

Arun District Council, Civic Centre, Maltravers Rd
Littlehampton, West Sussex, BN17 5LF
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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 22 November 2022 11:41
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Cc: Katie Sharp <Katie.Sharp@arun.gov.uk>; Paul Cann <Paul.Cann@arun.gov.uk>
Subject: RE: Planning Consultation on: AL/55/22/DOC

Engineers Comments Regarding Surface Water Drainage - Condition 10

Thank you for consulting us on this DOC submission.

It is recommended that condition 10 imposed under AL/28/21/PL is discharged. All surface water drainage is to be constructed in accordance with the following plans:

- Proposed Drainage Layout Sheet 1 of 2 C1967 100 Rev P1
- Proposed Drainage Layout Sheet 2 of 2 C1967 100 Rev P1
- Proposed Construction Details C1967 500 Rev P1

For the purposes of my review I used my previous comments as a start point. I have referenced the applicants comments (in red) and commented in blue. I have included this in the consultation only as a reference for the consultant engineer following queries on some of my points.

1. The infiltration rate calculations use an ap50 value of 0.93m². This value should be 1.08m² on the basis of the trial pit dimensions provided. The correct value will decrease the infiltration rate for the design. Please adjust accordingly. Please find attached the updated infiltration calculations. Thank you – point closed.
2. Please include a scale bar on the drainage layout so impermeable areas and diffuser distances from structures can be checked. Alternatively please show measurements for the same purpose. Please find updated drawing attached. Thank you – point closed.
3. The design calculations require adjustment in addition to the infiltration rate adjustment mentioned in point 2:
 - a. If the drainage calculations only account for runoff draining from impermeable surfaces, then the calculations should use a CV of 1.0. The requirement to use CV 1.0 is based on recent clarifications from HR Wallingford which suggest the values of 0.84 and 0.75 often used are in error and confirm that a value of CV = 1 should be used in situations where runoff from only the impermeable areas is considered. It is noted that CV 1.0 is only considered applicable to the sizing of the SuDS, and pipework may still be designed to lower values. Please see the updated drainage plan and drainage calculations attached. Thank you – point closed.
 - b. A 20m³ per ha additional storage volume is shown, which is not included within the design. A justification for this value should be provided, or this value reduced to 0. Please find the updated drainage calculations attached. Thank you – point closed.
 - c. A Ratio-R of 0.400 has been used, this needs to be reduced to reflect the FSR map for the area. The ratio-R of 0.4 has been taken using UKSuds map and is correct for the postcode: PO20 3SQ. Thank you – point closed.
 - d. Enforce best practice design rules has been crossed, please correct. Please find the updated drainage calculations attached. Thank you – point closed.
 - e. Both base and side infiltration have been allowed for, please only utilise the base. Please find the updated drainage calculations attached. Can we have a short explanation why the side infiltration should be excluded? West Sussex Policy for the Management of Surface Water, SUDS Policy 1 paragraph 5.2.2 states that “For the purpose of design, the percolation rate must be applied to the sides of the infiltration structure only and the rate for the base must be zero, unless otherwise agreed with the LPA engineer. This does not apply to infiltration basins or permeable pavements, whereby the percolation rate is applied to the base only.” Point Closed.
 - f. The total impermeable area in the report is listed as 0.083ha but the calculations use an impermeable area of 0.081ha. Please find the updated drainage calculations attached. Thank you – point closed.

- g. Please supply the calculations for the 1 in 10 year + 40% event. Please find the updated drainage calculations attached. Thank you – point closed.
- h. The permeable paving invert level is set to 0.380, yet formation level is shown as 9.370 on the drainage layout. The value of 9.370 corresponds with the formation shown in the construction details, therefore please correct the calculations to reflect this. The proposed voided subbase has been updated and is now 375mm thick so the permeable paving subbase IL is now set as: 9.320 Thank you – point closed.
- i. Slope is listed as 1:800 but on the drainage layout it is stated that sub base is laid at 1:500. Please correct. Please find the updated drainage calculations attached. It is proposed that voided subbase is now laid flat. Thank you – point closed.
- j. The safety factor can be reduced to 3 on the basis of minor inconvenience (surface water on carpark) as a consequence of failure, with a Cv of 1 for an impermeable area of <1000m². Please find the updated drainage calculations attached. Thank you – point closed.
- k. Please include a 10% allowance for urban creep. Please note that Arun DC 'Supplementary requirement for surface water drainage proposal' required the addition 10% allowance for urban creep for the major application. Whilst the proposed development is classified as minor application is this still required? Discussed with the Principal Drainage Engineer and he has agreed that urban creep need not be applied in this case. Point Closed.

A second design check will be required on the back of these alterations and there may be further comments following an updated design and calculations.

4. Drainage layout

- a. Please include pipe gradients. Almost all gradients given – some not between the silt traps and the diffusers – however invert levels are given at each end. Not considered enough of a fault to warrant refusal. Point closed.
- b. Diffuser blocks should be set above the 1 in 10 year +40% critical storm event. They are currently set below the formation level of the permeable paving (diffuser inverts at 9.350 – permeable paving formation at 9.370). These should also be located a minimum of 5m from all controlled structures, see point 3. Please correct.

The proposed diffuser block has been relocated minimum 5m away from the proposed structures. The proposed diffuser tanks act as an outlet (discharge) connection into the subbase formation. We do understand that incoming pipe IL should be set above the 1 in 10 year + 40% CC level for the traditional soakaway system, however the proposed surface water runoff will be discharged into the voided subbase and therefore to achieve this, the proposed subbase IL will need to be dropped by approx. 300mm. This will make the proposed subbase 600mm deep and due to the associated costs not viable. We could propose using a traditional soakaway system however, noting the groundwater levels surface water runoff will therefore need to be attenuated and discharged into the onsite foul drainage system. By doing this, there is a risk of the proposed SW discharge into foul drainage network being refused by statutory undertaker.

The proposed drainage system has been designed so the surface water level for the 1 in 10 years + 40% is below the proposed access points (rodding eye) ILs.

Furthermore, the proposed FFL has been set at min. 300mm above the top of the proposed voided subbase and the maximum surface water level for the 1 in 100-year rainfall event + 40%CC + 10% UC. Discussed with the Principal Drainage Engineer and he is satisfied with the response. Point closed.

- c. It is not clear why there are apparently random dotted lines on the drainage layout, please can their use be clarified or they be removed. The dotted lines on the drainage layout around the diffuser tanks are indicated on drainage legend. I think this was an issue with the file being corrupted or our viewer rather than the layout itself. Point closed.
 - d. Please detail sump depths for catchpits. Not given. However, the pre-fabricated catchpits are listed which have a standard sump depth of 330mm – these are acceptable. Please ensure sump depths are listed on any future submissions. Not considered enough of a fault to warrant refusal. Point closed.
5. Please amend Typical distribution Tank Outflow Detail to show all diffuser blocks above the 1 in 10 year + 40% critical event as per point 4b. See 4b reply. As above.

Kind regards

Sarah Burrow
Engineering Assistant, Coastal Engineers and Flood Prevention

T: 01903 737815

E: sarah.burrow@arun.gov.uk

Usual working pattern: 8am – 2:30pm Monday to Friday

Arun District Council, Civic Centre, Maltravers Rd
Littlehampton, West Sussex, BN17 5LF
www.arun.gov.uk



From: Planning.Responses <Planning.Responses@arun.gov.uk>

Sent: 03 November 2022 09:49

To: Land Drainage <Land.Drainage@arun.gov.uk>

Subject: Planning Consultation on: AL/55/22/DOC

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

Application No: AL/55/22/DOC

Registered: 25th May 2022

Site Address: The Grange Westergate Street Westergate PO20 3SQ

Description of Works: Approval of details reserved by condition imposed under AL/28/21/PL relating to conditions 3-schedule of materials and finishes, 5-Construction Management Plan, 6-protection of dwellings from noise and vibration from railway line, 8-covered and secure cycle parking, 9-level survey, 10-surface water drainage, 11-foul drainage system, 13-landscaping, 15-Landscape and Ecological Management Plan and 16-electric vehicle charging points.

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](#)

[Click here to view conditions on original application - click on decision tab](#)

Should you wish to make any comments click on the link www.arun.gov.uk/planning and click into ?Enter Comment? or if this is not possible email your response to planning.responses@arun.gov.uk by **3rd November 2022**.

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

Katie Sharp

Planning Case Officer- Arun District Council

Telephone: 01903 737832

Email: katie.sharp@arun.gov.uk

PLCOND00 (008) 2020