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CASE HISTORY

TENAX MS multi-layer bi-oriented geogrids to stabilize sludge landfill capping, Texas

PRODUCT	TENAX MS 500 multi-layer bioriented geogrids
LOCATION	Grand Prairie, Texas
OWNER	Trinity River Authority
INSTALLER	Brown & Lambrecht Earthmovers
ENGINEER	Freese & Nichols

PROBLEM

Trinity River Authority's landfill modification project in grand Prairie, Texas faced many design and construction difficulties. The 3700 m3 per day wastewater treatment plant was producing sludge at a faster rate than originally anticipated and 50% of the landfill areas were full. More room was required. Furthermore, the 80 hectars landfill cell had reached its capacity and needed to be closed. A slurry trench was proposed to intercept percolated leachate and a cap system was designed to prevent infiltration. Low, extremely wet and unstable areas existed over the top of the landfill. How could the contractor achieve proper compaction in the 0.90 m clay cap with an inadequate subgrade? What about differential settlements and landfill voids? What about the possibilities of the clay cap developing cracks and allowing infiltration?

SOLUTION

Freese and Nichols, the engineers for the project specified the use of an on-site soil sludge fill mixture to bring the cap up to the proper elevation, sloped to allow for drainage the primary problem was the instability of the top. The contractor had completely buried several pieces of equipment during his first traverse of the site. TENAX MS 500 multi-layer geogrid was incorporated into the double layer cap system for several important reasons. The first problem TENAX MS 500 solved was to help achieve proper compaction in the clay cap; TENAX MS 500 geogrid utilized its excellent interlocking capacity to help achieve the required 95% compaction in the clay. TENAX MS 500 also served to stabilize and reinforce the soft, saturated soilsludge mixture. And probably most importantly, TENAX MS 500 geogrid prevents the future development of desiccation cracks, which promote infiltration

CONCLUSIONS

TENAX MS 500 multi-layer bioriented geogrids have proven time and time again their advantages for this Trinity River authority earthwork project, TENAX MS 500 geogrids saved costly lime stabilization or undercutting and utilized normally unsuitable on site material. Construction time was saved due to the ability of the TENAX MS multi-layer bioriented geogrids to be effectively installed in wet conditions even in standing water as in this case.