

From: Andrew Wood
Sent: 23 November 2018 15:54
To: Planning.Responses
Subject: FW: M/101/18/PL - Drainage Comments at 134 Elmer Road, Middleton

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From: Laura Gibbons
Sent: 23 November 2018 10:14
To: Andrew Wood
Subject: RE: M/101/18/PL - Drainage Comments at 134 Elmer Road, Middleton

Hi Andrew,

The latest conditions which we have are attached. The wording of ENGD2B on the attached is what I am aiming for.

Thanks,

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

Laura Gibbons | Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre,
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From: Andrew Wood
Sent: 19 November 2018 17:10
To: Laura Gibbons
Subject: M/101/18/PL - Drainage Comments at 134 Elmer Road, Middleton

Laura,

I received the following ADC drainage comments from you below.

- 1) We now longer have standard condition ENGD2B on our system. Can you forward me a copy of the condition you are hoping to apply.
- 2) IT states that 'supplementary guidance notes are enclosed for information' Can you please provide me with a copy of the supplementary guidance notes or preferably a web link?

Thank you,

Andrew Wood – Senior Planner

From: Laura Gibbons

Sent: 01 October 2018 09:39

To: Planning.Responses

Cc: Anita Gardner

Subject: RE: Planning Consultation on: M/101/18/PL

Engineers Comments Regarding Surface Water Drainage

The proposed development is within the Lidsey Catchment where significant historical flooding from the foul sewer system has occurred. This has been due to groundwater entering into the sewer network and direct surface water connections inundating the foul network. It is therefore of the upmost importance to ensure the correct design of all new surface water drainage systems within the Lidsey Catchment.

The application proposes to use soakaways for surface water disposal. Foul water is to be disposed of by connection to the existing network, it is unclear if this will be the utilisation of the existing connection, or a new connection. If the proposals are for a new connection Southern Water will need to be consulted and the relevant consents sought. Please apply ENGD2B.

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.

Regards,

Laura Gibbons, MEng, GMICE

Engineer (Drainage & Coastal)

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DRAFT NEW DRAINAGE CONDITIONS

SURFACE WATER DRAINAGE

- 1) **ENGD2B** - Development shall not commence, other than works of site survey and investigation, until full details of the proposed surface water drainage scheme have been submitted to and approved in writing by the Local Planning Authority. The design 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 Percolation testing to BRE 365, or similar approved, will be required to support the design of any Infiltration drainage. No building / No part of the extended building shall be occupied until the complete surface water drainage system serving the property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in good working order in perpetuity.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7, GEN9 and GEN11 of the Arun District Council Local Plan. It is considered necessary for this to be a pre-commencement condition to ensure that the surface water disposal scheme is agreed before construction commences.

- 2) **ENGD5A** - Development shall not commence until full details of the maintenance and management of the surface water drainage system is set out in a site-specific maintenance manual and submitted to, and approved in writing, by the Local Planning Authority. The manual is to include details of financial management and arrangements for the replacement of major components at the end of the manufacturer's recommended design life. Upon completed construction of the surface water drainage system, the owner or management company shall strictly adhere to and implement the recommendations contained within the manual.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7, GEN9 and GEN11 of the Arun District Council Local Plan. It is considered necessary for this to be a pre-commencement condition to ensure that the future maintenance and funding arrangements for the surface water disposal scheme are agreed before construction commences.

LEAD LOCAL FLOOD AUTHORITY (LLFA)

- 3) **ENGD4A** - The development shall not proceed until formal consent has been approved in writing from the Lead Local Flood Authority (WSCC) or its agent (ADC) for the discharge of any flows to watercourses, or the culverting, diversion, infilling or obstruction of any watercourse on the site. Any discharge to a watercourse must be at a rate no greater than the pre-development run-off values.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with Policies GEN7, GEN9 and GEN11 of the Arun District Council Local Plan. It is considered necessary for this to be a pre-commencement condition to protect existing watercourses prior to the construction commencing.

FUTURE ACCESS AND MAINTENANCE

- 4) **ENGD6A** - The development layout shall not be agreed until such time that arrangements for the future access and maintenance of any watercourse or culvert (piped watercourse) crossing or abutting the site has been submitted and approved in writing by the Local Planning Authority. No construction is permitted, which will restrict current and future land owners from undertaking their riparian maintenance responsibilities of any watercourse on or adjacent to the site.

Reason: To ensure that the duties and responsibilities, as required under the Land Drainage Act 1991, and amended by the Flood and Water Management Act 2010, can be fulfilled without additional impediment following the development completion, in accordance with Policy GEN7 of the Arun District Local Plan.

FOUL WATER DRAINAGE

- 5) **ENGD1A** - Prior to the commencement of construction works details of a proposed foul drainage system shall be submitted to and approved in writing by the Local Planning Authority (including details of its siting, design and subsequent management / maintenance) and no dwelling shall be occupied until works for the disposal of sewage have been fully implemented in accordance with the approved details.

Reason: To prevent pollution of water bodies and to ensure the satisfactory drainage of the site and to prevent flooding, in accordance with policies GEN7 and GEN9 of the Arun District Local Plan. It is considered necessary for this to be a pre-commencement condition because the site drainage needs to be approved and implemented before the dwellings are occupied.

SCHEME FOR DISPOSAL SURFACE WATER DRAINAGE

- 6) **ENG D3A** - Immediately following implementation of the approved surface water drainage system and prior to occupation of any part of the development, the developer/applicant shall provide the local planning authority with as-built drawings of the implemented scheme together with a completion report prepared by an independent engineer that confirms that the scheme was built in accordance with the approved drawing/s and is fit for purpose. The scheme shall thereafter be maintained in perpetuity.

Reason: To ensure that the proposed development is satisfactorily drained in accordance with policies GEN7 and GEN9 of the Arun District Council Local Plan.

ENGINEERS (DRAINAGE) MAINTENANCE MANUAL

- 7) **ENG D5B** - Upon completed construction of the surface water drainage system but prior to occupation of any part of the scheme, the owner or management company shall either provide the local planning authority with an updated copy of the management manual incorporating any changes as a result of construction/implementation or confirm in writing that no changes are required to the manual.

No further changes shall be made to the approved surface water drainage system Maintenance & Management Plan/Regime including the management company responsible or the financial arrangements between the owners of the dwellings & the management company other than with the written consent of the Local Planning Authority.

The owner or management company shall thereafter strictly adhere to and implement the recommendations contained within the manual to ensure that the system is maintained in perpetuity.

Reason: To ensure the efficient maintenance and on-going operation of the surface water drainage system and to ensure the best practice in line with guidance set out in 'The SuDS

Manual' CIRIA publication ref: C753 Chapter 32, in accordance with policies GEN7, GEN9 and GEN11 of the Arun District Council Local Plan.

NOTE: Condition 7 is to be retained as it provides the means to get the maintenance manual updated should the drainage scheme have been altered during the construction phase. This can happen due to a multitude of reasons. It ensures that the property owners/management company are provided with a maintenance manual that reflects what has been installed on site. A manual that does not reflect what has been built is likely to be considered worthless/misleading to those who need to maintain the system.

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, discharge of flows, connections, headwalls and the installation of trash screens. Please also refer to the 'culvert policy' and consent application form available on the West Sussex County Council website; <https://www.westsussex.gov.uk/fire-emergencies-and-crime/dealing-with-extreme-weather/dealing-with-flooding/flood-risk-management/ordinary-watercourse-land-drainage-consent/>

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