

## Engineers Comments Regarding Surface Water Drainage

<b>Application Reference:</b>	LU/96/25/PL	<b>Reviewer Reference:</b>	ADC/PC
<b>Planning Officer:</b>	Harry Chalk	<b>Date of Review:</b>	18/09/2025
<b>Site Name:</b>	16 Swanbourne Road Littlehampton BN17 6HS		
<b>Application Description:</b>	Erection of 1 No. single storey, self-build dwelling with car parking to include provision of driveway and car parking for No.16 Swanbourne Road. This application is in CIL Zone 4 and is CIL Liable as a new dwelling.		
<b>Assessment Number:</b>	1 of 1		

### 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>

National Standards for Sustainable Drainage Systems (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	Objection
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### 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
<b>Winter groundwater monitoring data.</b>	<p>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.</p> <p>The same data is necessary to ensure that the potential for buoyancy has been adequately considered in attenuation designs.</p>	<b>Insufficient – Further information required</b>

<p><b>Winter infiltration testing data.</b></p>	<p>Adequate winter infiltration testing must be supplied to justify the proposed discharge method and design infiltration rates.</p> <p>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.</p> <p>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.</p> <p>The results of incomplete tests should not be extrapolated to obtain design values for infiltration rates.</p>	<p><b>Insufficient – Further information required</b></p>
<p><b>The hierarchy for sustainable drainage.</b></p>	<p>The proposed discharge method must accord with the SuDS hierarchy as given below. Evidence must be supplied to justify the proposed discharge method.</p> <ol style="list-style-type: none"> <li>1. Rainwater reuse where possible.</li> <li>2. Complete discharge into the ground (infiltration).</li> <li>3. Hybrid infiltration and restricted discharge to an appropriate water body or surface water sewer.</li> <li>4. Restricted discharge to an appropriate water body.</li> <li>5. Restricted discharge to a surface water sewer.</li> <li>6. Restricted discharge to a combined sewer.</li> </ol> <p>A water body may be defined as a river, watercourse, ditch, culverted watercourse, reservoir, wetland or the sea.</p> <p><b>Engineers cannot support any proposed connection of surface water to the foul sewer.</b></p>	<p><b>Compliant but not proven</b></p>
<p><b>Calculations</b></p>	<p>Calculations for pre-development run off rates must be based upon the positively drained area only.</p>	<p><b>Sufficient – assuming an infiltration design proves feasible</b></p>

	<p>Proposed discharge rates must not increase flood risk on site or elsewhere. Discharge rates must be restricted to QBAR or 3 l/s/ha, depending on whichever is higher.</p>	
	<p>Designs must be based on the most recently available rainfall data at the time of conditions being applied. <b><u>FSR rainfall data will not be accepted.</u></b> FEH rainfall data is based upon more recent records and continues to be updated.</p>	<p><b>Sufficient</b></p>
	<p>Designs must use the correct climate change allowances at the time of determination of the outline or full planning application.</p> <p>CV values for all events must be set to 1. This includes summer, winter, design, and simulation events.</p> <p><b>The correct allowance for urban creep must be applied.</b></p> <p>Additional storage must be set to zero unless it can be evidenced where this is provided.</p> <p>Infiltration half-drain times must be less than 24 hours.</p> <p><b>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.</b></p> <p>A surcharged outfall must be modelled.</p>	<p><b>Insufficient</b></p>
<p><b>Natural catchments design.</b></p>	<p>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.</p> <p>The condition, performance (including capacity where appropriate) and ownership of any existing site surface water drainage infrastructure must be accurately reported.</p> <p>Appropriate easements to watercourses and other services must be shown on all plans.</p> <p>Where there are areas of flood risk from any source on the site, it must be shown how a</p>	<p><b>Sufficient – assuming an infiltration design proves feasible</b></p>

	<p>sustainable surface water drainage design can be accommodated on the site without conflicting with those areas of flood risk.</p> <p>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.</p> <p><b>The use of pumps for surface water drainage is not sustainable and will only be considered where the designer has fully demonstrated that they are proposed as a last resort.</b></p>	
<b>Plans</b>	Plan areas, depths and levels of drainage infrastructure must accurately correspond with the supporting calculations.	<b>Insufficient</b>
<b>Water quality benefits.</b>	An assessment of water quality is necessary to evidence that the proposed design provides adequate treatment of surface water.	<b>Sufficient</b>
<b>Biodiversity and amenity benefits.</b>	The surface water drainage design must provide biodiversity and amenity benefits.	<b>Insufficient</b>
<b>Trees and planting</b>	<p>There should be no conflict between surface water drainage infrastructure and existing or proposed trees or planting.</p> <p>The design must consider the potential growth of proposed trees and adequate mitigation must be provided to protect drainage infrastructure where conflict <b>cannot</b> be avoided.</p>	<b>Sufficient on the basis that no tree planting is proposed.</b>

#### 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.

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, groundwater source protection zones)
- Southern Water (foul drainage and surface water disposal to public sewer network)**
- Portsmouth Water (groundwater source protection zones)
- Lead local flood authority (all other sources of flooding and ordinary watercourses)**
- Other:
- None

#### Additional comments to the planning officer

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' 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.

This consultation has been primarily informed by The SuDS Manual, and the National Standards for SuDS [NSfS], which supersede 'Sustainable drainage systems: non-statutory technical standards'.

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

- FOUL & SURFACE WATER DRAINAGE REPORT REV P1 (C3489)

Comments:

#### **STANDARD 1: RUNOFF DISPOSAL LOCATIONS**

The proposal is to infiltrate surface water into the ground. Infiltration testing was carried out during March 2025 at one metre below ground level in the vicinity of the proposed rear garden shared soakaway. The applicant should provide water depth readings/graph from the testing in order to support the calculated infiltration rates.

No infiltration testing has been carried out at the depth/location of the proposed permeable paving areas. These areas are not linked to the main soakaway system and therefore appropriate infiltration testing in the winter/spring will be required to support the proposal. Therefore, at present we cannot be certain that these areas will drain effectively. In the absence of suitable infiltration testing and to support the current planning application, the applicant may wish to consider draining these areas into the main soakaway, in order to evidence that a system can work within the limitations of the proposed development layout. However, it would be necessary to omit infiltration design rates from the permeable paving storage within the hydraulic calculations. This may increase the amount of storage that is needed which may impact the scale and layout of the development. This is because the soakaway depth cannot be increased, only its plan area, and it must be located at least 5m from buildings and any other potential existing functioning soakaways.

In terms of groundwater monitoring, it is noted that excavations revealed no groundwater being present to a depth of 2.2 metres below ground level. However, it is unclear when observations were

made, or over what duration. This information is critical in determining whether the monitoring has been sufficient. Adequate monitoring is required to prove that one metre freeboard can be achieved between the base of any infiltration structure and peak groundwater levels.

The use of water butts for rainwater harvesting is welcomed and meets the requirements of Standard 1 in terms of the disposal hierarchy, however, only one water butt is proposed and must be expanded upon, in order to maximise water re-use. Please specify capacity (litres) of each water butt. Alternatively, other forms of water recycling could be considered to achieve the same goal.

### **STANDARD 2: INTERCEPTION**

The development must demonstrate that the first 5mm of rainfall for the majority of rainfall events does not result in any runoff from the site. This is to replicate greenfield conditions.

The failure to adequately demonstrate interception drainage conflicts with guidance, national standards and best practice, and may increase flood risk.

Provided infiltration is confirmed to be viable for this site, then it will be deemed compliant with STANDARD 2. This will be determined once the design has taken account of all the requirements of this consultation.

### **STANDARD 3: EXTREME RAINFALL AND FLOODING**

#### **Infiltration**

The applicant is proposing to discharge surface water into the ground via infiltration. However, it is not possible to accurately assess whether the development will increase flood risk, due to numerous shortfalls. The applicant should consider our response in respect to STANDARD 1 and the requirements below;

#### **Plans and Modelling**

The calculations do not conform to national guidance. It is expected that a re-design will be required and the hydraulic calculations adjusted accordingly. The changes to the design and modelling may impact the scale and layout of what may be delivered on the site as the plan area of drainage features may need to increase. The calculations do not meet national guidance as follows:

- i. The infiltration rate cannot be applied to the permeable paving (base only) as infiltration testing has not been carried out at these locations or at depth to reflect the proposed construction. See also response to STANDARD 1.
- ii. Both summer and winter storms are not modelled for all storm events.
- iii. It is unclear if urban creep has been modelled this should be 10% of roof the areas, and input as 'additional area'.
- iv. The 10% AEP (1 in 10 year) storm calculations do not include an appropriate climate change allowance.
- v. Calculations appear to show one of the permeable paving areas connecting to the main soakaway system but this is not reflected on the drainage layout plan.
- vi. Foul drain EX FM2 to EX FM3 may clash in terms of levels, with proposed pipeline RE2 to S2, when taking into account pipe thicknesses etc. Please review.
- vii. The drainage layout plan refers to an orifice control chamber but it is unclear how this is relevant to the proposed scheme.

- viii. Specify incoming pipe invert level at entry to soakaway. The invert needs to be set above the peak water level predicted for the 1 in 10 year storm (+ climate change allowance).
- ix. Dimension impermeable areas on contributing area plan.
- x. The infiltration rate has been applied to both the sides and the base of the soakaway
- xi. The drainage layout plan indicates that the storage for the permeable paving areas is designed upon a 1% AEP (1 in 100 year) storm + 40% climate change allowance. This should read 45%.

It is assumed that the existing garage will be demolished to accommodate the proposed development/scheme.

The patio is noted to be of permeable construction. As with the permeable paving, no suitable infiltration testing has been provided to support the design. Hydraulic calculations will also be required.

The designer has used FEH 22 point data on their current design to predict rainfall. This data will need to be submitted to us at [land.drainage@arun.gov.uk](mailto:land.drainage@arun.gov.uk) (outside of the Planning process) and the parameters will be checked upon receipt of revised calculations.

#### **STANDARD 4: WATER QUALITY**

Assuming infiltration proves a viable option;

The driveway areas will receive treatment through the permeable paving, and subsoil (at least one metre depth) between the base of the infiltration structure and the groundwater.

Roofs will receive treatment through silt trap/s, and subsoil in a similar manner to the permeable paving .

#### **STANDARD 5: AMENITY**

An assessment of amenity benefit has not been submitted in order to assess the surface water drainage design in terms of achieving placemaking and environmental enhancement. Such opportunities within a development of this scale are limited.

#### **STANDARD 6: BIODIVERSITY**

Any design shall maximise biodiversity benefits. Features such as rain gardens will help achieve this requirement.

#### **STANDARD 7: CONSTRUCTION, OPERATION, MAINTENANCE, DECOMMISSIONING AND STRUCTURAL INTEGRITY**

No issues currently identified but the designer will need to ensure that any point infiltration structures remain at least 5 metres from any structure recognised with the STANDARDS. Reducing this distance will require an assessment and suitable mitigation measures.

#### **OTHER MATTERS (can be dealt via condition if necessary)**

We suggest that the silt trap construction detail is adjusted so that the 300mm dimension is from the pipe invert to sump base.

Where pipes are connected directly to pipes, and not to manholes, specify oblique 45 degree junctions.

A specific engineering drawing will be required detailing the existing drainage to be abandoned and how it will be abandoned. This will also supplement the findings of the CCTV survey.

The new dwelling is missing a RWP (should connect to pipeline RE1 to S1).

### **OVERCOMING THE OBJECTION**

Multiple conflicts with National Standards for SuDS have been identified. To achieve compliance with national standards and demonstrate that flood risk is not increased, it is necessary for the applicant to reconsider the proposed surface water drainage design.

Therefore, we **object** to the proposed development.

If the planning officer is minded to allow the applicant additional time to submit further documents to support this application, then the following evidence may overcome our objection. Please do not submit further documents without prior discussion with the planning officer as to whether it will be possible for these to be assessed or influence their determination.

- **A revised design is required with supporting documents/calculations to address the issues raised under the STANDARDS above.**

Drainage Engineers response

Arun District Council, Civic Centre, Maltravers Rd  
Littlehampton, West Sussex, BN17 5LF  
[www.arun.gov.uk](http://www.arun.gov.uk)

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	 
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**From:** Paul Cann <Paul.Cann@arun.gov.uk>  
**Sent:** 18 September 2025 11:20  
**To:** Planning.Responses <Planning.Responses@arun.gov.uk>  
**Cc:** Sarah Burrow <Sarah.Burrow@arun.gov.uk>; Kathryn Welch <Kathryn.Welch@arun.gov.uk>  
**Subject:** RE: Planning Consultation on: LU/96/25/PL

Please find enclosed my consultation, an objection.

Regards

**Paul Cann**

## Principal Drainage Engineer, Coastal Engineers and Flood Prevention

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**From:** Planning.Responses <[Planning.Responses@arun.gov.uk](mailto:Planning.Responses@arun.gov.uk)>

**Sent:** Friday, June 13, 2025 10:37:25 AM (UTC+00:00) Monrovia, Reykjavik

**To:** Land Drainage <[Land.Drainage@arun.gov.uk](mailto:Land.Drainage@arun.gov.uk)>

**Subject:** Planning Consultation on: LU/96/25/PL

To: **Engineers (Drainage)**

### NOTIFICATION FROM ARUN DISTRICT COUNCIL

**Town & Country Planning Act 1990 (as amended)**

**Town and Country Planning (Development Management Procedure) (England) Order 2015**

#### Planning Permission

**Application No:** LU/96/25/PL

**Registered:** 4th June 2025

**Site Address:** 16 Swanbourne Road Littlehampton BN17 6HS

**Grid Reference:** 502952 103049

**Description of Works:** Erection of 1 No. single storey, self-build dwelling with car parking to include provision of driveway and car parking for No.16 Swanbourne Road. This application is in CIL Zone 4 and is CIL Liable as a new dwelling.

The Council have received the above application.

[Click here to view the application and 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.

This application has been identified as CIL Liable. Therefore please be aware that, in accordance with Appendix 2 of the Arun CIL Charging Schedule, your consultation response should only include requests for Section 106 for onsite mitigation, Pagham Harbour Management Contributions (if applicable) or Affordable Housing. "Off" Site mitigation measures directly related to this development should be dealt with by condition if possible to ensure the scaling back of Section 106 if possible. CIL contributions will be used for "off" site infrastructure mitigation schemes. Therefore if this proposal triggers the need for "off" site mitigation, please ensure that you engage in the CIL Infrastructure List Consultation process upon receipt of a consultation letter.

Should you have any comments to make, these should be sent by replying to this email by 3rd July 2025 . You can also monitor the progress of this application through the Council web site:

<https://www.arun.gov.uk/planning-application-search>

The application will be determined having regard to the development plan policies (if any are relevant) and other material considerations. The development plan can be accessed via the website

<https://www.arun.gov.uk/development-plan> as can information on what comments we can consider  
<https://www.arun.gov.uk/planning-application-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.**

Should the application go to appeal the Planning Inspectorate will publish any comments made to the Council on their website: <https://acp.planninginspectorate.gov.uk/> but they will protect personal details.

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

Yours sincerely

Kathryn Welch

Planning Officer- Arun District Council

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