

### AES System Sand Requirements

The AES system sand is a coarse filter sand, closely aligned with C33 sand specifications. The primary function of the AES system sand is to transport/allow movement of liquid and air to provide an environment around the AES pipes where oxygen dependant microorganisms can continue to thrive. If the sand is too coarse, there will be no capillary action and the effluent will drain through too rapidly, if too fine will become impermeable/anaerobic and drain through too slowly. If the silt content is above 2%, the silt migrates to the base of the bed and the soil can become less permeable, meaning the effluent disposal field has the potential to bind and fail.

Environment Technology Ltd has sought to bring clarification to sand suppliers around New Zealand with regards to common sand specifications and the following graph details these sands. The two main sand specifications used are C33 and the CCANZ fine aggregates.

The top orange line of C33 sand (maximum percentage passing through sieve) with the exception of sands below 0.15mm and the bottom dark blue line of the CCANZ sand (minimum percentage passing through sieve) give an 'envelope' which is suitable for use as AES system sand. In Pap7 sand in Northland can be used as AES System Sand.

The target particle size is between 0.5mm and 2.0mm. 100 percent of the sand sample could be within this range but it is not shown on the graph.

AES System Sand envelope - Sieve Size Percent Passing (by weight)

9.5 mm (3/8 inch)	100
4.75 mm (No. 4)	95 to 100
2.36 mm (No. 8)	80 to 100
1.18 mm (No. 16)	50 to 85
600 µm (No. 30)	25 to 60
300 µm (No. 50)	5 to 30
150 µm (No. 100)	0 to 10
75 µm (No. 200)*	0 to 2

