

Technical Note - Discharge of Surface Water Management Planning Conditions



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Project	Reptune, Yapton
Project Number	23262

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1 Introduction

- 1.1 This Technical Note has been produced in support of Discharging of Condition 4 of Planning Permission Y/22/19/PL comprising demolition of existing redundant garage building and erection of 1 No. dwelling and associated works at the Garage Premises, Main Road, Yapton, BN18 0EA.
- 1.2 This Technical Note is to be read in conjunction with all planning, architectural and other reports that accompany the Planning Application for the proposed development.
- 1.3 The proposed development will incorporate a sustainable drainage system which will discharge all surface water via infiltration to ground using permeable paving with subbase attenuation.

2 Condition 4

- 2.1 Condition 4 of Outline Planning Application Y/22/19/PL states:

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 winter 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 W SP1, W DM1, W DM2 and W DM3 of the Arun Local Plan. This is required to be a precommencement condition because it is necessary to implement the surface water drainage system prior to commencing any building works.

3 Design Parameters for Discharge of Condition 4

3.1 Summary of Surface Water Management and Design

- 3.1.1 The following design criteria has been set to ensure compliance with the principles of the design will be based upon *Arun District Council Supplementary Requirements for Surface Water Drainage Proposals*.
- 3.1.2 Infiltration to ground is proposed in accordance with the Drainage Hierarchy of preference set out in approved Document H of the Building Regulations and CIRIA C753.
- 3.1.3 The system is designed to attenuate all storm water events up to and including the critical 1:100 year storm with a 20% allowance for Climate Change. The designing for exceedance event of 1:100 year plus 40% allowance for Climate Change has been accommodated within the attenuation system to ensure that all surface water is retained on site during this event.
- 3.1.4 Requirements of Table 26.2 of CIRIA SuDS Manual have been achieved to ensure water quality requirements are achieved throughout the site.
- 3.1.5 The design has been based upon tested infiltration rates at two trial pits completed by Land Science in February 2020 with an average rate for Trail Pit 1 (TP201) yielding an average rate of 5.63×10^{-3} m/s and an average rate of 1.97×10^{-5} m/s recorded for Trail Pit 2 (TP202).
- 3.1.6 For the purpose of our design calculations we have used the lesser rate of 1.97×10^{-5} m/s.
- 3.1.7 The existing neighbouring right way of way will be retained and drained as existing.

3.2 Detailed Surface Water Drainage Design

- 3.2.1 All surface water is to be collected and discharged via an infiltration blanket beneath a permeable paved surface.
- 3.2.2 The drainage has been designed to accommodate and discharge all surface water to ground for all the impermeable areas of the site via infiltration blanket. The infiltration blanket comprises permeable paving, which for surface water storage, requires a minimum 240mm depth of voided subbase beneath the permeable paving. However,

the depth of the construction will be determined by the CBR value of the underlying ground condition found onsite by the contractor.

3.2.3 A copy of Drawing 101 showing the proposed drainage layout is located at the rear of this Technical Note.

3.2.4 A copy of the Microdrainage Calculations for the surface water network and attenuation system is located at the rear of this Technical Note.

3.3 General Site Ground Conditions

3.3.1 The Ashdown Site Investigation report of July 2019 identifies made ground generally comprising gravelly clay, which was encountered to depths of between 0.30m and 3.10m. The gravel fraction comprised variable quantities of flint, brick and concrete.

3.3.2 Beneath the made ground, the investigation encountered slightly sandy gravelly clay soils persisting to the full depths of the trial pits, and to depths of between 2.30m and 4.50m below ground level in the boreholes.

3.4 Winter Groundwater Monitoring

3.4.1 Land Science Limited undertook groundwater monitoring from 24 October 2019 to 18 February 2020 and identified a maximum groundwater level of approximately 1.50 metres below existing ground levels.

3.4.2 A full copy of Land Science Limited's Report is located at the rear of this Technical Note.

3.5 Surface Water Quality

3.5.1 The proposed development is for residential use. In accordance with CIRIA SuDS Manual 2015 (Report C753), the pollution hazard level for this type of development is low.

3.5.2 The surface water scheme will include mitigation to ensure that surface water is suitably treated, and any pollution risk adequately managed prior to discharge.

3.5.3 Table 26.2 in Chapter 26 of CIRIA report C753 The SuDS Manual provides Pollution Hazard Indices for varying land types. Those determined as of most relevance to the development proposals are as follows:

Land Use	Pollution hazard level	Total suspended solids (TSS)	Metals	Hydrocarbons
Residential roofs	Very Low	0.2	0.2	0.05
Individual property driveways, residential car park, low-traffic roads	Low	0.5	0.4	0.4

Table 2: Pollution Hazard Indices

3.5.4 Where multiple drainage components are used in series the individual mitigation index of secondary and tertiary components is lowered by 50% due to reduced performance associated with primary treatment.

SuDS Type	Total suspended solids (TSS)	Metals	Hydrocarbons
Permeable pavement	0.7	0.6	0.7

Table 3: Pollution Mitigation Indices

3.5.5 The proposed use of permeable paving will meet the target treatment level required for runoff with very low to low risk of pollution hazard thus demonstrating that the surface water drainage system for the site can be designed to adequately mitigate against the risk of pollution.

4 Documents appended

- Drawing 101 B - Proposed Drainage Strategy Plan
- Drawing 501 A - Construction Details
- Microdrainage Calculations for Climate Change adjusted 1 in 100 year event
- Land Science Limited's Report