Surface Water Drainage Comment Tracker

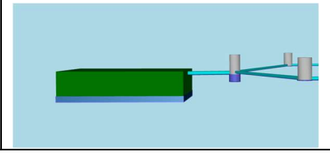
Application Reference: BN/82/24/DOC **Site Name: Cedar End Eastergate Lane Eastergate PO20 3SJ**	**Initial Issue Date: 19/09/2024** **Issue Date:** **Reviewer Reference: ADC/SB**

Summary and Recommendation:

Condition 5: **Objection**

Please note: Any DOC application should only have a maximum of two consultation responses. If this is the second response for an open application and there are still comments outstanding, then please object to the application.

	ADC Drainage Comments	Designer Response	ADC Further Comment	Designer Response	
Date:	**17/07/2024**	**07/08/2024**	**19/09/2024**	**01/10/2024**	
Condition Number: 5					
Comment Number					
1.	Please submit winter groundwater monitoring results. This is stipulation of the condition and essential to establish if infiltration is viable. Peak groundwater levels influence the depth that a soakaway is set to or the cover necessary on attenuation storage. If storage doesn't adequately account for the risk of groundwater ingress or buoyancy then flood risk may be increased as a result of the development.	The client has provided 3m trial pits over December, January and February, which did not encounter groundwater. The proposed depth of the soakaway is 2m, so the free-board is achieved and strata reported as consistant below 0.8m depth.	Despite being titled 'Groundwater Monitoring' Appendix 2 makes no reference to groundwater. No dates of observations are provided, and the document does not confirm that groundwater has not been observed in the trial pit(s). The depth of the proposed soakaway does not correspond with the depth of the infiltration testing – see point 2.	Apologies for the confusion. GWM was undertaken on the dates now included within the Report. It was not made clear within the Report that groundwater was not present at any visits and recorded in this manner. This has now been added to the Report for clarity. Additional historic Borehole Logs are issued showing Ground Water down at circa 6m – 7m.	
2.	Please submit further winter infiltration testing. The applicant has submitted evidence of three infiltration tests. However, these were completed on three separate days in different months rather than three tests in quick succession as prescribed by BRE DG 365. Each test was abandoned after 120 mins and none of the tests appear to record the time for water to fall from 75% to 25% of the pit depth. These tests cannot therefore be used to generate a reliable infiltration rate in accordance with BRE DG 365. The test depth of 3m risks penetrating peak groundwater levels but would need to be confirmed with winter groundwater monitoring as per point 1. Testing must be in the proposed location and depth of any proposed infiltration structure. This may result in two separate test depths, one for the soakaway and one for the permeable paving.	Refer to client infiltration testing results. We understand that the testing time represents the time at which the pit emptied. The lowest rate has been used in our FLOW model.	No specific dates of infiltration testing are provided. The trial pit was filled 700mm from the base, according to the drainage statement, this is not clarified in the infiltration testing document (Appendix 2). The recording of the water levels in the infiltration testing results is non-stand and not clear. The 'depth to water surface' could easily be interpreted as the depth from the top of the pit. The testing provided, if as described in the drainage statement, may be appropriate for a soakaway 0.7m in depth set 3m below ground level. However, the designer has proposed a 1.2m deep soakaway set at 2m below ground level. Infiltration testing must be completed at the proposed depth and location of the proposed infiltration feature. The proposed soakaway is also at a different location within the site to the infiltration testing.	The dates are now added to the Report. This is now clarified within the Report. All logs now confirm when empty. The trial pit logs indicate uniform soils in the head deposits between 0.8m and circa 3m and therefore the infiltration testing is deemed reasonable for use at the shallower level. Please see additional Site Investigation from Constructive Evaluation and email relating to comments the head deposits and location of trial pits.	

	The dates of all tests and the calculations to establish the design infiltration rate must be submitted.		It is unclear why/how the raw data for the infiltration testing has changed between Appendix 2 of the superseded drainage statement and the substitute document. None of the tests now submitted for December 2023, January and February 2024 correspond exactly with the previous submission. Please explain. The revised drainage statement states that an average infiltration rate has been used within the FLOW hydraulic modelling. This is not acceptable. The worst recorded infiltration rate must be used for the purposes of the design. Calculations for the design infiltration rate are not included in the revised drainage statement. Please submit these.	This was due to a saving/editing and administrational error all data is now correct for Cedar End. This was due to a saving/editing and administrational error all data is now correct for Cedar End. The design has now been revised to reflect the slowest achieved infiltration rate. Calculations have now been provided for the worst infiltration rate used.	
3.	Please submit further geotechnical information relating to the strata evidenced on site. Please state the depths that each stratum is evidenced at.	Refer to client testing report, which now includes a log for the strata and photos.	Thank you - point closed.		
4.	Disposal method – Rainwater reuse should be maximised where possible in line with the SUDS hierarchy. Please adjust the design to introduce rainwater reuse where possible.	Water butt for re-use now added to the drawing.	Thank you - point closed.		
5.	Disposal method – Infiltration is proposed, which we support, however the applicant has not evidenced that the strategy is viable with an approved testing method.	Refer to updated test data from the client.	See response to point 2.		
6.	Please submit revised calculations to support the design, these should use the following inputs: • **FEH 2022 rainfall data** • CV value of 1 for design and simulation events, both summer and winter storms. • Design infiltration rate applied to the sides of the soakaway only (not the base). • Design infiltration rate applied to the base of permeable paving only (not the sides). • Climate change allowance of 45% on the 1% AEP event.	BRE365 was used previously due to small size of development. A FLOW model is now provided to allow us to use FEH 2022. CV of 1 is adopted, 45% climate change is adopted for 1 in 100 year event, 10% urban creep is adopted. No additional storage proposed.	The design infiltration rate has been applied to both the sides and the base of the proposed soakaway, please only apply the design rate to the sides. Please submit 10%AEP calculations – to show that the incoming pipe to the soakaway is set above this level.	Calculations now updated to remove infiltration capacity from the base. Tanks size increase to 5m x 4m. 10%AEP event now included in the calculations. The inlet into the soakaway is very close to the top of the crates and well above the 10% water level. See below. 	

	• Climate change allowance of 40% on the 3.3% and 10% AEP events. • An allowance of 10% for urban creep. • Additional storage set to zero unless it can be evidenced where this storage is provided.				
7.	Please provide an assessment of water treatment for the updated design.	Assessment now included	The assessment and drainage statement does not account for the site being in an inner (1c) groundwater source protection zone. The planning officer is advised to consult the Environment Agency and Portsmouth Water for comment.	Noted	
8.	A revised drainage layout must be provided which corresponds with the supporting calculations.	Provided.	There is a discrepancy between the depth/invert of S1 between the calculations and the drainage layout/manhole schedule.	Please review. The cover levels and invert levels are the same. CL 17.100. Outgoing IL 16.273. Depth is different as FLOW notes depth to the base of the sump and not the invert.	
9.	Construction detail drawings for all drainage components must be provided for the updated design.	Provided.	Thank you – Please provide a construction detail for the catchpit manhole.	Now added to the details drawing.	
10.	Please confirm that no existing or proposed trees are near the proposed soakaway or pipes. Please indicate any areas that may need tree root protection on the layout as appropriate.	We confirm that there are no existing or proposed trees that will impact on the drainage.	Thank you - point closed.		
11.			Please specify the manufacturer and model of the crates being used, these need to be checked to ensure that they are capable of carrying the loads at the specified depth, particularly under the driveway.	Wavin Aquacell Core R. Detail updated to suit.	
12.			Please specify the subbase material beneath the driveway including its depth. [Natural ground is unlikely to support a vehicle. Please note that Type 1 material will not be acceptable as it is not permeable.]	Now added to the details drawing.	