

CASE STUDY

Geocell improves landfill access road

Owner:

Guwahati Municipal Corporation

Contractor:

Ramky Enviro Infrastructure Ltd., Hyderabad

Project Size:

1,000 sq.mtrs. (5m width X 200m length)

Project Type:

Unpaved road using Geocells

Location:

Guwahati, Assam, India

System Offered:

Geocell

Completion Year:

2010



Project Brief

To build an access road for Guwahati Solid Waste Landfill Site at West Boragaon, Guwahati (Assam, India), the approach road to the proposed landfill site was subject to heavy settlements because it was built with filled up soil on a low lying area with high water table. This resulted in a very weak road which created challenges for the heavy vehicles (like garbage dumpers) to operate. Previously no treatment was done except simple dumping of locally available soil with rolling & compaction. The water table of the area was only about 100mm to 500mm below the existing ground level. The continuous process of dumping soil & compacting it was offering little benefit, as with repeated compaction the settlement kept increasing thereby making the area fully unusable for vehicular movement. Matters were becoming severe during the monsoons.

Challenge

The surrounding water was hampering the movement of the garbage dumping trucks. The garbage trucks were increasingly dumping garbage much before the demarcated area, thus triggering a total mismanagement of the landfill and creating financial losses for the project. Moreover, with the impending monsoon season and ongoing frequent showers, conditions were getting increasingly difficult and posed major challenges in maintaining the serviceability of the approach road.



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Strata Solution



A list of workable solutions and materials were put together once the challenges were identified. With limited options, geocell – a cellular confinement system was chosen for the job. Geocell are a proven solution for slope stabilization, load support, earth retention and channel applications. The product is light and easily transported to remote areas. This expandable, honeycomb-like cellular structure can be collapsed and easily transported.

The geocell remains flexible during installation and also is inert against naturally found chemicals. Another cost saving factor was that the amount of infill needed at the site could be estimated due to the system's uniform depth, and that no training or special tools were required for installation. The cells of the Geocell System provide a permanent flexible form while acting as a series of expansion joints adjusting to the shape and grade of the soil. The sections were transported in folded forms by trucks and placed in designated areas. Geocell installation was complete in 3 days time, whereas the total road was completed in less than 40

Benefits to client

Savings in natural resources, time & money: In normal construction method, to stabilize the soil and to sustain heavy vehicular traffic, at least 800mm to 1m murrum infill would have been required, but by using geocells the client managed to save precious natural resources & also lower the carbon footprint. Geocells being a fast and all-weather installation solution, no time was wasted because of the ongoing heavy rains. Both the savings in natural resources and time resulted in substantial savings for the client.

About Strata

Strata Geosystems (India) Pvt. Ltd., established in 2004, is a joint venture with Strata Systems Inc., USA (part of the 130-year old Glen Raven group of companies). Strata Geosystems provides end-to-end technical solutions, from design to execution for geotechnical applications such as reinforced soil walls (flyovers, road over bridges etc.), soil embankment stabilization, reinforced steep slopes, reinforced foundations, slope protection, load support for paved and unpaved roads and bearing capacity improvement, landfills]and reservoirs.

We are renowned for our quality, durability and cost effectiveness and manufacture conforming to strict international quality standards. Our committed team of experienced design engineers and project implementation specialists ensure timely and accurate installation.



STRATA
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ISO 9001 : 2008 Certified



Head Office: 317, Tantia Jogani Industrial Premises, J. R. Boricha Marg,
Lower Parel (East), Mumbai 400 011.
Tel.: +91 22 4063 5100 | Fax: +91 22 4063 5199
e: info@strataindia.com | w: www.strataindia.com