B.3 TEST SAMPLES

B.3.1 A 150 mm or 300 mm internal diameter sewer clay pipe has a 100 mm x 100 mm hole cut at mid-length. The repair shall be as close to 1 m in length as is reasonably practicable. The pipe can be reduced in length to ease handling, but shall exceed the length of the repair by a minimum length of 200 mm. The external surface of the clay pipes shall be coated with varnish to minimise the passage of test water through the clay pipe wall.

B.3.2 The repair shall be carried out using the same basic procedure that would be used on-site and the actual installation shall be witnessed by a representative from the testing body.

B.3.3 The 100x100 mm defect shall be positioned at the springing (i.e. the 3 o'clock or 9 o'clock position when looking along the pipe) during repair.

Note: otherwise a 'resin pool' may form if the defect is positioned at or near the crown during repair.

B.3.4 The test shall be undertaken in triplicate. During installation two repairs shall be undertaken with no hydrostatic head of water and one shall be undertaken against a 1m hydrostatic head of water with a flow rate into the pipe defect of 1 litre per minute.

B.3.5 Curing/setting of the repair and expansion of any water seals shall be completed before the section of pipe is tested.

B.4 TESTING PROCEDURE

B.4.1 This testing procedure is based on the requirements of the Civil Engineering Specification for the Water Industry, 5th edition[9] (equal to the leakage rate permitted in EN 1610[2]) for the permitted rates of infiltration into new sewers (see Clause 4.4.6).

B.4.2 The hydrostatic testing shall be undertaken over a 6-month period as follows:

- 4 weeks under cyclic pressure (i.e. 'wet' period), see below;
- 4 weeks with no hydrostatic pressure (i.e. 'damp' period);
- 4 weeks 'wet';
- 8 weeks 'damp', and;
- 4 weeks 'wet'.

Note: this wet/damp cycle is intended to simulate the seasonal changes in ground water level.

B.4.3 The hydrostatic pressure during the 'wet' period shall vary on a daily cycle via the following steps:

1) hydrostatic pressure is held at 1m head overnight;
2) hydrostatic pressure is increased to 2.5m head for one hour;
3) hydrostatic pressure is increased to 5m head for six hours;
4) hydrostatic pressure is decreased to 2.5m head for one hour;
5) hydrostatic pressure is decreased to 1m head, and;
6) to step 1.

Note: during the 'damp' period the hydrostatic rigs shall be drained, a stopper fitted in the lower end of the clay pipe and water poured into the pipe to keep the repair damp.

B.4.4 Any test water infiltrating via the repair shall be collected and measured so that the volume infiltrating during every 30 minute period can be calculated and recorded.

B.5 PASS/FAIL CRITERIA

B.5.1 The repair system is deemed to have passed the leaktightness test if all three tested repairs met the permitted infiltration rate defined in Clause 4.1

B.6 REPORT

B.6.1 The test report shall include:

a) Complete description and identification of the CIPP system;
b) Dimensions of the test piece;
c) Leakage measured;
d) The period of the test;
e) Whether the test was a 'PASS' or 'FAIL'; and
f) Any other relevant information.