CASE STUDY
WAIHEKE COMMUNITY RESOURCE RECOVERY PARK

MAGNUMSTONE™ GRAVITY SYSTEM

CONTRACTOR	CB Civil
CLIENT	Auckland Council
LOCATION	Waiheke Island, Auckland
PRODUCTS USED	MagnumStone Gravity System

ADVANCED GEOSYNTHETIC SOLUTIONS

THE PROJECT

Nestled away from the island's vineyards and white, sandy beaches, the Waiheke Community Resource Recovery Park cleanly disposes of the island's waste and recycles all those empty wine bottles. Adjacent to the Resource Recovery Park are several commercial buildings, built on unsurfaced, sloping land. A stormwater drain runs between the commercial buildings and the Recovery Park, but the sloping land was of such a consistent gradient from the street level right down to the stream, that large rain events caused land degradation, with silt runoff flowing directly into the stormwater system.

To prevent this from happening, and to reclaim more usable land, Auckland Council decided to install an enclosed retaining wall and create a level site around the back of one of the adjacent commercial properties, a property Auckland Council owns. Aesthetic swale drains were also required to surround the retaining wall, giving separation between the wall, neighbouring properties, and the stormwater drain, and to further prevent any sediment laden water from the newly leveled site entering the stormwater drain.

DESIGN

A tiered MagnumStone gravity wall edging the property's lower north, west and south boundaries was designed to retain as much usable land as possible within the existing site. With the use of extenders for quick installation, MagnumStone's large 0.75m2 face area per block made it an ideal solution. Being a gravity structure, the relatively small footprint allowed the wall to be built close to the existing stormwater drain, leaving the remaining area for the swale drains. MagnumStone also easily creates 90-degree corners, giving maximum land retention within the site.

A second gravity wall was designed, forming one side of the swale drain running along the property's lower, southern boundary. Its low height meant two MagnumStone blocks could simply be placed on top of each other without the need for extenders.

BioCoir was specified for use within the swale drains to allow plants to grow through while helping to prevent flooding, puddling and erosion.

INSTALLATION

Part of the problem was supplying to the island without incurring large transport costs. The MagnumStone blocks were loaded directly from Cirtex's manufacturing site in Kopu, onto a barge located nearby in the Firth of Thames and shipped directly to Waiheke Island, where they were transported to site. This meant ease and speed of delivery to the contractor, CB Civil.

The MagnumStone blocks and extenders are designed to be lifted into place with a small excavator. Due to the proximity of the stormwater drain and neighbouring sites, this meant the walls were easily constructed from within the proposed reinforced wall boundaries. The extenders simply slot into place, making the entire MagnumStone gravity wall system quick and easy to construct, which saved Auckland Council time and money.

By alternating the placement of the extenders, the 90-degree corners were also easy to construct, using MagnumStone's corner units to give the edges a sharp, clean finish. MagnumStone's hollow core also allowed for fencing to be integrated into the design, a requirement requested by the council as the area would be used by the public.

Now, this previously unusable, unsurfaced, sloping land has a solid, flat storage and unloading facility where customers can drive onto; one that won't clog up the island's stormwater system and will help keep the beaches and coastal waters clean.

The MagnumStone system used provided the following benefits to the project:

- Able to construct 90-degree corners
- Its hollow core means it's lighter to transport and install than solid concrete options
- Easy to build within a confined space
- Locally manufactured and stored, Cirtex goes that extra mile to supply and deliver

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GAIN MORE GROUND