

Engineers Comments Regarding Surface Water Drainage

Application Reference:	Y/9/25/DOC	Reviewer Reference:	ADC/PC
Planning Officer:	Amber Willard	Date of Review:	30/06/2025
Site Name:	Fleurie Nursery Lake Lane Barnham PO22 0AL		
Application Description:	Approval of details reserved by condition imposed under reference Y/26/24/PL relating to condition number 4 - surface water drainage scheme, condition number 5 - discharge flows to watercourses, condition number 6 - maintenance and management of the surface water drainage system and condition number 10 - Biodiversity Enhancement Layout.		
Assessment Number:	1 of 2		

Policy and Guidance Information

Arun District Council Surface Water Drainage Guidance - <https://www.arun.gov.uk/surfacewater>

Land Drainage Consent – <https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/flooding/flood-risk-management/ordinary-watercourse-land-drainage-consent/> and <https://www.arun.gov.uk/land-drainage-consent/>

Arun District Council surface water pre-commencement conditions - <https://www.arun.gov.uk/planning-pre-commencement-conditions>

The SuDs Manual [C753] by CIRIA

Sustainable drainage systems: non-statutory technical standards' <https://assets.publishing.service.gov.uk/media/5a815646ed915d74e6231b43/sustainable-drainage-technical-standards.pdf>

National standards for sustainable drainage systems
[National standards for sustainable drainage systems - GOV.UK](https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems)

Response

Condition 4: **Further information required**

Condition 5: **Objection**

Condition 6: **Objection**

Critical Items for Surface Water Drainage Design Conditions

The failure to adequately address the following items will result in an objection to a surface water drainage design.

If any of these items are inadequately addressed by the submission, then their correction may result in a redesign of the surface water drainage scheme. A redesign is likely to have site wide implications such as the potential for storage structures to increase in volume or plan area.

Critical Item	Reason	Status
Winter groundwater monitoring data.	Adequate winter groundwater monitoring data must be supplied to evidence that infiltration designs have sufficient freeboard from the base of structures and the peak groundwater level. The same data is necessary to ensure that the potential for buoyancy has been adequately considered in attenuation designs.	Compliant
Winter infiltration testing data.	Adequate winter infiltration testing must be supplied to justify the proposed discharge method and design infiltration rates. Infiltration tests must be completed strictly in accordance with BRE DG 365, CIRIA R156 or a similar approved method. Testing depths must account for peak groundwater levels and correspond with the location and depth of proposed infiltration features. Designs must be based upon the <u>slowest</u> infiltration rate evidenced closest to a proposed infiltration feature. Average design rates will not be accepted. The results of incomplete tests should not be extrapolated to obtain design values for infiltration rates.	Compliant – infiltration not viable due to high groundwater levels.
The hierarchy for sustainable drainage.	The proposed discharge method must accord with the SuDS hierarchy as given below. Evidence must be supplied to justify the proposed discharge method. 1. Rainwater reuse where possible. 2. Complete discharge into the ground (infiltration). 3. Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer. 4. Restricted discharge to an appropriate water body. 5. Restricted discharge to a surface water sewer. 6. Restricted discharge to a combined sewer. A water body may be defined as a river, watercourse, ditch, culverted watercourse, reservoir, wetland or the sea.	Compliant

	Engineers cannot support any proposed connection of surface water to the foul sewer.	
Calculations	Calculations for pre-development run off rates must be based upon the positively drained area only. Proposed discharge rates must not increase flood risk on site or elsewhere. Discharge rates must be restricted to QBAR or 2 l/s/ha, depending on whichever is higher.	Compliant
	Designs must be based on the most recently available rainfall data at the time of conditions being applied. <u>FSR rainfall data will not be accepted.</u> FEH rainfall data is based upon more recent records and continues to be updated.	Compliant
	Designs must use the correct climate change allowances at the time of determination of the outline or full planning application. CV values for all events must be set to 1. This includes summer, winter, design, and simulation events. The correct allowance for urban creep must be applied. Additional storage must be set to zero unless it can be evidenced where this is provided. Infiltration half-drain times must be less than 24 hours. Infiltration design rates must be applied to the sides of soakaways, or to the base of infiltration blankets. Design rates must not be applied to both the base and sides of infiltration structures. A surcharged outfall must be modelled.	Compliant
Natural catchments design.	The submission must define the natural drainage characteristics within, and hydraulically linked to, the site and demonstrate that the drainage proposals will integrate with and not compromise the function of the natural and existing drainage systems. The condition, performance (including capacity where appropriate) and ownership of any	Compliant

	existing site surface water drainage infrastructure must be accurately reported. Appropriate easements to watercourses and other services must be shown on all plans. Where there are areas of flood risk from any source on the site, it must be shown how a sustainable surface water drainage design can be accommodated on the site without conflicting with those areas of flood risk. Designs must replicate the natural drainage catchments of the site. All surface water drainage designs must therefore drain via gravity to corresponding points of discharge. The use of pumps for surface water drainage is not sustainable and will not be supported.	
Plans	Plan areas, depths and levels of drainage infrastructure must accurately correspond with the supporting calculations.	Insufficient – minor adjustment required.
Water quality benefits.	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	Not supplied – but will meet requirements.
Trees and planting	There should be no conflict between surface water drainage infrastructure and existing or proposed trees or planting. The design must consider the potential growth of proposed trees and adequate mitigation must be provided to protect drainage infrastructure where conflict cannot be avoided.	Compliant

Critical items for SuDS Maintenance Manuals

The failure to adequately address the following critical items will result in an objection to any application to discharge a SuDS maintenance manual condition.

Critical Item	Reason	Status
No approved plans	The maintenance manual must include all approved plans of the surface water drainage. If the design is still unapproved then it is not possible to approve the associated maintenance manual.	Insufficient

Drainage Impact on Other Planning Matters

This application has been assessed with regards to surface water drainage design only.

Other planning matters occasionally effect the surface water drainage design. If plans relating to other matters have been assessed for their impact on the proposed drainage, then it must not be assumed that they have been assessed for any other purpose. The planning officer is advised to check for conflicts with any existing approved plans and to consult any relevant consultees as appropriate.

The applicant should refer to the enclosed comment tracker which will detail our latest comments that need to be addressed.

Application Reference: Y/9/25/DOC Site Name: Fleurie Nursery Lake Lane Barnham PO22 0AL	Initial Issue Date: 21/02/2025 Issue Date: 30/06/2025 Reviewer Reference: ADC/SB & PC
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Summary and Recommendation:

Condition 4: **Further Information Required**

Condition 5: **Objection**

Condition 6: **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 Drainage Comments		
Date:	21/02/2025		30/06/2025		
Condition Number: 4 [Surface water design]					
Comment Number					
1.	Please submit greenfield run off rate calculations.	Please find Greenfield Runoff Calculations Attached. As it was confirmed that due to the high groundwater level and low infiltration results, infiltration was ruled out and SOIL type for Greenfield calculations has been updated to Soil Type 5.	It would appear that the calculation has been based upon the entire site area as opposed to just the impermeable/drained area. Nevertheless, the QBAR flow rate is minimal. Comment closed.		
2.	Runoff rate must be restricted to QBAR or 2l/s/ha (whichever is higher) unless otherwise agreed. (Linked with comment 1). Please adjust or submit evidence of agreement to a different rate.	The Greenfield runoff calculations with Soil Type 5 indicate a Qbar of 0.162 l/s. However, to avoid any blockages and potential risk of flooding due to the small diameter of the orifice, surface water runoff is to be discharged at 1l/s with 20mm orifice diameter.	See also response to comment 1. Restricted discharge of 1 l/s is acceptable in this instance. It is noted that the orifice will be protected from blockage with a mesh filter. Comment closed.		
3.	Please model a surcharged outfall (to the top of the bank if watercourse specific modelling is not available). Otherwise please justify why this is not necessary.	Please find the updated calculations attached. Kindly note that the surcharged depth has been set considering the top of the banking along the western side of the ditch, which is slightly lower than at our site.	Noted and accepted. Comment closed.		
4.	Please correct discrepancies between cover and invert levels on the plans and the calculations. [It is acknowledged that this is unlikely to affect the design.]	Discrepancies are now updated, please find the revised drainage plan and drainage calculations attached.	Cover levels for S3 and S4 differ. Please adjust.		
5.	Please correct the impermeable area contributions in the modelling. Currently less than described on the plan due to rounding down. The southern areas are also shown entering the system at S4 which is an inaccurate representation. If grouped together then they should be showing as entering at S5.	Please find the updated drainage calculations attached with impermeable areas being added to drainage nodes.	Noted and accepted. Comment closed.		
6.	Please show any relevant easements on the plans.	The existing watercourse 3m easement is now indicated on drainage plan	Noted and accepted. Comment closed.		

7.	Please demonstrate how any areas of surface water flood risk are accounted for within the design.	The proposed access road that is going to be raised in levels is to be graded following the existing site topography with levels being graded towards the existing watercourse. This is to mimic the existing flood water route.	Noted and accepted. Comment closed.		
8.	[Water quality and treatment have not been assessed, this is accepted based on the design only draining roof water – The SuDS Manual stipulates that removal of debris and sediment is required which is provided by catch pits in S5, S3 and S2.]		Comment closed.		
9.	The landscape and ecology management plan refers to a post and rail fence installed post-development to protect the rife. Please clearly demark this fence on the plans and ensure that is not within the easement for the watercourse.	The proposed post and rail fence is now indicated on the proposed drainage plan. Proposed fence is to be located min. 3m away from the top of the banking (easement).	Noted and accepted. Comment closed.		
10.	The existing access appears to be artificially raised (previous level 8.55, proposed level 9.10). This is also an area of surface water flood risk – see comment 7 – please justify the change in level and demonstrate any impact on flood risk.	As per the response to comment 7, access road is to be raised to meet the proposed site levels. Access road will be graded following the existing site levels with a slope toward the existing watercourse to mimic the existing runoff discharge regime.	Noted and accepted. Comment closed.		
11.	The orifice for S5 is described on the layout as being 500mm diameter. This is assumed to be a typo (confused with the chamber diameter), please correct.	Orifice chamber diameter has been updated to 600mm diameter and orifice diameter to 20mm.	Orifice chamber is shown as 900mm diameter. 20mm orifice noted. Comment closed.		
12.	The modelling does not include the flap valve.	Flap Valve is now included	Noted and accepted. Comment closed.		
13.	Please remove the standard (non-site specific) headwall details from C2904-P-501. These contradict the OWC drawings which are more detailed and site specific.	Headwall detail has been removed. It should be noted that OWC drawings have been issued and comments have been received. Drawings are now updated and the updated drawings have been issued for final review.	Noted. Comment closed.		
14.	Please detail the overflow level of the Sel Controflow 500 Orifice Chamber.	Overflow level is now indicated on orifice chamber detail.	It is noted that the overflow level of 9.150 is higher than manhole S3 cover level (9.00) upstream, so in the event of a blockage at the orifice, excess water may overflow from S3 before the formal overflow at S5 operates. Please advise.		
15.	The orifice for the design is very small, how is risk of blockage mitigated for in the design?	All downpipes are to be installed with Leaf separators. Orifice chamber is to be installed with orifice filter plate.	Noted. Comment closed.		
16.	There is a risk of a clash between the surface water and foul drainage north of S4 and west of F6. Please adjust the design, if possible, to minimise this risk.	Clash has been reviewed and a separate note indicating proposed SW and FW pipes invert levels is now indicated.	Noted. Pipes are close when allowing for pipe thicknesses but achievable. Comment closed.		

17.	Please submit a statement detailing how groundwater will be managed during construction. a) To ensure groundwater cannot enter the system. b) To demonstrate that flood risk will not be increased by dewatering excavations.	See additional statement attached.	The document will need to specify where any dewatering pumps will discharge, the discharge rate, silt control measures to mitigate pollution and erosion control measures if required. Flow rates to be minimised by appropriate measures. All measures to be specified.		
18.	Please submit evidence of the structural/buoyancy calculations to justify the design.	Please find buoyancy calculations attached. It should be noted that concrete slab weight has been excluded from floatation calculations.	Noted. Floatation risk rests with the designer. Comment closed.		
19.	Please propose water reuse or justify why not.	1000litres harvesting tank is now proposed to be installed for each caravan building.	Notes, however, please detail how the inlet to butt/outlet from butt to surface water drainage system, will be arranged ie. RWP flow diverter kit.		
20.	Evidence how interception drainage is provided – links with point 19.	Surface water runoff is to be re-used either for harvesting or toilet flushing subject to buildings internal plumbing design. Each caravan building is to be constructed with 1000 litres above ground tank.	Noted. Comment closed.		
Condition Number: 5 [Watercourses]					
Comment Number					
1.	Please submit evidence of ordinary watercourse consent and supporting approved plans and drawings.	First set of comments has been received and the updated drawings have been issued for a final review and approval.	Please provide copy of consent and approved drawings when available. Please note that if the 'Lead Local Flood Authority' deem that 'Ordinary Watercourse Consent' is no longer required (due to a change of stance in requirements) then consent will be required under Arun District Councils Land Drainage Byelaws 2004 – evidence of approval will be required.		
Condition Number: 6 [Maintenance and Management]					
Comment Number					
1.	It is not appropriate to approve the maintenance manual until it has been appended with the approved plans to discharge condition 4.	Maintenance and Management statement has been updated taking into account checklist comments.	All (revised/approved) drawings will need to be <u>appended</u> to the maintenance manual.		
2.	See checklist for additional items required.		The manual needs to explain how the Suds system is designed to operate. Clarification needs to be included in terms of how the maintenance and replacement of components is funded ie. owner and/or occupants of dwellings. Remove foul treatment plant section as not applicable to the Suds.		

			Include a specific section on the flow control chamber (including mesh filter) as this is one of the most critical elements.		

If a designer would like a .docx version of this document to aid administration of responses, please request this by email to land.drainage@arun.gov.uk.

From: Nicola Oktay on behalf of Planning.Responses
Sent: 01 July 2025 09:14
To: Planning Scanning
Subject: FW: Planning Re-Consultation on: Y/9/25/DOC
Attachments: Y-9-25-DOC - Fleurie Nursery 1.docx; Y-9-25-DOC - Fleurie Nursery Comment Tracker.docx

Drainage Engineers response

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Our priorities...

Improving the wellbeing of Arun

Delivering the right homes in the right places

Supporting our environment to support us

Fulfilling Arun's economic potential

From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 30 June 2025 11:17
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Sarah Burrow <Sarah.Burrow@arun.gov.uk>; Amber Willard <Amber.Willard@arun.gov.uk>
Subject: RE: Planning Re-Consultation on: Y/9/25/DOC

Please find enclosed my consultation in respect to conditions 4, 5 and 6.

Regards

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Principal Drainage Engineer, Coastal Engineers and Flood Prevention

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Our priorities...

Improving the wellbeing of Arun

Delivering the right homes in the right places

Supporting our environment to support us

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From: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: Wednesday, March 26, 2025 11:33:29 AM (UTC+00:00) Monrovia, Reykjavik
To: Land Drainage <Land.Drainage@arun.gov.uk>
Subject: Planning Re-Consultation on: Y/9/25/DOC

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No:	Y/9/25/DOC
Registered:	24th January 2025
Site Address:	Fleurie Nursery Lake Lane Barnham PO22 0AL
Grid Reference:	497622 104682
Category:	Discharge of Condi
Description of Works:	Approval of details reserved by condition imposed under reference Y/26/24/PL relating to condition number 4 - surface water drainage scheme, condition number 5 - discharge flows to watercourses, condition number 6 - maintenance and management of the surface water drainage system and condition number 10 - Biodiversity Enhancement Layout.

I am able to inform you that I have received an amendment to the above application dated 26th March 2025 relating to: Additional drainage information, update to comment tracker

If you should wish to make further representations as a result of this amendment, please make any further comment by **5th April 2025**.

[Click here to view the application, documents and make further comments](#)

Please be aware that any comments you may make will be available on our website so please do not insert personal details or signatures on your reply.

Yours sincerely

Amber Willard

Planning Case Officer-Arun District Council

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