

Engineers Comments Regarding Surface Water Drainage

Application Reference:	P/107/25/DOC	Reviewer Reference:	ADC/EXT4
Planning Officer:	Jessica Riches	Date of Review:	31/10/2025
Site Name:	Land West of Hook Lane Pagham PO21 3PB		
Application Description:	Approval of details reserved by condition imposed under P/149/23/S73 relating to condition 9 c) surface water drainage.		
Assessment Number:	2 of 2		

Policy and Guidance Information

Arun District Council Surface Water Drainage Guidance (including design checklists) - <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/>

Arun District Council Land Drainage Byelaws - <https://www.arun.gov.uk/byelaws/>

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

The National Standards for SuDS - <https://www.gov.uk/government/publications/national-standards-for-sustainable-drainage-systems/national-standards-for-sustainable-drainage-systems-suds>

The SuDs Manual [C753] by CIRIA

Response	Condition 9 C: Objection
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References

The NPPF states that when determining any planning application, local planning authorities should ensure that flood risk is not increased elsewhere (paragraph 181, 182 and 187e). The PPG guides local planning authorities to refer to 'Sustainable drainage systems: non-statutory technical standards' [NsTS] and detailed industry guidance like The SuDS Manual [C753] by CIRIA to guide decisions about the design, maintenance, and operation of sustainable drainage systems for non-major development.

The NsTS have been superseded by the National Standards for Sustainable Drainage Systems [NSfS] from 19 June 2025.

This consultation has been primarily informed by the NSfS and The SuDS Manual.

Summary

This summary highlights if critical items aligning with each of the standards have been met. Critical items are highlighted in **bold** on our surface water drainage design checklist (linked above). A failure to address these will result in an **objection** to any application to discharge a surface water drainage design condition.

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, or the provision of other important infrastructure to satisfy the NSfS set out below.

All relevant items on the checklist are expected to be met before an application to discharge an application to discharge a SuDS design condition is supported.

Our response and requirements are elaborated upon or condensed within an attached comment tracker where necessary. If a comment tracker is provided a designer is encouraged to refer to this and respond to comments to aid further review. Please request a .docx version of this document to by email to land.drainage@arun.gov.uk if needed.

Standard	Assessment	Response
1. Runoff destination	Insufficient	Objection
2. Interception drainage	Compliant	No objection
3. Extreme Rainfall and Flooding	Compliant	No objection
4. Water Quality	Compliant	No objection
5. Amenity	Compliant	No objection
6. Biodiversity	Compliant	No objection
7. Construction, operation, maintenance, decommissioning and structural integrity	Insufficient /	Objection

Reviewed Plans

The following documents have been submitted and reviewed to inform this consultation with reference to surface water drainage:

- RESPONSE TO PLANNING COMMENTS INCLUDING CALCULATINOS-REVD
- APPENDIX A FLOTATION CALCULATIONS
- APPENDIX B REVISED FLOW CALCULATIONS
- APPENDIX C DESING STORM EVENTS 1 IN 1/10/30 & 100 YEAR EVENTS
- APPENDIX D CATCHMENT AREA DRAWING -C010
- APPENDIX E MASTERPLAN DEVELOPMENT LAYOUT & PREVIOUS CORRESPONDENCE
- APPENDIX F MASTERPLAN DEVELOPMENT SHOWING SURROUNDING DRAINAGE AND APPROVAL
- APPENDIX F REVISED CSP DRAWINGS-DRAINAGE LAYOUT/CONSTRUCTION DETAILS/DRAINAGE ELEVATIONS/ECO BLOCK DETAILS
- APPENDIX G ROOT BARRIER & CELLULAR STORAGE CORRESPONDENCE
- APPENDIX H GRAF CELLULAR STORAGE TYPICAL DETAILS
- APPENDIX I PUMP STATION TYPICAL DETAILS
- APPENDIX J GROUND WATER MONITORING REPORT

Condition wording

Condition 9 C is worded as follows:

C) Development shall not commence, other than works of site survey and investigation, on land identified as Care Home within the Hook Lane Parcel Plan Rev L until full details of the proposed surface water drainage scheme for that land have been submitted and approved in writing by the Local Planning Authority.

The design of the surface water drainage scheme should follow the hierarchy of preference for different types of surface water drainage disposal systems as set out in Approved Document H of the Building Regulations, and the recommendations of the SuDS Manual produced by CIRIA. Winter groundwater monitoring to establish highest annual ground water levels and winter Percolation testing to BRE 365, or similar approved, will be required to support the design of any Infiltration drainage.

No building shall be occupied until the complete surface water drainage system serving an individual property/building has been implemented in accordance with the agreed details and the details so agreed, and shall be maintained in good working order in perpetuity.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies W SP1, W DM1, W DM2 and W DM3 of the Arun Local Plan. This is required to be a precommencement condition because it is necessary to implement the surface water drainage system prior to commencing any building works

Consultation comments to the planning officer

1. Please see the attached comment tracker for detailed comments relating to the submission.

Drainage Impact on Other Planning Matters

This application has been assessed with regards to surface water drainage design only, together with land drainage aspects if deemed necessary.

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.

It has been identified that the following consultees may have comments about the plans that have been submitted and reviewed for this application:

- ☐ Landscaping officer (proposed trees and landscaping)
- ☐ Tree officer (existing trees)
- ☐ Environment Agency (main rivers and fluvial/tidal flood risk, River Arun internal drainage board, groundwater source protection zones)
- ☐ Southern Water (foul drainage and surface water disposal to public sewer network/groundwater source protection zones)
- ☐ Portsmouth Water (groundwater source protection zones)

- ☐ Lead local flood authority (all other sources of flooding and ordinary watercourses)
- ☐ Other: Specify
- ☐ None

Application Reference: P/107/25/DOC Site Name: Land West of Hook Lane Pagham PO21 3PB	Initial Issue Date: 31/10/25 Issue Date: 31/10/25 Reviewer Reference: ADC/EXT4
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Summary and Recommendation:

Condition 9: **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 (P/29/25/DOC)	Designer Response	ADC Drainage Comments		
Date:	12/07/2024	18/07/2024	30/10/2025		
Condition Number: 9 Surface Water Drainage					
Comment Number					
1)	It is recommended that the applicant reviews the surface water drainage design checklist provided on the Arun District Council website and makes a full resubmission including all required data, even if it has been submitted under previous applications. The comments below are given on the information that has been submitted to date, further information is required as listed on the checklist.	1.Note explains that these points have been answered already but still require more information to be supplied despite previous satisfactory responses.			
2)	Groundwater monitoring data has been submitted which shows groundwater level varies at depths of	2. CSP have provided flotation calculations in Appendix A.	Noted, item is now closed		

	approximately 1 – 1.4m below ground level. This rules out the use of infiltration. Provide details of counter-buoyancy measures and calculations and for the proposed cellular storage tanks				
3)	The calculations provided are not consistent with the drawings and appear to include errors: a) The permeable paving area in the calculation is stated as 30x25=750m² whereas the catchment drawing states 641m² b) Demonstrate that the 1:150 gradient used for the permeable paving is representative of the levels c) The porosity used in the calculation for the permeable paving is 1. This should reflect the void ratio of the sub base d) The permeable paving invert level used in the calculations will cause the	A. Updated Drawings & Calculations. B. Updated Drawings & Calculations. C. Responded in previous Rev. C calculations. Updated Drawings & Calculations. D. If you review C003 drawing – it is greater than 742mm invert. No impact.	Noted, item now closed		

	software to use a depth of 742mm. The depth on the construction details is 200-300mm e) Tank SW1 appears to be oversized in the calculations. The drawing states 21.6x3.6=77.76m². The calculations use an area of 82.1m² f) Calculations use a design head of 1.5m for the flow control, 1m is stated on the drainage plan g) The final connection is shown as 150mm dia on the drainage plan but 300mm dia in the calculations. It is shown with a gradient of 1:200. Demonstrate that this will be self cleansing with the proposed 2l/s flow rate. h) The calculations do not confirm pipe gradients or lengths i) The calculations do not include invert levels but a check using the chamber depth shows that that invert levels in the calculations are	Updated Drawings & Calculations E. This will have no impact on calculations or drawings. Updated Drawings & Calculations. F. This was answered in Rev. C calculations. Updated Drawings & Calculations. G. Responded in previous Rev. C calculations. Updated Drawings & Calculations. H. These details are ALL in the Rev. C calculations. Pg25-28 including other sections. Updated Drawings & Calculations. I. These details are ALL in the Rev. C calculations. Pg25-28 including other sections. Updated Drawings & Calculations.			
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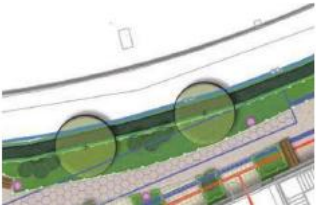
	not consistent with the drawings. j) The calculations do not include results for all required design storm events k) The calculations do not include the FEH22 point descriptor information. Ensure calculations are consistent with the drawings and show all information	J. Replied in Rev. C calculations. Updated Drawings & Calculations. K. These details were included in Rev. C calculations. Updated Drawings & Calculations			
4)	Whilst a catchment drawing has been provided it does not clearly split the catchment into nodes. eg. a) Area 8 catchment is collected by 2 nodes. b) Similarly, whilst the total permeable paving area is shown, it is collected by 3 nodes. Provide a catchment drawing demonstrating the catchment for each node in the calculations	A Updated Drawings & Calculations. B Updated Drawings and Calculations	Noted, Item is now closed		
5)	The design proposals should clearly demonstrate its relationship with the surrounding	5. This was provided in Rev. A calculations. See Appendix E.	The information provided in Appendix E indicates that the peak discharge from the site		

	Bellway's development, especially as its proposing to connect to a surface water manhole provided within that development. In addition, confirmation of acceptance of these flows, based on the proposed contributing areas from this development should be provided		should be restricted to 1.89l/s whilst the proposals are to discharge at 2l/s. Whilst this is "only" 0.11l/s" increase it is important to ensure that the downstream network can accommodated this increase peak discharge into their system and therefore please provided confirmation of acceptance of this increased discharge		
6)	The drainage construction details are not consistent with the others plans and the calculations. a) The tank detail shows a manifold arrangement for the tank connections, the plan shows a single pipe b) The tank detail shows catchpits upstream and downstream of the tanks, they are not shown on the plan or manhole schedule c) The volume stated for tank ST2 is not consistent with the plan	A These details were provided in Rev C. calculations. Updated Drawings & Calculations. B. These were provided in Rev. C calculations. Updated Drawings & Calculations. C. This was provided in Rev. C calculations. Updated Drawings & Calculations.	A. The tank detail on drawing 9418-C003-H still indicates conflicting information. The plan section indicates 2x 225mmdia. Or 3x150mm dia pipes whilst the section indicates a 300mm		

d) Vent pipes are shown on the top of the tank “by others” connecting to the upstream and downstream chambers, no details are provided showing how these chambers are vented e) The tank detail suggest that pipes run through it at base level, this is not shown on the plan f) The tank detail refers to Ecobloc and Stormcell, the plan refers to Aco Stormbrix. g) The tank detail does not state which specific product in the range it to be used. eg. There are 3 types of Stormbrixx h) The tank detail specifies a plan size that is not consistent with the drainage plan i) The tank detail makes reference to “final detailed design by Ecobloc. Provide the final design j) The permeable paving detail shows a 150mm perforated pipe, the	D. Updated Drawings & Calculations.. E. Updated Drawings & Calculations. F. Rev. C calculations. GRAF ECO block MAXX clearly shown. Updated Drawings & Calculations. G. Updated Drawings & Calculations. H. Rev. C Calculations. Updated Drawings & Calculations. I. We have removed this note. This should be forwarded later after PLANNING. J. No impact. Updated Drawings & Calculations.	perforated distribution pipe B. Item now closed C. Item now closed D. Item now closed E. As per comment to A F. Item now closed G. Item now closed H. Item now closed I. The detailed design of these tanks are required to support this condition J. Item now closed K. Item now closed L. Item now closed M. item now closed N. Item now closed O. Item now closed P. Item now closed		
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	calculations and plan show a 225mm perforated pipe k) The flow control chamber detail does not appear to reflect what is shown on the plan l) Provide details of how the flow control device will be protected from blockage given that its pass through is less than the recommended 75mm m) The typical manhole detail states a range of diameters that are dependant on depth and contradict the manhole schedule n) Demonstrate that sufficient working space will be available under the cover slab in the 1200mm dia manholes (usually 900mm is required from top of benching to underside of cover slab) o) The typical manhole detail shows a grade D400 cover which contradicts the manhole schedule	K. Rev. C Calculations - Updated Drawings & Calculations. L. As shown on details – steel cable connected to pivoting bypass door for blockages as shown on C003 drawing. M. These are standard details. Updated Drawings & Calculations. N. Manhole Details show rungs at 300mm centres. There is greater than 1m height (5no). The note also indicates step irons not required where O. D400 covers are only shown on Manholes in Road/Parking areas. See Drainage Plan for details. Updated Drawings & Calculations.			
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	p) The Typical inspection chamber detail appears to show a light duty cover which contradicts the manhole schedule Provide revised drawings and calculations that are coordinated and consistent	P. Inspection chamber covers are not shown on the Manhole Schedules. Updated Drawings & Calculations.			
7)	The drainage construction details are unclear, not comprehensive or site specific. Details should be accurately drawn, readable and include: a) Fully dimensioned details for all component in the drainage system b) Base and top levels for all tanks c) Flow control chamber cover level, invert level, weir level, sump dimensions, flow control model number and flow characteristics	A. Fully dimensioned drawings are shown. Updated Drawings & Calculations. B. Base and cover levels are fully shown on the drainage plan. Updated Drawings & Calculations. C. Updated Drawings & Calculations.	Item now closed		
8)	Detailed landscaping proposals are required to demonstrate that the landscaping and drainage proposals are coordinated.		a. item now closed b. item now closed c. item now closed d. item now closed e. item now closed		

	a) The indicative landscape proposal drawing shows a tree very close to tank ST1. Section A-A provided does not appear to represent this.  b) Provide information from the root barrier manufacturer and the tank manufacturer that the proposal is acceptable. c) Demonstrate that the tanks are structurally sufficient given the close proximity of the trees. d) Provide accurate cross sections showing that there is adequate space for the building foundations, foul and surface water drainage pipes, tree pits e) Demonstrate that the roots of the trees planted close to the permeable	A. Rev C Calculations - Updated Drawings & Calculations. B. See Appendix G. C. See Appendix G. D. Updated Drawings & Calculations. E. See Appendix G.	f. item now closed g. (New Item) there appears to be clashes on the proposed drainage runs and trees SW-IC03.01 to SW-MH-02.01 and SWIC-01.03 to SW-IC01.04		
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	paving will not damage the impermeable liner f) Show on plan the measures proposed to protect the drainage components from root damage	F. Updated Drawings & Calculations.			
9)	Drainage long sections and manhole schedules have been provided but do not contain sufficient information and appear to contain errors. a) The manhole schedules do not identify the type of chamber b) The coordinates on the manhole schedule do not match the coordinates in the calculations c) The invert levels on the manhole schedules and long sections are not consistent with the plan d) The long sections do not include levels for the drainage components e) See comment 6 Provide accurate and coordinated drawings	A. Updated Drawings & Calculations. B. Updated Drawings & Calculations. C. Updated Drawings & Calculations. D. Updated Drawings & Calculations. E. Point 6 has various responses that have been answered.	a.item now closed b. item now closed c. item now closed d. item now closed e. subject to resolution of final points		

10)	The current level of detail provided on the Drainage layout drawing 9418-C002 is insufficient. a) There is no north point or key b) There is potential for surface water to enter the foul pumping station via the turret/cover, where it passes through the permeable paving. Provide a detail showing how this will be prevented c) There is potential for surface water to enter the foul water system via FW MH-02.05, as it is located within the permeable paving. Provide a detail showing how this will be prevented. d) There are some large areas of paving around the building which do not appear to be drained e) The drawing of manholes/ inspection chambers is inconsistent with the schedule size	A. Updated Drawings & Calculations. B. See Appendix I. C. See Appendix F. D. Rev. C calculations. See levels and Drainage drawings provided. E. Updated Drawings & Calculations.	a. item now closed b item now closed c. item now closed d. item now closed e. item now closed f. item now closed g. item now closed h. item now closed		
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	f) The invert levels are not consistent with the manhole schedules, longs sections or calculations g) Make it clear on the plan where the flow control chamber is h) The point of connection to the existing manhole is not clear and the existing manhole data is missing Provide accurate and coordinated drawings	F. See Rev. C calculations updated previously. Updated Drawings & Calculations. G. Responded in Rev. C Calcs. Flow control is clearly marked on Drainage plan and Construction details. H. See Rev. A calculation provided previously. Updated Drawing.			
11)	Provide a detailed level design to clearly demonstrate that surface water run off will discharge to the proposed gullies/permeable paving etc. and not cause a risk of flooding to the building or off site. A) There are some large areas of paving around the buildings where levels have not been shown or are sparse. Please demonstrate that there are adequate falls for these areas to be drained as intended. The manhole cover levels on the drainage	A. See Rev. C Calculations - Updated Drawings & Calculations.	A Item now closed B item is still outstanding please provide formation levels on plan for the permeable paving		

	drawing suggest some of these areas are flat B) Levels of the formation of the permeable paving must be provided	B. The minimum thickness of subbase is 300mm thick and is graded out to low points. Contractor will install pipes accordingly to suit services.			
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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: 03 November 2025 09:51
To: Planning Scanning
Subject: FW: Planning Consultation on: P/107/25/DOC
Attachments: P-107-25-DOC West of Hook Lane.docx

Drainage Engineers response

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To register to receive notifications of planning applications in your area please go to <https://www1.arun.gov.uk/planning-application-finder>



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: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 31 October 2025 10:59
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Paul Cann <Paul.Cann@arun.gov.uk>; Jessica Riches <Jessica.Riches@arun.gov.uk>
Subject: RE: Planning Consultation on: P/107/25/DOC

Hi Jessica,

Find the consultation response – an objection – attached. Apologies for the delay in response.

I am submitting this consultation on behalf of Paul, our Principal Drainage Engineer. It has been completed by one of our external consultants.

Kind regards

Sarah Burrow
Flood Risk and Drainage Engineer, Coastal Engineers and Flood Prevention

T: 01903 737815
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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: Planning.Responses <Planning.Responses@arun.gov.uk>
Sent: 03 September 2025 13:04
To: Land Drainage <Land.Drainage@arun.gov.uk>
Subject: Planning Consultation on: P/107/25/DOC

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No: P/107/25/DOC
Registered: 2nd September 2025
Site Address: Land West of Hook Lane Pagham PO21 3PB
Description of Works: Approval of details reserved by condition imposed under P/149/23/S73 relating to condition 9 c) surface water drainage.

The Council have received the above application to discharge conditions. I shall be pleased to receive any observations you may wish to make in respect of those conditions relating to your field of expertise.

[Click here to view the Discharge of Condition application and view the documents](#) The website is updated once a day in the evening, so you may need to wait until the day after this notification to view the documents.

[Click here to view the original application and decision notice](#)

Should you wish to make any comments click on the link and click into ?Enter Comment? or if this is not possible email your response to planning.responses@arun.gov.uk by **17th September 2025**.

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.

In the absence of a reply within the period stated, I shall assume that you have no observations to make.

Yours sincerely

Jessica Riches

Planning Case Officer- Arun District Council

Telephone: 01903 737852

Email: jessica.riches@arun.gov.uk