



25 August 2026

✉ 54 Common Lane
Titchfield, Hants,
PO14 4BU

☎ 07717 759149
📄 www.aquacallidus.co.uk

Nova Planning Services Ltd
Building A
Unit 3
The Yard
Station Road
Wickham
Hants
PO17 5JA

FAO: Jacob Goodenough

Ref: 24185

Stroudwood Lane, Upham, Hants
Surface Water Drainage

Dear Sirs

As requested we have revised the surface water drainage extent to suit a gravel pavement to the front of the building.

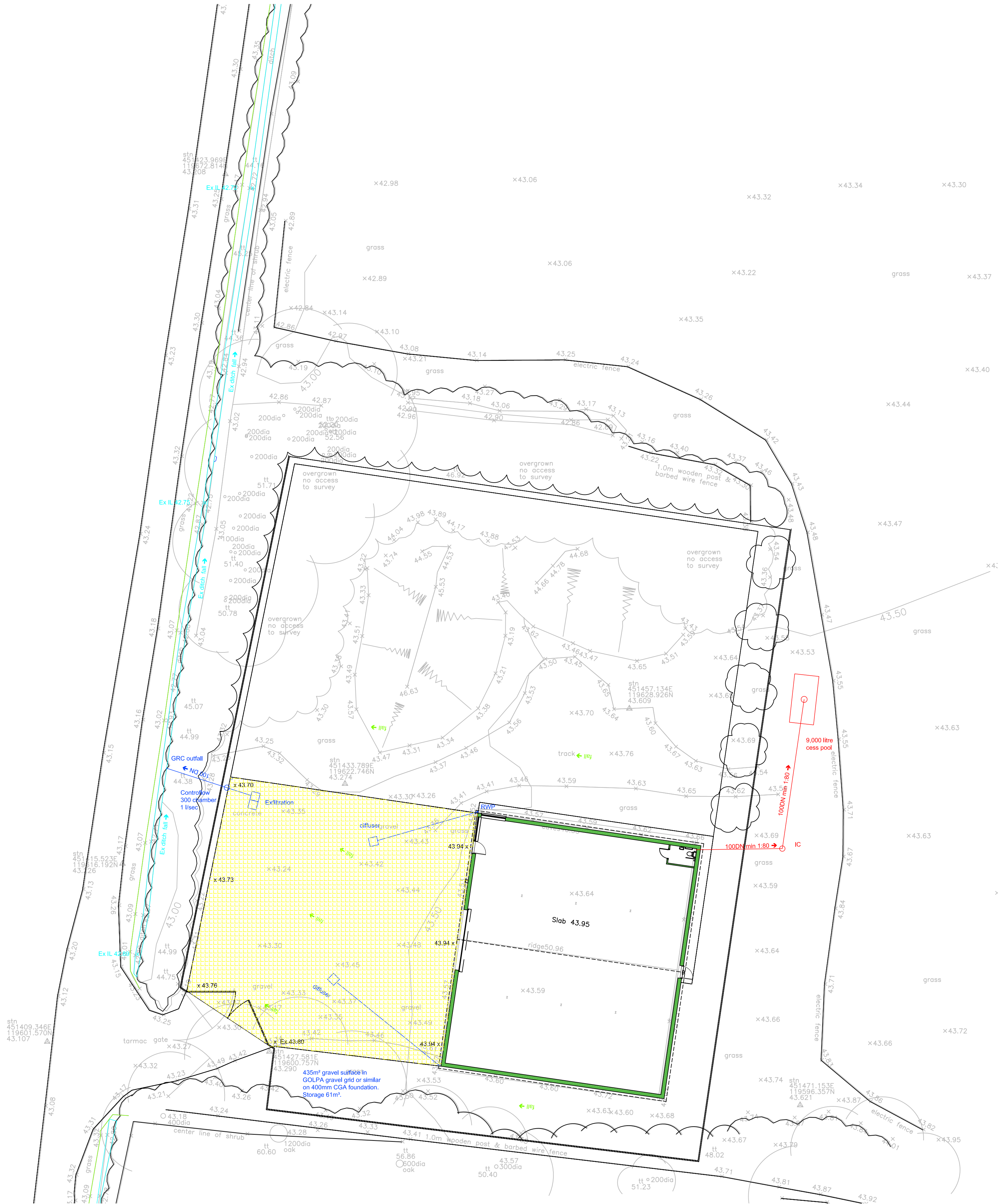
The site soil permeability rate is extremely low so for design purposes the little infiltration there may be has been discounted. The CGA matrix will continue to outfall to the front ditch. Calculations are attached which demonstrate for a 1 l/sec flow restriction the 1%AEP + 45% climate change + 10% urban creep storm scenario requires 57m³ of attenuation storage. Proposed storage 435m² of min 400mm thick CGA foundation of 35% void creating storage of 61m³. The calculations for this are attached. The post development discharge will therefore give a 84% reduction in current unattenuated discharge rate.

Yours Sincerely,

Aqua Callidus Consulting Ltd

Andy Traves

Enc. ACC24185-01-A
Attenuation calculations



Rev.	Amendment	Date	Original Sheet Size A1 (841 x 594)	Project		
			0 10 mm 50	Stroudwood Lane Upham Hants		
				Subject		
				Drainage Layout		
			Scale	Project No.	Drawing No.	Sheet No. Revision
A	Surface water drainage extent updated	25/8/2026	1:200	24185	ACC-24185-01	na A

This is an estimation of the storage volume requirements that are needed to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). It is recommended that the total storage volume for the site is distributed across the site using multiple SuDS and that hydraulic modelling software is used to undertake and finalise the detailed design of the drainage system.

Project details

Date	25/08/2026
Calculated by	A Traves
Reference	24185
Model version	2.2.3

Location

Site name	Stroudwood lane
Site location	Upham



Site easting (British National Grid)	451452
Site northing (British National Grid)	119605

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MORE INFO

Site areas

Total site area (ha)	0.082	ha
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Roof area

Total roof area (ha)	0.0385	ha
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Contributing roof area (ha)	0.0385	ha
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Non-contributing roof area (ha)	0	ha
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Paved area

Total paved area (ha)	0.0435	ha
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Contributing paved area (ha)	0.0435	ha
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Non-contributing paved area (ha)	0	ha
----------------------------------	--------------------------------	----

Grass / vegetated area

Total grass / vegetated area (ha)		ha
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Contributing grass / vegetated area (ha)		ha
--	----------------------	----

Non-contributing grass / vegetated area (ha)	0	ha
--	--------------------------------	----

Total area

Total contributing area (ha)	0.082	ha
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Contributing areas with urban creep allowance

Urban creep allowance factor	+10%
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Contributing roof area (adjusted for urban creep) (ha)	0.0385	ha
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Contributing paved area (adjusted for urban creep) (ha)	0.0435	ha
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Contributing grass / vegetated area (adjusted for urban creep) (ha)	0	ha
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Storage design parameters

Storage base shape	Rectangular / square
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Storage base length to width ratio	1:1 (square)
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Storage design depth (m)	0.4	m
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Storage side slope (1 in x)	Vertical sided
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Storage voids ratio (%)	30% (e.g. aggregate filled structure)
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Storage volume design return period (years)	1:100 years
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Discharge flow rate from the site

Method

Type of site

Greenfield

Specify the method

FEH statistical (2025)

FEH statistical (2025)

My value

Map/default value

SAAR9120 (mm)

893

mm

BFIHOST19scaled

0.254

QMed (l/s)

0.7

l/s

QMed-QBar conversion

1.136

1.136

Total area for greenfield runoff calculation (ha)

0.082

ha

0.082

QBar (l/s)

0.8

l/s

Hydrological region

7

7

Return period (years)

Qbar (1:2.3 years)

Growth curve factor

1

Final discharge rate

Runoff calculation method

FEH statistical (2025)

Design flow rate (l/s)

0.8

l/s

Blockage risk

Specify the method

Flow rate

Minimum discharge flow rate to prevent blockage

1l/s

My value

Calculated value

Design orifice diameter (mm)

27

mm

27

Flow rate of orifice (l/s)

0.95

l/s

Rainfall and runoff

Rainfall input type

FEH22 CSV file

24185 FEH_Point_Rainfall_FEH22_AM_451453_119608.csv

Distance from FEH location to site (km)

0

km

Climate change allowance factor

145%

Model results

- **Maximum discharge flow rate:** 0.9 (l/s)
- **Outflow orifice diameter:** 27 (mm)
- **Storage base length:** 22 (m)
- **Storage base width:** 22 (m)
- **Storage base area:** 475 (m²)
- **Storage total volume:** 190 (m³)
- **Storage total water volume:** 57 (m³)
- **Storm return periods run:** 1, 2, 10, 30, 100, 200 (years)
- **Storm durations run:** 15, 30, 60, 120, 180, 240, 360, 540, 720, 900, 1080, 1440, 1800, 2160, 2880, 3600, 4320, 5040, 5760 (minutes)

Return Period (years)	Critical Duration (minutes)	Peak Flow Rate (l/s)	Max Depth (m)	Max water volume (m³)	Max storage volume (m³)
1	900	0.6	0.15	21	70
2	720	0.6	0.17	24	80
10	540	0.8	0.26	37	123
30	540	0.8	0.32	46	153
100	540	0.9	0.40	57	190
200	540	1.0	0.42	65	217

Please note runoff estimation and storage volume estimation are subject to uncertainty. Storage volume results are therefore reported to the nearest 1 m³ value, unless storage volumes are less than 10 m³, in which case, storage volumes are provided to 1 decimal place.

Disclaimer

This report was produced using the surface water storage volume design tool (2.2.3) developed by HR Wallingford and available at uksuds.com (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate surface water storage volumes for the whole site based on a limiting discharge rate from the site. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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