Percolation Test Report

Foul effluent drainage field assessment for proposed package treatment plant installation

Site address	Wavertree Cottage, Park Lane, Parkside, Trevalyn, LL12 0BW
Clients	[redacted]
Test date	Tuesday 15 September 2026
Test pit arrangement	Test Pit 1: 300 mm x 300 mm x 300 mm test section at approximately 1.0 m invert depth. Test Pit 2: excavation abandoned on encountering heavy clay.
Ground conditions	Test Pit 1: mixed topsoil grading into clay. Test Pit 2: heavy clay.
Drainage purpose	Assessment of potential drainage field locations for treated foul effluent from a proposed package water treatment plant serving a new-build property at the site.

Conclusion

Based on the recorded observations, neither tested location is recommended as suitable for a drainage field for treated effluent from the proposed package treatment plant. Test Pit 1 reached the 75% level at 6m03s but failed to reach 50% within the one-hour observation period, so the required 75% to 25% fall was not completed and no valid Vp was established. Test Pit 2 encountered heavy clay and testing was abandoned as unsuitable. No drainage field size is recommended from these results. A boundary watercourse is present and a pumped package treatment plant discharging treated effluent to that watercourse is recommended as the alternative outfall arrangement, subject to final design, discharge requirements and relevant approvals.

1. Scope and Method

This report records percolation / infiltration observations undertaken at two proposed drainage field locations at Wavertree Cottage, Park Lane, Parkside, Trevalyn, LL12 0BW. The assessment relates to treated foul effluent from a proposed package water treatment plant serving a new-build property at the site.

Test Pit 1 was excavated to approximately 1.0 m invert depth, with a 300 mm x 300 mm x 300 mm test section formed at the base. The test section was prepared and pre-soaked before being filled to 100% for testing. Water levels were observed against the 75%, 50% and 25% reference levels. The standard drainage field percolation calculation requires the time for water to fall from 75% full to 25% full over a 150 mm fall. This required fall was not completed.

Test Pit 2 was partly excavated but heavy clay was encountered. The exposed ground conditions were considered unsuitable for infiltration and the water test was therefore abandoned.

Photographic evidence is included showing the site plan, pit locations, ground conditions and the recorded water levels / stopwatch timings during Test Pit 1.

2. Field Observations

Item	Observation
Test Pit 1 / Location 1	Mixed topsoil grading into clay. The pit was excavated to approximately 1.0 m invert depth with a 300 mm x 300 mm x 300 mm test section at the base. The test section was prepared, pre-soaked and filled to 100%. The 75% level was recorded at 6m03s. The water level then failed to reach 50% within the one-hour observation period and the test was terminated as unsuitable.
Test Pit 2 / Location 2	Excavation encountered heavy clay. Based on the exposed ground conditions, the percolation test was abandoned before water testing because the location was deemed unsuitable for infiltration.
Proposed drainage purpose	Assessment of potential drainage field locations for treated foul effluent from a proposed package water treatment plant serving the new-build property.
Boundary watercourse	A watercourse is present along the property boundary and is identified as a potential alternative outfall route for a pumped treatment plant, subject to final design and relevant approvals.

3. Percolation Assessment

The standard drainage field percolation value, Vp, is the average time in seconds for the water level to fall by 1 mm, based on the recorded 75% to 25% water-level fall. Because Test Pit 1 did not reach the 50% level within the one-hour observation period and neither location completed a valid 75% to 25% test, the observations below are recorded as failed / abandoned tests rather than adopted design values.

Parameter	Test Pit 1	Test Pit 2
Test section	300 mm x 300 mm x 300 mm at approximately 1.0 m invert depth	Not completed - excavation abandoned on encountering heavy clay
Ground conditions	Mixed topsoil into clay	Heavy clay
Recorded 100% level	Test section filled to 100% after preparation / pre-soaking	Not applicable
Recorded 75% level	6m03s from test start	Not applicable
Recorded 50% level	Not reached within one-hour observation period	Not applicable
Recorded 25% level	Not reached - test terminated	Not applicable
Adopted drainage field Vp	Not adopted - required 75% to 25% fall was not completed	Not adopted - no water test carried out due to unsuitable heavy clay
Result	Unsuitable / no compliant drainage field sizing value established	Unsuitable - heavy clay ground conditions

Failed test - no Vp adopted

Test Pit 1 reached the 75% reference level at 6m03s, but the water level did not reach 50% within the one-hour observation period. The 25% level was therefore not reached and a compliant Vp cannot be calculated or adopted. Test Pit 2 was abandoned before water testing because heavy clay was encountered.

4. Drainage Field Sizing Outcome

Drainage field floor area for domestic foul effluent from a package treatment plant normally requires a valid percolation value and the population equivalent served by the plant. For secondary treated effluent, the floor area is typically calculated from:

Design item	Value / comment
Drainage field floor area formula	A = p x Vp x 0.2
A	Required drainage field floor area in m2
p	Population equivalent / number of people served by the treatment plant
Vp	Adopted percolation value in seconds per millimetre from valid 75% to 25% tests
Result for this site	No drainage field size is recommended because no valid adopted Vp was established and both tested locations were deemed unsuitable.

No linear trench length or drainage field floor area has been specified. The tested ground conditions do not support an infiltration drainage field at either location.

5. Alternative Outfall Arrangement

A watercourse is located along the property boundary. In view of the unsuitable infiltration conditions identified at both test locations, the recommended alternative is a pumped package water treatment plant with the treated effluent outfall directed to the boundary watercourse.

The final treatment plant specification, pump arrangement, discharge point, pipe route, levels, access and any required discharge consent / approval should be confirmed by the treatment plant designer / installer and agreed with the relevant approving authority before installation.

6. Site Plan

The site plan below identifies the two test locations in relation to Wavertree Cottage and existing site features.



Site plan: Test Pit 1 and Test Pit 2 locations at Wavertree Cottage.

7. Installation Notes, Design Basis and Limitations

- Drainage field disposal should only be used where the site assessment, trial holes and percolation tests demonstrate suitable infiltration conditions and a valid Vp can be established.
- The required 75% to 25% water-level fall was not completed in Test Pit 1; therefore the field observations are not sufficient to support a compliant drainage field sizing calculation.
- Test Pit 2 was not water-tested because heavy clay was encountered during excavation and the location was deemed unsuitable for infiltration.
- The assessment relates to treated foul effluent from the proposed package water treatment plant only. Roof water, driveway runoff and other surface water catchments are not included.
- Seasonal groundwater levels, long-term groundwater monitoring, contamination risks, detailed watercourse levels, services, boundaries and building separation distances were not assessed as part of this report unless shown or described in the supplied site information.
- The boundary watercourse is identified as the preferred alternative outfall route. Suitability of the final discharge point remains subject to treatment plant performance, final hydraulic design, site levels and any statutory / regulatory requirements.
- Final treatment plant specification, population equivalent, pumping arrangement, discharge route, installation details, maintenance access and approvals should be confirmed by the designer / installer and relevant approving authority.
- If a drainage field is still proposed elsewhere on the site, additional percolation testing should be undertaken at the alternative location using the standard 75% to 25% method before any drainage field is designed.

8. Photographic Evidence

The photographs on the following pages were provided as evidence of the trial pit locations, ground conditions and Test Pit 1 water-level observations. The embedded image overlays record the test date / time and site location.

8. Photographic Evidence (continued)



Photograph 1: Test Pit 1 / Location 1 - excavation and test box at approximately 1.0 m invert depth.

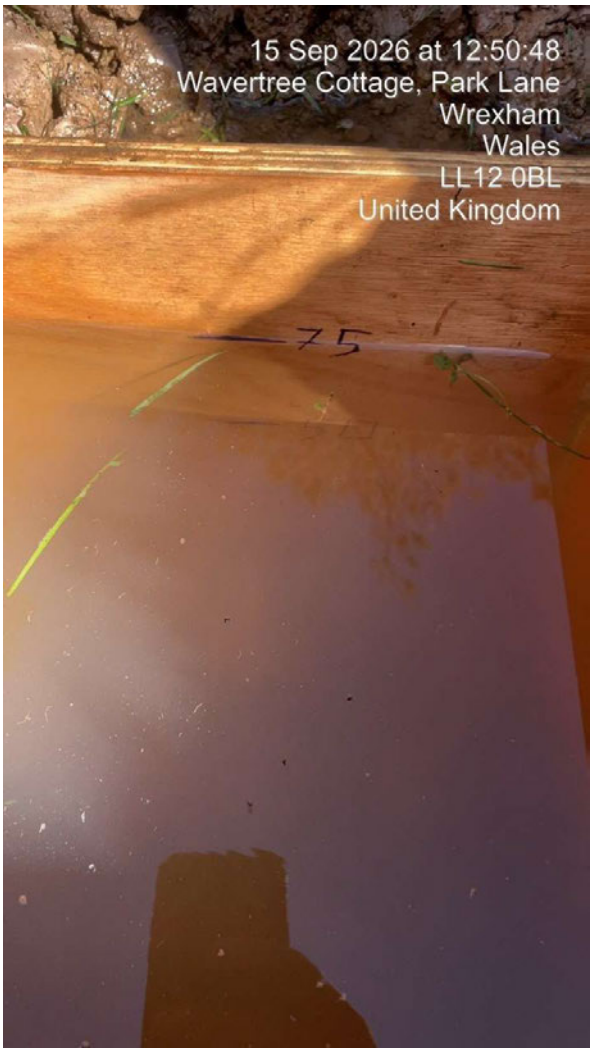


Photograph 2: Test Pit 1 - excavated material showing mixed topsoil / clay ground conditions.

8. Photographic Evidence (continued)

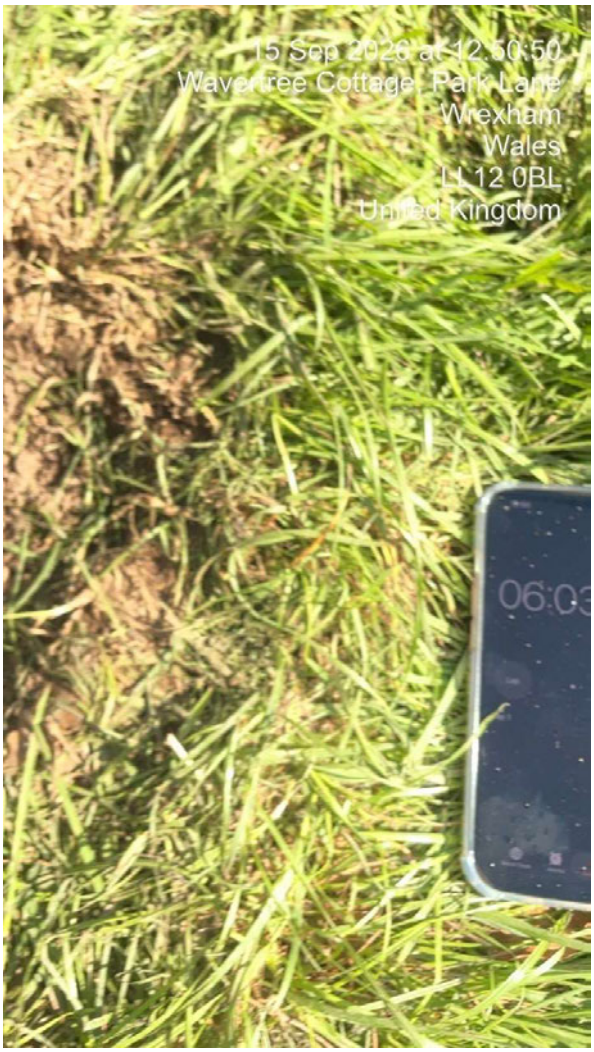


Photograph 3: Test Pit 1 - test section filled to approximately 100% following preparation and pre-soaking.



Photograph 4: Test Pit 1 - water level at approximately the 75% reference mark.

8. Photographic Evidence (continued)

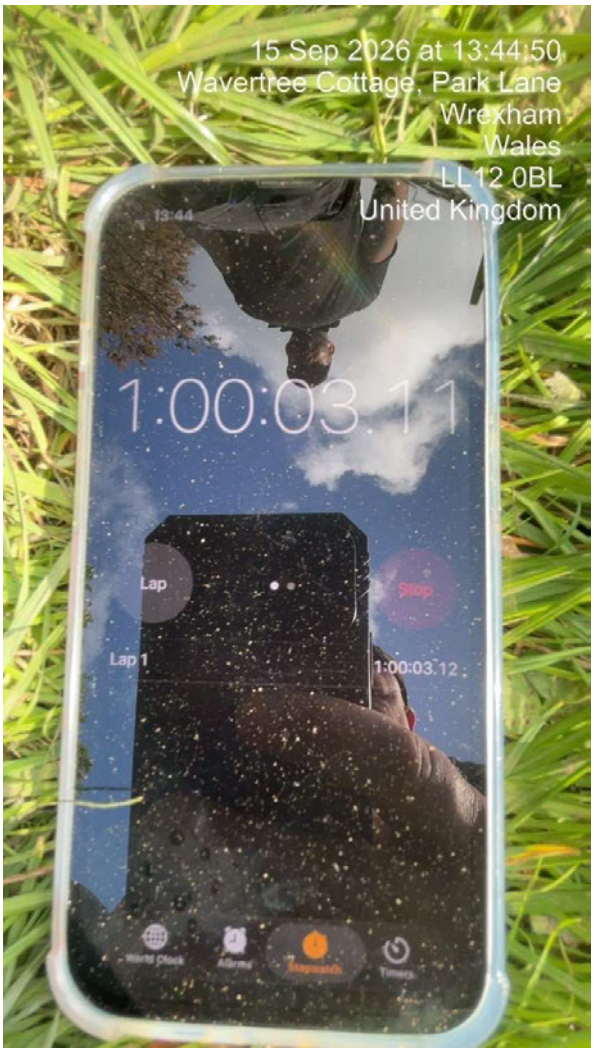


Photograph 5: Test Pit 1 - stopwatch record showing approximately 6m03s at the 75% level.



Photograph 6: Test Pit 1 - water level at the one-hour stop point, still above the 50% reference level.

8. Photographic Evidence (continued)



Photograph 7: Test Pit 1 - stopwatch record at approximately one hour when the test was terminated.



Photograph 8: Test Pit 2 - excavated material showing heavy clay ground conditions.

8. Photographic Evidence (continued)



Photograph 9: Test Pit 2 - close-up of heavy clay encountered during excavation.



Photograph 10: Test Pit 2 - exposed heavy clay within the trial excavation.

End of report.