

Cockpit Barn
Knowle Lane, Horton Heath

Drainage Summary for Discharge of Condition
October 2025

Application Ref is F/23/94713

Non-Technical Summary

This Drainage Summary has been prepared in support of the proposed construction of six residential dwellings and associated access roads at Cockpit Barn, Knowle Lane, Horton Heath.

This document should be read in conjunction with the accompanying plans submitted as part of the application for the discharge of Conditions 8 and 9.

Drainage Design Changes

The updated drainage strategy, shown in Appendix A, retains a similar approach to the previously approved plan, including the use of permeable paving areas and basins.

The principal modification involves the removal of the basin adjacent to Plot 6. This has been replaced with underground cellular storage to provide attenuation prior to discharge via a hydro-brake flow control into the existing basin.

Proposed Drainage Strategy

The development will incorporate a sustainable drainage system (SuDS) designed to manage surface water through infiltration and on-site storage. Surface water will discharge to ground via an infiltration blanket, with additional conveyance provided through ponds and swales. The system is designed to accommodate all storm events up to and including the 1 in 100-year return period, with a 40% allowance for climate change.

Foul drainage will discharge via gravity into the existing private foul sewer within land owned by the developer.

The proposed foul and surface water drainage systems have been designed to accommodate anticipated flows from the development. Accordingly, the proposals are deemed suitable for this location in drainage terms.

Surface Water Management

All surface water runoff from roofs, private access roads, driveways, and parking areas will be conveyed via permeable block paving to the site's internal roads and driveways. Flow will then enter the cellular storage system, as illustrated on drawing 'Drainage Layout Sheet 2 / 202 P04'.

Preliminary calculations, based on recorded infiltration test data, confirm that surface water drainage can be managed effectively within the site boundary, with no increased flood risk elsewhere.

A total effective storage volume of 30.816 m³ will be provided within a 450 mm thick infiltration blanket located beneath permeable paved areas.

Hydraulic Control and Flow Pathway

Flow control will be achieved via a hydro-brake system, discharging to Basins WQ2 and WQ3, followed by Swale 2 and Swale WQ4.

The proposed basins are not attenuation ponds; their sole function is water quality treatment, not storage. All attenuation is provided within the porous pavement matrix (Tank 1), where flows are restricted to 2.5 L/s before discharge to the first treatment basin.

The porous pavement system provides:

- Attenuation
- Cellular storage
- Primary treatment

Basins and swales provide secondary treatment only, with no further attenuation required. As such: Input flow = Output flow = 2.5 L/s (regulated from WQ1).

The porous pavement (Class C, sealed) will not allow infiltration to ground, consistent with the infiltration test results.

Water Quality Treatment

Two water quality assessments have been undertaken:

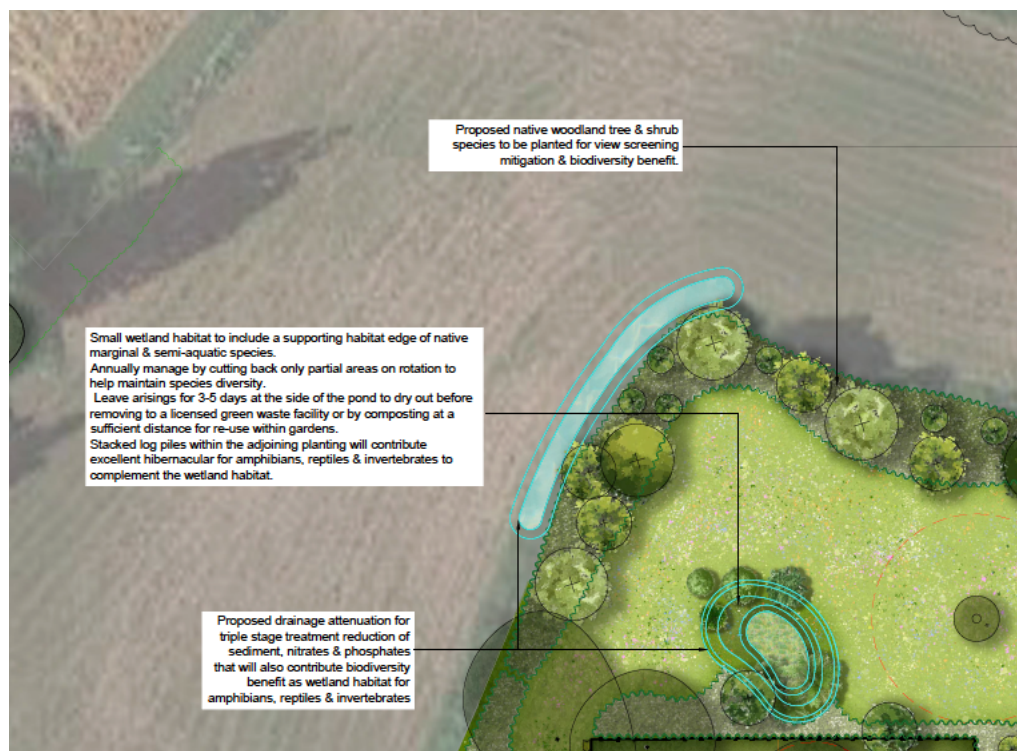
1. CIRIA C753 Standard Calculation:
 - Required Mitigation Index (MI): 0.7 / 0.6 / 0.7
 - Achieved MI (WQ1 only): 0.7 / 0.6 / 0.7
2. Proposed Scheme Calculation:
 - Achieved MI: 1.65 / 1.6 / 1.5
 - Hazard Index: 0.7 / 0.6 / 0.7

Under Eastleigh Borough Council (EBC) policy, compliance is assessed by treatment stage count rather than specific mitigation indices. The proposed system exceeds national standards and fully meets EBC policy requirements.

Surface Water Flow and Biodiversity

The swale has been positioned along the site's natural runoff pathway, maintaining discharge at the natural QBAR rate. Post-development flows will follow the same route at the same rate, ensuring no adverse impact on adjacent root protection zones (RPZs) or watercourses.

While the basins could be enlarged to enhance Biodiversity Net Gain (BNG), there is no hydraulic necessity to do so. Proposed planting and landscaping within the basins and swales will be detailed as part of the Condition 11 discharge submission.



Maintenance Schedule and Protection

Please refer to the provided 'Drainage Maintenance Report' produced by Cowan Consultancy dated, July 2025.

Surface Water & Water Quality Testing Results



Aqua Callidus Consulting Ltd
52 Common Lane, Titchfield,
Hants, PO14 4BU

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www.aquacallidus.co.uk

Date: 15/05/2023

Site Ref

Cockpit Farm Barn (EBC)

SubS Water Quality Management CIRIA C753 Ch26

Simple Index Approach

Catchment

parking

Is discharge to: SPZ1? ☐ N Drinking Water Protection Area? ☐ N

Is site in close proximity to an area with sensitive environmental designation?

☐ N

if so how close?

m

Is an additional treatment component required due to sensitivity?

☐ Y

Land Use

car parks-residential

Hazard
low

TSS Index	Metals Index	Hydro-Car Index
0.6	0.4	0.4

Treatments

To surface water discharge ☐ Y

Component

1 Permeable pavement

2 Pond

3 Pond

mitigation index

X1 Swale

Enhanced mitigation index

Residual pollution index

TSS MIndex	Metals MIndex	Hydro-Car MIndex	factor
0.7	0.6	0.7	1.00
0.7	0.7	0.6	0.60
0.7	0.7	0.6	0.60
1.4	1.3	1.2	
0.6	0.6	0.6	0.60
1.65	1.6	1.5	
0	0	0	

Land Use

car parks-residential

Hazard
low

TSS Index	Metals Index	Hydro-Car Index	residual
0	0	0	

Treatments

To groundwater discharge ☐ N

Infiltration surface

1 N/A

2 N/A

Final residual pollution index

TSS MIndex	Metals MIndex	Hydro-Car MIndex	factor
0	0	0	1.00
0	0	0	0.60
0	0	0	

Is a groundwater risk screening required?

☐ N

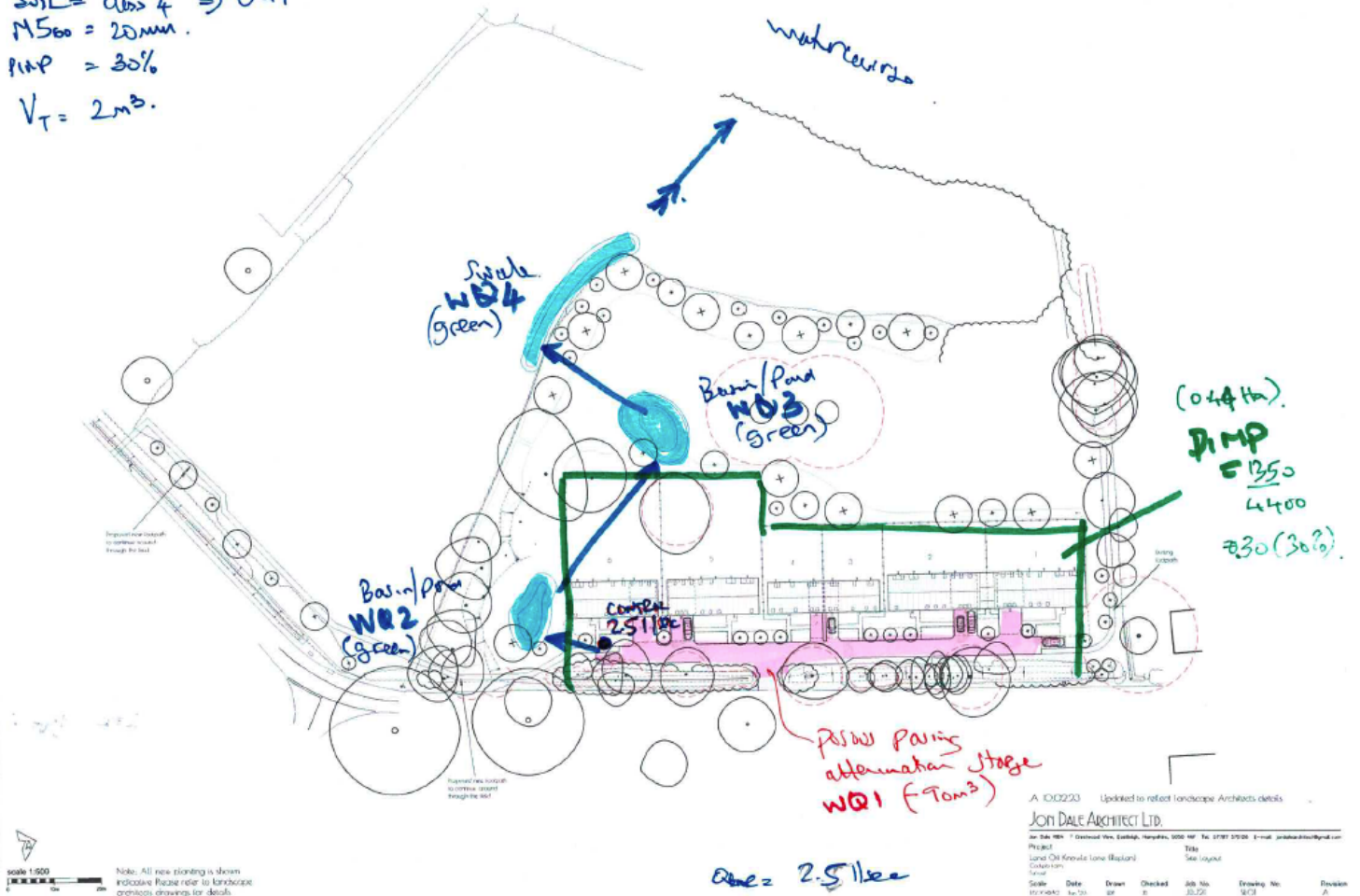
Notes:

Plans and Reports in relation to this report

- | | |
|-------------------------------------|----------------|
| a. Drainage Layout Overall | 435369-200_PO5 |
| b. Drainage Layouts Sheet 1 | 435369-201_P03 |
| c. Drainage Layout Sheet 2 | 435369-202_PO4 |
| d. Drainage Sections Sheet 1 | 435369-302_p01 |
| e. Private Drainage Details Sheet 1 | 435369-401_P01 |
| f. Private Drainage Details Sheet 2 | 435369-402_P01 |
| g. Private Drainage Details Sheet 3 | 435369-403_P01 |
| h. Drainage Maintenance Document | |

Appendices A Drainage Plan – Planning Stage

SITE
SOIL = class 4 $\Rightarrow$ 0.47
M500 = 20mm.
PMP = 30%
 $V_T = 2m^3$.



(0.44 Ha).
PMP
= 1350
4400
330 (30%).

Area = 2.511ha