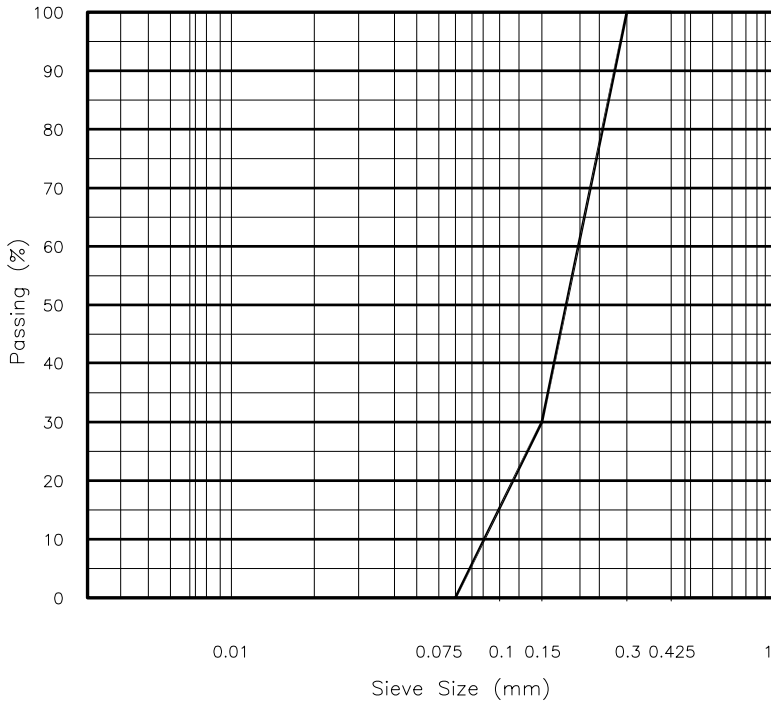


## GRADING ENVELOPE



### Notes:

1. This approval is for Woodhill sand as supplied by Winstone Aggregates Ltd.
2. The sand shall be a fine grained silty black sand without a clay fraction.

3. Properties of sample tested on 16 March, 1995.

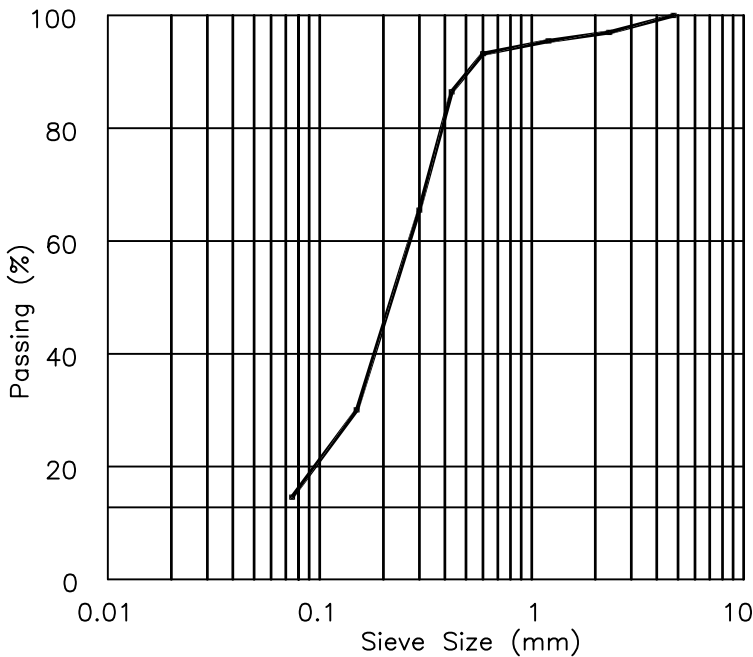
Grading:

SIEVE SIZE (um)	PERCENTAGE PASSING
425	100
300	99
150	32
75	0

4. CBR: 50% at max, Density of 1.9t/m (to ASTM D2049-69), Permeability: Average  $1.337 \times 10^{-10}$  m/sec to BS1377.

## WOODHILL SAND

## GRADING ENVELOPE



### Notes:

1. This product is an alternative to Woodhill sand.
2. Properties of sample tested on 20 October 2004:

SIEVE SIZE (mm)	PERCENTAGE PASSING
4.750	100
2.360	97
1.180	95
0.600	93
0.425	86
0.300	65
0.150	30
0.075	13

3. CBR is 60% and tested methods are:  
 Particle Size Distribution, NZS3111:1986:Test6.  
 CBR, NZS4407:1991:Test 3.15.  
 Water Content, NZS4407:1991:Test 3.15.  
 Compaction, NZS4402:1986:Method 4.1.3 (Vibratory).

## EXCELSIOR SAND

**MANARC**

MANUKAU CITY APPROVED  
REQUIREMENT

UPDATED:

APR 2005

DETAIL No:

MR-10

DETAIL:

SAND FOR USE IN  
REPLACEMENT OF UNDERCUTS  
IN ROADWORKS

**MANUKAU CITY COUNCIL**