



LAGUNA BEACH RECREATIONAL FACILITIES

Early in 1986, consulting engineers, Campbell Bernstein and Irving were commissioned to design new recreational facilities in the form of kiosks, paddling pools and the necessary supporting structure close to the sea at Laguna beach in Durban.

A number of alternative schemes, including steel or concrete piling, conventional concrete or gabion retaining wall as well as two types of segmented, plant supportive retaining wall systems were considered.

Important implications, relevant to projects involving the force of water, had to be taken into account -

- Anticipated depth of scour and erosion protection as foundation level.
- Dissipation of hydrostatic pressure by means of effective backfill design and drainage measures.
- Prevention of leaching by providing a closed vertical surface structure.
- Sufficient strength to withstand occasional extreme coastal conditions.

Aesthetic and cost considerations let the choice fall on Terraforce earth retaining system and contractors Goldstein Civils (Natal) started construction toward May 1986.

A minimum Terraforce element mass of 38kg (790kg/sqm constructed mass included topsoil) was specified. For durability in the aggressive coastal environment, a cement content of 300kg/qum concrete, was used in making the units.

After excavating the beach to foundation level of 1,5 m.s.l. (also the level of water table) a 1100x250 mm foundation of 25 mpa concrete was cast.

The bottom 3m of this structure, which is normally situated below beach level, was constructed with Terraforce elements filled with 15 mpa concrete and hot dip galvanised dowels locking individual rows together. Selected coarse backfill and weepholes were provided.

As a front line of defense in case of severe erosion of the beach, a gabions mattress apron topped with sand (4% cement - 1,5m wide and 1,5m high) was placed on top of the concrete foundation. Now the contractor proceeded constructing the wall to its full height of 6m above foundation level with the units filled with plant supportive topsoil. The structure is curved to match the radii of paddling pools above, and an existing stormwater outfall was incorporated to form a functional, yet attractive spillway onto the beach.

According to Mr Mike Franklin of Campbell Bernstein and Irving, the structure is now fully covered with indigenous vegetation and has experienced at least two severe storms in the past 5 years without any evident damage.



CARPOBOLUS EDULIS - SOUR FIG (S.A.) STEM CUTTINGS. VARIOUS SPECIES

