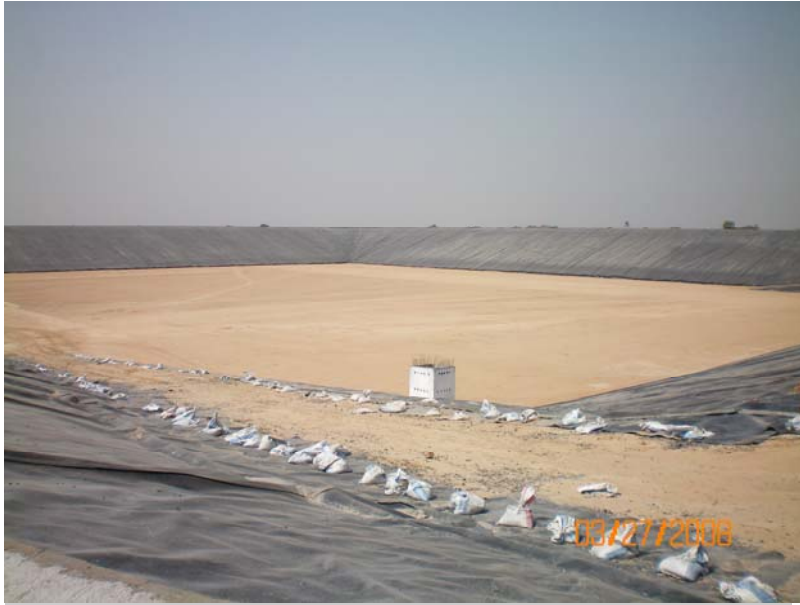


Photo 11. Site nearing completion



Photo 12. Base liner and side liner laying completed

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