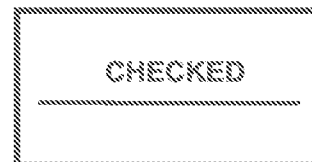
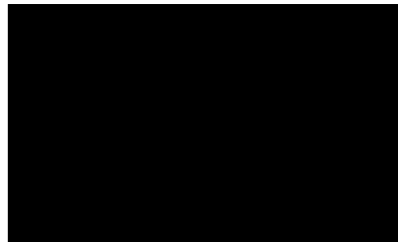


Appendix D: Southern Water Asset Information



Atkins Global
The Hub, 500
Park Avenue
Bristol
BS32 4RZ

Your ref 60682
Our ref 272911
Date 21 December 2017
Contact 

Attention: **Andrew Aitken**

Dear Customer

Re: Provision of public sewer record extract

Location: Site off, London Road, Bognor Regis, PO21 1PY

Thank you for your order regarding the provision of extracts of our sewer and/or water main records. Please find enclosed the extracts from Southern Water's records for the above location.

We confirm payment of your fee in the sum of £49.92 and enclose a VAT receipt for your records.

Customers should be aware that there are areas within our region in which there are neither sewers nor water mains. Similarly, whilst the enclosed extract may indicate the approximate location of our apparatus in the area of interest, it should not be relied upon as showing that further infrastructure does not exist and may subsequently be found following site investigation. Actual positions of the disclosed (and any undisclosed) infrastructure should therefore be determined on site, because Southern Water does not accept any responsibility for inaccuracy or omission regarding the enclosed plan. Accordingly it should not be considered to be a definitive document.

Should you require any further assistance regarding this matter, please contact the LandSearch team.

Yours faithfully

LandSearch

Southern Water Southern House Capstone Road Chatham Kent ME5 7QA www.southernwater.co.uk

Southern Water Services Ltd Registered Office: Southern House Yeoman Road Worthing BN13 3NK Registered in England No. 2366670

99445



SZ9399SE

Scale: 1:2500

Title: 272911_Site off, London Road,

The actual positions should be determined on site.

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ARUN DISTRICT COUNCIL

[illegible]

Title: 272911 Site off, London Road,

 Southern Water

Appendix E: Proposed Drainage Strategy Calculations

Confidential

Vahnea Student Residences

Design Calculations

12634 – Brownfield Runoff Calculations

1 in 2 Years

Rev P1

Date: 21/01/2022

Project No: 12634

Engineer: I. Clements

Checked: G. Taylor

Campbell Reith Hill LLP
Raven House
29 Linkfield Lane
Bosworth

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Confidential

Vahnea Student Residences

Design Calculations

12634 – Brownfield Runoff Calculations

1 in 30 Years

Rev P1

Date: 21/01/2022

Project No: 12634

Engineer: I. Clements

Checked: G. Taylor

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., I*W (mm)
1.000	o	225	1	100.000	98.000	1.775	Open Manhole	1200
1.001	o	225	2	100.000	97.900	1.875	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., I*W (mm)
1.000	15.000	150.0	2	100.000	97.900	1.875	Open Manhole	1200
1.001	15.000	150.0		100.000	97.800	1.975	Open Manhole	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	0
Number of Online Controls	0	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FEH
Return Period (years)	30
FEH Rainfall Version	1999
Site Location	GB 493300 99150 SZ 93300 99150
C (1km)	-0.026
D1 (1km)	0.395
D2 (1km)	0.248
D3 (1km)	0.426
E (1km)	0.309
F (1km)	2.304
Summer Storms	No
Winter Storms	Yes
Cv (Summer)	0.750
Cv (Winter)	0.840
Storm Duration (mins)	30

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Raven House 29 Linkfield Lane Surrey RH1 1SS	12634-Vahnea Student Residence Existing Brownfield Rates 1 in 30 year																																	
Date 21/01/2022	Designed by I. Clements																																	
File 12634 - BROWNFIELD RUNO...	Checked by G. Taylor																																	
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Confidential

Vahnea Student Residences

Design Calculations

12634 – Brownfield Runoff Calculations

1 in 100 Years

Rev P1

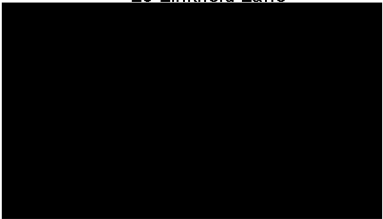
Date: 21/01/2022

Project No: 12634

Engineer: I. Clements

Checked: G. Taylor

Campbell Reith Hill LLP
Raven House
29 Linkfield Lane



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Date 21/01/2022 File 12634 - BROWNFIELD RUNO...					Designed by I. Clements Checked by G. Taylor						
XP Solutions					Network 2020.1						
<u>STORM SEWER DESIGN by the Modified Rational Method</u>											
<u>Network Design Table for Storm</u>											
PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	15.000	0.100	150.0	0.120	5.00	0.0	0.600	o	225	Pipe/Conduit	
1.001	15.000	0.100	150.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
<u>Network Results Table</u>											
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	
1.000	0.00	5.23	98.000	0.120	0.0	0.0	0.0	1.07	42.4	0.0	
1.001	0.00	5.47	97.900	0.120	0.0	0.0	0.0	1.07	42.4	0.0	
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Raven House 29 Linkfield Lane Surrey RH1 1SS	12634-Vahnea Student Residence Existing Brownfield Rates 1 in 100 year	
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Appendix F: WSCC LLFA SuDS Policy Extract

5 Policies for Sustainable Drainage

5.1 Introduction

- 5.1.1 West Sussex LLFA has adopted the policies summarised in Table 5.1 to statutory policy and best practice. Policies 1 to 6 set out the requirements for a drainage strategy to be compliant with the NPPF and Non-Statutory Technical Standards for Sustainable Drainage. Policies 7 to 10 set out expectations to be considered within a drainage strategy in response to environmental legislation and guidance that West Sussex County Council and the Local Planning Authorities have a duty to comply with.
- 5.1.2 All the policies reflect the requirements of the Local Flood Risk Management Strategy, Surface Water Management Plans and Local Planning Authority Local Plans. Sufficient information must be submitted to demonstrate compliance.

Table 5.1: West Sussex LLFA SuDS Policies

Policy	Summary
SuDS Policy 1	Follow the drainage hierarchy
SuDS Policy 2	Manage Flood Risk Through Design
SuDS Policy 3	Mimic Natural Flows and Drainage Flow Paths
SuDS Policy 4	Seek to Reduce Existing Flood Risk
SuDS Policy 5	Maximise Resilience
SuDS Policy 6	Design to be Maintainable
SuDS Policy 7	Safeguard Water Quality
SuDS Policy 8	Design for Amenity and Multi-Functionality
SuDS Policy 9	Enhance Biodiversity
SuDS Policy 10	Link to Wider Landscape Objectives

SuDS Policy 1: Follow the drainage hierarchy

- 1. Surface runoff not collected for use must be discharged according to the following discharge hierarchy:**
 - **to ground,**
 - **to a surface water body,**
 - **to a surface water sewer, highway drain, or another drainage system, or**
 - **to a combined sewer where there are absolutely no other options, and only where agreed in advance with the relevant sewage undertaker.**
- 2. The selection of a discharge point should be clearly demonstrated and evidenced.**

5.2 SuDS Policy 1: Discharge Hierarchy

5.2.1 When development occurs, the urbanisation process within a catchment affects the natural hydrology; if the destination of the water is altered this may result in:

- a reduced supply of rainfall to groundwater,
- an accelerated passage of flow to the receiving watercourses, and
- water directed away from existing receiving catchments.

In order to maintain the natural balance of the water cycle, the above discharge hierarchy⁴ must be observed. Where development results in changes in runoff destinations, the design must account for how the surface flows are managed and demonstrate it does not exacerbate off-site flood risk.

5.2.2 Infiltration structures (to ground) include soakaways, basins, swales and permeable paving. 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 DG 365, CIRIA R156 or a similar approved method, and cater for the design storm event between the invert of the lowest entry pipe into the infiltration structure and the base. Tests should be undertaken during winter / early spring when ground water levels are typically highest; if groundwater levels are influenced by the tide then tests should be undertaken over a high-water spring tide. 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

⁴ SuDS selection hierarchy based on: CIRIA C753 - The SuDS Manual; BS8582:2013 – Code of Practice for Surface Water Management for Development Sites; and Approved Document H of the Building Regulations.