Project Name: **Port Elizabeth Foreshore Rehabilitation: Short-Term Solution**

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1. INTRODUCTION

This Specification covers the variations to SANS 2001-CC1, Construction works, Part CC1: Concrete works (structural), for the supply, delivery, handling, fabrication, storage and installation of concrete works required for use on marine structures.

2. SCOPE

This specification covers the properties and placement of the required geotextile.

3. DEFINITIONS

Woven: Fabrics formed by the uniform and regular interweaving of the threads or yarns in two directions. Woven fabrics shall be manufactured from monofilament yarn formed into a uniform pattern with distinct and measurable openings, retaining their position relative to each other. The edges of fabric shall be selvedged or otherwise finished to prevent the outer yarn from unravelling.

Nonwoven: Fabrics formed by a random placement of threads in a mat and bonded by heatbonding, resin-bonding, or needle punching. Nonwoven fabrics shall be manufactured from individual fibres formed into a random pattern with distinct, but variable small openings, retaining their position relative to each other when bonded by needle punching, heat, or resin bonding.

4. PROPERTIES

Geotextile for placement underneath the revetment may be of woven or non-woven construction, and conforms to the following requirements:

Property	Units	Value	Test Method
Trapezoidal Tear Strength	N	>1 050	ASTM D4533-85
Tensile Strength	kN/m	>40	SANS 0221-88
CBR Puncture	kN	>6,0	SANS 0221-88
Pore size (apparent opening size) O95H	mm	50 - 150	NFG 38.C17
Permeability	m/s	$>1\times10^{-5}$	SANS 0221-88
Porosity (non-woven fabrics)	%	>60	Calculation
Percentage open area (woven fabrics)	%	>5	Measurement

5. STORAGE

Before use, the geotextile shall be stored in a clean, dry location out of direct sunlight, not subject to extremes of either hot or cold temperatures, and with the manufacturer's protective cover undisturbed.

Receiving, storage, and handling at the job site shall be in accordance with the requirements listed in ASTM D 4873

6. SURFACE PREPARATION

The surface on which the geotextile is to be placed shall be graded to the neat lines and grades as shown on the drawings. It shall be reasonably smooth and free of loose rock, holes, depressions AND projections.

7. PLACEMENT

Before the geotextile is placed, the appropriate survey shall be conducted for quality assurance of the design and construction. The geotextile shall be placed on the approved prepared surface at the locations and in accordance with the details shown on the drawings. It shall be unrolled along the placement area and loosely laid, without stretching, in such a manner that it conforms to the surface irregularities when material is placed on or against it. The geotextile may be folded and overlapped to permit proper placement in designated area(s).

Prior to placing the underlayers and armour units, the filter fabric is made continuous either by firmly stitching together using double stitching with 500 mm overlap, or by providing overlaps of not less than 1 500 mm. The fabric is laid with care to avoid overstretching or puncturing of the fabric during and after laying thereof. When un-stitched laps are used, acceptable measures are implemented to ensure that the 1 500 mm overlaps are maintained until the underlayers or armour units are in position.