

PUKEURI TREATMENT PLANT

The design approach for the new wastewater treatment lagoons behind the existing meat processing plant at Pukeuri was twofold.

In the event of any leakage occurring during the operational lifetime of the landfill, the high organic content could create a build up of gases under the Flexible Membrane Liner (FML) and create stress or worse, a possible rupture. The materials had to provide drainage to allow removal of fluids and provide a gas flow path under the FML.

Enkadrain, a drainage and gas vapour composite was installed down the side slopes in a staggered pattern and into a perimeter trench at the base where it was joined to the **Megaflor** base drain. A layer of **Bidim** geotextile was placed between each layer of **Enkadrain**.

Megaflor was installed as the subsoil drain on the base of each lagoon under a sand blanket.

The **Megaflor** drains were all directed to a small concrete sump under the

lagoon floor which was drained by vacuum pump to the crest of the embankments for return to a lagoon.

Megaflor's high surface area and its ability to be placed close to the surface despite construction and insitu loads was critical in this application. **Megaflor** was installed as a grid pattern combining 300mm main drains with 150 mm deep laterals.

To fully connect the **Megaflor** in this grid and also allow the laterals to be close to the surface, custom made connections were produced, numbered and colour coded to make installation straightforward. This ensured three and four way intersections at a variety of heights.

As a sand blanket would not have been practical on the steep slopes, **Enkadrain** was supplied to custom made lengths to reduce wastage. **Enkadrain** provided a gas flow path and prevented damage to the FML from the subgrade.



Megaflor installation on lagoon base



Enkadrain joining to Megaflor perimeter drain



Enkadrain and Bidim ready for installation on slope

UNIVERSITY CAMPUS DRAINAGE

Cordrain, a well proven geocomposite drainage system, was selected by Fletcher Construction for the basement wall drainage at the new Massey University Campus site in Albany, Auckland. In addition, it provided protection to the

geosynthetic clay liner waterproofing membrane.

Cordrain is increasingly installed in basement wall and retaining wall drainage to replace expensive and conventional gravel drainage. **Cordrain** has known hydraulic and filter properties to ensure the long-term effectiveness of the drainage system. Due to its light weight, it is extremely quick and easy to install.

Importantly, **Cordrain** also provided a protection layer to the specialist water proofing membrane chosen for the Albany site. However, **Cordrain** has also been used very successfully with a range of building membrane materials to provide assurances against damage as well as the water collection function.



Placement of Cordrain over water proofing membrane



Cordrain installation prior to backfilling

<p>PROJECT Massey University Campus</p> <p>LOCATION Albany, Auckland</p> <p>CONTRACTOR Fletcher Construction</p> <p>PRODUCT Cordrain CD1200</p>

<p>PROJECT Waste Water Treatment Plant</p> <p>LOCATION North Otago</p> <p>CONSULTANT MWH, Christchurch</p> <p>CONTRACTOR Downer Construction</p> <p>SUB CONTRACTOR Works Infrastructure</p> <p>PRODUCT Enkadrain SL / MEGAFLO 300/ MEGAFLO 150 / BIDIM A24</p>
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KAIAPOI CEMETERY DRAINAGE



The Kaiapoi Public Cemetery is located near the Cam River on the outskirts of Kaiapoi. This area has a high water table and suffers from surface flooding during occasional extended periods of wet weather.

When the cemetery needed an extension into the adjacent farmland, the only drainage point for the area was a shallow swale running down one side of the site. Increasing the drainage ability of the upper soil layer

was the only option available to improve conditions.

The subsoil drain was no more than 0.5m deep, draining into the swale and to get the fall over several hundred metres the conduit had to be installed close to the surface.

Megaflor 300 was chosen as the accepted drainage medium as it's high compressive strength allowed installation up to 150mm from the surface to survive vehicle loads.



Megaflor has a high surface contact area and one of the highest response times and efficiencies of sub soil drains, making the system ideal for this site and other turf and road edge applications.

<p>PROJECT Kaiapoi Public Cemetery</p> <p>LOCATION North Canterbury</p> <p>CONSULTANT Waimakariri District Council</p> <p>CONTRACTOR Calcon Asphalts</p> <p>PRODUCT Megaflor 300</p>



HIGH STRENGTH DRAINAGE FOR WATERMAIN PROJECT

For the Manurewa Trunk Watermain upgrade, a sub soil drain was specified to be installed alongside the pipe to reduce hydrostatic pressure in the trench. The watermain was installed in a trench 2.3m deep requiring the sub soil drain to have sufficient strength and robustness to withstand placement and backfilling compaction stresses associated with the large pipe installation process.

Megaflor 300 was chosen for this project because of its high compressive strength core, geotextile filter and high flowrates. The rigid core ensured the drain could be easily placed alongside the pipe and would not buckle or crush

when the trench was backfilled.

The Megaflor 300 is supplied pre wrapped in a Bidim non woven geotextile protecting the core from blockage and retaining the SAP7 used to bed and backfill the pipe.

The overall project took 7 months to complete and extended across the Southern Motorway and Great South Road. Only short sections of trench could be excavated at any one time but despite these constraints the project was managed with very little disruption to traffic.

Megaflor 300 had already been successfully installed on a previous section of the Manurewa watermain.

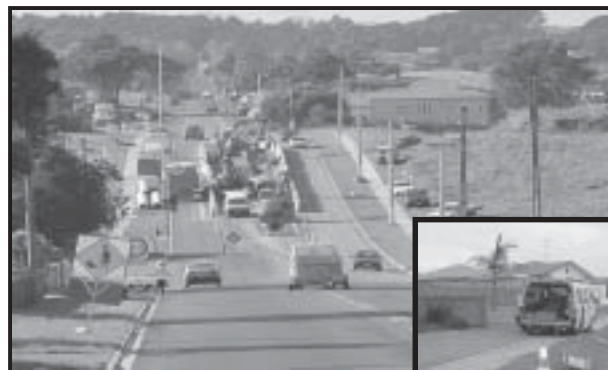
PROJECT
Manurewa Trunk Watermain

LOCATION
Manurewa, Auckland

CONSULTANT
Watercare Services

CONTRACTOR
Pipeline & Civil

PRODUCT
Megaflor 300



Construction in progress in Alfriston Road

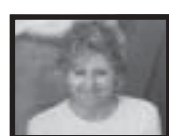


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MACCNEWS

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TECHNICAL SEMINARS - REGISTER NOW!

TENSAR GEOGRIDS IN ROAD PAVEMENTS

Designing Road Pavements Using Geogrids

Maccaferri NZ Ltd & Tensar International will be conducting a series of Seminars entitled "Designing Road Pavements Using Geogrids", around New Zealand, between 25 August - 5 September 2003.

This will be a half day Seminar which will be taken to major centres around the country. Presenters will be Mr Michael Dobie, Regional Manager Asia Pacific, Tensar International and Mr Gordon Stevens, Technical Manager, Maccaferri NZ. This Seminar will be of interest to Pavement Design Engineers, Asset Managers, Road Maintenance Engineers and Project/Contract Managers.

To register your interest and to find out the details of the Seminar nearest to you, please contact Phil Ball by either email: pball@maccaferri.co.nz, or fax (09) 634 6492

ARG PROVIDES ASPHALT SOLUTION

Another road successfully reinforced with Tensar ARG for Auckland City Council

An inspection of West End Road, Westmere by Auckland City Council engineer, showed that cracking of the original asphaltic concrete layer was evident. To remedy this situation and reinstate the integrity of the pavement, Tensar ARG was chosen as the asphalt reinforcement geogrid for this project.

To maintain the kerb heights, 50mm of existing asphaltic concrete was milled and the surface cleaned. A bitumen tack coat was then applied to assist in the adhesion of the ARG, followed by the laying of the ARG itself. Prior to placement of the new asphalt surfacing, the ARG was rolled with a pneumatic tyred roller to ensure intimate contact with the existing surface and good bitumen absorption into the geotextile. A 50mm layer of asphaltic concrete was then laid on top of the ARG in the traditional manner.



Before
After



Inside This Issue

Enkadrain for Pukeuri Drainage and Gas Venting	2
Massey Campus Drainage and Membrane Protection	3
Kaiapoi Cemetery Drainage.....	3
Megaflor for Watermain Drainage	4

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