

Date: 13/05/2022

Answers to Council's comments (05/05/2022): SuDS Report 49 Warren Way

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1. *I would strongly recommend that you and your consultant review and complete the surface water drainage checklist, which fully details our requirements for a discharge of conditions application. Arun DC surface water drainage guidance notes and checklist can be found here: [Drainage Planning Consultations | Arun District Council](#).*

Noted.

2. *A full detailed design package, with construction details for each element of the design, will be required to discharge conditions.*
 - a. *This must be in accordance with the guidance notes at the above link and at present the details provided are insufficient to satisfy this.*

Design of the proposed SuDS is supported by detailed modelling for the site.

- b. *In addition to the details requested in the checklist, we would also expect specific details to include the following:*
 1. *The drainage design to include **all** drainage features, e.g. manholes, catchpits etc.*

The details will be provided during the construction phase with a method statement.
 2. *Construction detail drawings of attenuation tanks, flow control devices, pipe bed and surround, headwall, and catchpits (which should be located upstream of the tank).*

The details will be provided during the construction phase with a method statement.
 3. *Construction detail drawings to include any vent structures for the tank, and/or other similar features. Vents will need to be located above the design flood level, to prevent water ingress into the tank during a flood.*

The details will be provided during the construction phase with a method statement.
 4. *The permeable paving construction detail must include material specifications, e.g. type of stone for sub-base.*

Details are provided in Appendix G of the SuDS Report.

5. *Details of the downpipe covers, which have been referenced in previous correspondence.*

The details will be provided during the construction phase with a method statement.

6. *Details of the water butt, which have been referenced in previous correspondence. The drainage drawing should show details of the inlet, outlet, overflow system, and stand provided.*

Water butt is not proposed for the site.

7. *The minimum orifice diameter for the Hydro-Brake and any flow control device will need to be 75mm, or have a minimum flow rate of 2.0l/s during the design rainfall event (unless sufficient evidence that a low blockage risk can be achieved is provided).*

Minimum outlet pipe diameter of 75mm has been used in the model (Refer Appendix I)

8. *We also note that the 'sump available' option has been ticked in the drainage calculations. If a Hydro-Brake with sump available is specified, as is indicated by the calculations, this sump will need to be included on the drainage drawings. Please note that this sump cannot be substituted for the upstream sediment traps, that are also required.*

Sump will be included on the drawings on the revised SuDS Report.

3. *Due to the risk of flooding and expected high groundwater levels, flotation of the drainage system is a critical consideration. Buoyancy calculations for all elements of the proposed drainage will be required, and will need to consider worst case groundwater levels, as well as expected flood depths from pluvial and fluvial flooding.*

The risk of groundwater flooding is low as indicated by the field observation/monitoring. Therefore, no buoyancy calculations are provided.

4. *The infiltration rate determined from onsite testing is above the minimum cut-off for using infiltration, and/or combined infiltration systems (i.e. Type-B SuDS), and therefore, infiltration could be considered suitable. However, high groundwater levels in winter are likely to reduce this rate. In the absence of groundwater monitoring and additional testing to confirm this over the winter period, there remains uncertainty whether infiltration will be available at this location throughout the year. On this basis, we would expect:*
- *The results of groundwater monitoring for the complete winter period to be provided.*

Groundwater levels were monitored during the Soakaway Test on the site. The soakaway test indicated that Infiltration SuDS such as soakaway will not be viable.

- *Infiltration to be used if groundwater levels throughout winter are below the base of the infiltration SuDS.*

The soakaway test indicated that Infiltration SuDS such as soakaway will not be viable

5. *If storage is proposed that outfalls to a watercourse, the design should take into consideration the risk of the system becoming hydraulic locked (i.e. the outfall unable to discharge freely or surcharged). Flood depths and the expected flood frequency from both the design pluvial and fluvial flood events should be provided, and the design of the drainage system should consider the implication of rising water levels in the adjacent watercourse.*

- *The calculations provided will need to account for the design flood level, expected duration of elevated water levels, and the expected frequency of a flood event.*

The nearby watercourse is sufficiently deep to take surface runoff discharge freely under gravity. So, no such elements have been incorporated into the model.

6. Maintenance

- *The maintenance plan should include measures to remediate the drainage system if it becomes inundated following a flood event.*
- *The maintenance plan should consider the maintenance burden and costs from flooding for the entire design lifetime of the development.*
- *All elements of the drainage system (included within the construction drawings) will need to be considered within the maintenance plan.*
- *Maintenance appears to be tasked to the homeowner. We would therefore recommend that a plan to assist the homeowner with future maintenance tasks is included within the maintenance plan.*

Maintenance Plan has been provided in the SuDS Report (Chapter 7.2)

7. *A plan showing the location of the groundwater and infiltration test pit / borehole locations has not been provided. Please provide this information.*

This will be provided in the revised SuDS Report.

8. *A detailed exceedance plan is not required in this instance, however, an understanding of how the drainage system could fail/block, and how this could impact the property, is required. Please provide a statement to describe the*

residual risk of flooding to the property and surrounding area, in the event that the drainage system was to fail.

Exceedance plan has been included in the SuDS Report (Appendix J).

9. *The proposals are likely to displace floodwater, and mitigation should be required to ensure that there is no detrimental offsite impact.*

This is related to the fluvial flood risk. Assessment of flood risk and impacts have been fully considered in the FRA Report which has been approved already.

10. *Details of the existing watercourse and new outfall will need to be provided. More specifically the following should be considered;*

This will be provided in the revised SuDS Report.

11. *The information submitted will need to show the design has taken account of/is in accordance with any ordinary watercourse consent requirements.*

Environment Agency's consent will be sought once the drainage plan is approved.

12. *The impact the development will have on the existing watercourse (e.g. the impact if the channel is lined and infiltration is proposed).*

Due to the scale of the proposal (single dwelling), the impact is minimum.

13. *The design of the outfall will require a flap valve.*

This will be provided in the revised SuDS Report.

14. *Before conditions can be discharged, consent for the watercourse connection needs to be obtained from the Environment Agency (through the Flood Risk Activity Permit process). Evidence should be provided to show this consent has been obtained, which includes all works near to the watercourse.*

Environment Agency's consent will be sought once the drainage plan is approved.

Lastly, as previously mentioned, a note will be provided with any formal response to state that Arun DC does not support the development here, as surface water drainage should be located outside of areas at risk of flooding, which clearly is not possible at this site. Therefore, it is recognised that the design will never be fully compliant.

I personally disagree on this. This means that the surface water drainage (SuDS) are applicable to area located in Flood Zone 1 only. However, my understanding is SuDS policy and practice applies everywhere.