

From: Laura Gibbons
Sent: 08 June 2018 09:52
To: Planning.Responses
Subject: RE: Please find attached amendment on planning application Ref: BR/229/17/PL

Engineers Comments Regarding Surface Water Drainage

Please apply standard conditions ENG2B, ENGD4A and ENGD6A.
Soakaways must be investigated for surface water disposal.

Infiltration rates for soakage structures are to be based on percolation tests undertaken in the winter period and at the location and depth of the proposed structures. The percolation tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method and cater for the 1 in 10 year storm between the invert of the entry pipe to the soakaway, and the base of the structure. It must also have provision to ensure that there is capacity in the system to contain below ground level the 1 in 100 year event plus 40% on stored volumes, as an allowance for climate change. Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded annual groundwater level identified in that location.

Any SuDS or soakaway design must include adequate groundwater monitoring data to determine the highest winter groundwater table in support of the design. The applicant is advised to discuss the extent of groundwater monitoring with the Council's Engineers. Supplementary guidance notes are also enclosed for information.

Flooding affected properties in June 2012. The area of the proposed development is within an area of high surface water flood risk. Therefore, careful consideration needs to be given to demonstrate that the flood risk to others would not be increased as a result of the development.

Calculations have been provided to try to demonstrate detriment will not be caused. However, we have the following concerns about the proposed approach and details provided:

1. The calculations which have been used to calculate the total volume of structures to be removed are not of adequate detail to permit sufficient checking. Please provide additional details of the existing structures, i.e. section drawings and dimensions of decking, conservatories and annex.
2. I also would like to see the volume of the garage and annexe structure reduced to just take account of walls unless sufficient evidence can be provided to show that water is currently kept out of the garage, or the foundations slab extends up to maximum flood depth.
3. More detailed is required to evidence that water will be able to get through the walls of the proposed buildings and underneath the floor. I.e. construction details. Or calculations updated to not take account of this.
4. Even if all of these calculations are correct there is insufficient compensatory storage being provided, with the total volume of new structure below flood level being 52.1m³, and the stated volume being removed 41.8m³, i.e. volume deficit of 10.295m³. The use of the permeable paving to provide this deficit would not be acceptable unless excess permeable paving is provided that is in excess of that required to drain the site.
5. A safety factor should be applied to the proposed volume to take account of future development possibilities, i.e. extensions, sheds etc. within the proposed plots.

There is a culverted surface water drain running along the southern boundary of the site. The current proposals detail trees to be planted along this line. This will not be permitted as would lead to route damage to this highly

important drain. The exact location of this culverted watercourse should be identified at any early stage, it is recommended that discussions are held with us.

It should also be noted that there is an open watercourse/ pond in the southern portion of the site. This would need to be retained, cleared of vegetation, and cleared of silt as part of the proposed scheme.

There is a level inconsistency between the existing rear gardens of number 45 and 47 Pevensey Road. We will require confirmation that no changes to ground levels are proposed as part of the development.

Regards,

Laura Gibbons, MEng, GMICE
Engineer (Drainage & Coastal)

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Arun is Working in Partnership with Chichester District Council
Visit Arun's web site at <http://www.arun.gov.uk/> and www.chichester.gov.uk



Save the environment - think before you print.

From: planning.responses@arun.gov.uk [mailto:planning.responses@arun.gov.uk]
Sent: 31 May 2018 11:50
To: Paul Cann
Subject: Please find attached amendment on planning application Ref: BR/229/17/PL

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

TOWN AND COUNTRY PLANNING ACT 1990

APPLICATION BR/229/17/PL

NO:

Registered: 08-SEP-17

Site Address: Land to rear of 41 - 47 Pevensey Road Bognor Regis PO21
5NY

Grid Reference:

Category: Plan Applicat'n

Description of Works: Erection of 3 No. dwellings, 1 No. detached garage, parking & alterations to existing access & driveway (resubmission following BR/200/16/PL).

I am able to inform you that I have received an amendment to the above application dated 29th May 2018 relating to:- amended plans & documents/significant local interest

[Click here to view the plans and documents](#)

If you should wish to make further representations as a result of this amendment

you should click the link below and then click on 'comment on this application'. Please make any further comment by 5th July 2018.

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.

[Click here to make further comments](#)

The officer dealing with this application is Mr S Davis who can be contacted on telephone number 01903 737874.

Thanking you in anticipation

Planning Case Officer

pmac21_email

Supplementary Requirements for Surface Water Drainage Proposals

Any proposed surface water scheme must consider sustainable drainage principles.

SuDS Selection

The following destinations must be considered for surface runoff in order of preference:

1. Discharge into the ground (infiltration);
2. Controlled discharge to a surface water body;
3. Controlled discharge to a surface water sewer.

Surface water must not be discharged into the foul sewer system. Infiltration structures include soakaways, basins, swales and permeable paving. Discharge to surface water bodies and surface water sewers must be restricted to an agreed rate.

SuDS selection hierarchy based on:

CIRIA C753 - The SuDS Manual

BS8582:2013 – Code of Practice for Surface Water Management for Development Sites

Approved Document H of the Building Regulations

Infiltration Drainage Design

Infiltration rates for soakage structures are to be based on percolation tests undertaken in the winter period at the location and depth of the proposed structures. The percolation tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method, and cater for the 1 in 10 year storm event between the invert of the lowest entry pipe into the infiltration structure and the base. 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. This does not apply to infiltration basins or permeable pavements, whereby the percolation rate is applied to the base only. There must be provision to ensure that there is capacity in the system to contain the 1 in 100 year storm event plus 40% on stored volumes, as an allowance for climate change. The infiltration structure should also drain 50% of its total volume in 24 hours or less for both the 1 in 10 and 1 in 100 year (plus 40%) storm events, in order to provide spare capacity for subsequent storms.

Any infiltration drainage design must include adequate winter groundwater monitoring data to determine the highest winter groundwater table. Residential developments in excess of five properties will require ground water monitoring to be carried out between October and March inclusive. The extent of monitoring required for smaller developments will be subject to agreement with the Council's Engineers.

Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded groundwater level identified in that location.

Restricted Discharge

Discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate (Q_{bar}) by means of a controlled outflow (or restricted to existing runoff rates for brownfield sites). This can be derived from IH124 or a similar approved method. Any storage design must be submitted with groundwater monitoring data where applicable to ensure there will be no detrimental effect on the structure or storage. Storage areas are preferred to be in an 'open' form such as ponds, rather than underground tanks.

Flow Exceedance Routes

The drainage design should show flow routes through the proposed development, demonstrating where surface water will be conveyed for three types of flow:

1. Low flow routes

Regular flow from source control features such as permeable pavements should travel in low flow channels through the development in a controlled way contributing to landscape quality.

2. Overflows

In the event of local blockages or surcharge a simple overflow arrangement should allow water to bypass the obstruction and return to the management train sequence until conditions return to normal.

3. Exceedance routes

When SuDS are overwhelmed by exceptional rainfall, then exceedance routes are required to protect people and property. These provide unobstructed overland flow routes from the development and should be considered for all drainage schemes. Exceedance routes should also be protected from future changes in land use.

Culverting a Watercourse

Culverting (piping) a watercourse is not advised unless there is no alternative. The resulting reduction in storage volume, flow capacity and habitat potential would be unacceptable. Culverted watercourses are also more difficult to maintain due to the limited accessibility.

Land Drainage Consent must be sought from the Lead Local Flood Authority (West Sussex County Council), or its agent (Arun District Council – land.drainage@arun.gov.uk), prior to starting any works (temporary or permanent) that affect the flow of water in the watercourse. Such works may include culverting, channel diversion and the installation of trash screens.

The development layout must take account of any existing watercourses (open or culverted) to ensure that future access for maintenance is not restricted.

See also:

Land Drainage Act 1991 (amended 1994)

Maintenance and Management

Ditches and watercourses (including culverts) should retain a three metre easement with access that allows for its future maintenance.

Details of the maintenance and management of the SuDS system are to be set out in writing in a site specific maintenance manual. This manual shall include details of the financial management and arrangements for the replacement of components at the end of the manufacturers recommended design life. This document is then to be submitted as part of the planning process.

References

The Building Regulations 2000
Drainage and waste disposal
Approved document H
ISBN: 1-859462-08-1

Building Research Establishment,
Soakaway Design – Digest 365 (BRE 365)
ISBN: 1 86081 604 5, 1991

Centre for Ecology and Hydrology
Flood Estimation for Small Catchments - IH Report 124
Marshall, D.C.W. & Bayliss, A.C.
ISBN: 0948540621, 1994

CIRIA
C697 The SUDs Manual
Woods-Ballard, B.; Kellagher, R. et al
ISBN: 978-0-86017-697-8, 2007

CIRIA
R156 Infiltration Drainage – Manual of Good Practice
Bettess, R.
ISBN: 0 86017 457 3

British Standards Institution
BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
ISBN: 978 0 580 76700 5