

Appendix L: Correspondence with Bristol City Council



RE: 13492 Brislington Meadows - Drainage Parameters
Abigail Hall to TamiloreAkande@campbellreith.com 19/11/2021 08:42
Cc "BlessingFarirai@campbellreith.com"

Hi Tamilore,

Apologies – I meant to refer to FSR.

Many Thanks
Abi

Abi Hall
Flood Risk Officer
0117 3525497

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>
Sent: 08 November 2021 09:34
To: Abigail Hall <Abigail.Hall@bristol.gov.uk>
Cc: BlessingFarirai@campbellreith.com
Subject: RE: 13492 Brislington Meadows - Drainage Parameters

Hi Abi,

ICP SuDS is actually based upon the FSR method and not FEH. Were you meant to refer to the FSR method? Please confirm.

Kind Regards,

Tamilore Akande
Project Engineer

Unit 5 03 [HERE],
470 Bath Road,
Bristol
BS4 3AP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: "Abigail Hall" <Abigail.Hall@bristol.gov.uk>
To: "TamiloreAkande@campbellreith.com" <TamiloreAkande@campbellreith.com>
Cc: "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>
Date: 24/09/2021 07:29
Subject: RE: 13492 Brislington Meadows - Drainage Parameters

Hi Tamilore,

I'm not sure if a colleague responded whilst I was on leave but please see below:

The method used should be ICP SuDS (which is based on FEH but applicable to smaller sites),

Cv values are acceptable,

Attenuation requirements are acceptable, but not necessary to ensure the 1 in 100 AP is stored within the system if it can be safely stored on site during the duration of the storm without impacting buildings. 1 in 30 AP rainfall event including climate change allowance needs to be stored in the system.

4% for urban creep sounds OK.

Many Thanks
Abi

Abi Hall
Flood Risk Officer
0117 3525497

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>
Sent: 10 September 2021 17:55
To: Abigail Hall <Abigail.Hall@bristol.gov.uk>
Cc: BlessingFarirai@campbellreith.com
Subject: RE: 13492 Brislington Meadows - Drainage Parameters

Hi Abigail,

I just noticed a typo on query 3 on my last email (below). The design life is supposed to read 100 years. My apologies for this. I have repasted the questions below.

1. In relation to the proposed surface water drainage design, can we still utilise the FSR method or is the FEH method preferred?
2. For attenuation & pipe sizing, we have assumed a Cv value of 0.84 in winter and 0.75 in summer. Please confirm if this is acceptable?
3. For attenuation requirements on the site, we have assumed a 40% allowance for climate change in addition to the 1 in 100 year rainfall event based upon a design life of 100 years. I trust that this is acceptable.
4. Based on the nature and type of development proposed, we have also assumed a 4% requirement for urban creep. This is in line with the LASOO Industry Guidance and West of England Developer Design Guide. I trust that this is acceptable?

Kind Regards,

Tamilore Akande
Project Engineer

Unit 5.03 [HERE],
470 Bath Road,
Bristol
BS4 3AP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: Tamilore Akande/CRH
To: "Abigail Hall" <Abigail.Hall@bristol.gov.uk>
Cc: "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>
Date: 10/09/2021 16:51
Subject: RE: 13492 Brislington Meadows - Drainage Parameters

Hi Abigail,

Thank you for so much for your response and for confirming the discharge rate proposals and SuDS requirements.

With regards to the other four queries (I have highlighted them below), please can you confirm your requirements and if our assumptions are acceptable?

1. In relation to the proposed surface water drainage design, can we still utilise the FSR method or is the FEH method preferred?
2. For attenuation & pipe sizing, we have assumed a Cv value of 0.84 in winter and 0.75 in summer. Please confirm if this is acceptable?
3. For attenuation requirements on the site, we have assumed a 40% allowance for climate change in addition to the 1 in 100 year rainfall event based upon a design life of 40 years. I trust that this is acceptable.
4. Based on the nature and type of development proposed, we have also assumed a 4% requirement for urban creep. This is in line with the LASOO Industry Guidance and West of England Developer Design Guide. I trust that this is acceptable?

Kind Regards,

Tamilore Akande
Project Engineer

Unit 5.03 [HERE],
470 Bath Road,
Bristol
BS4 3AP

Tel +44 (0)117 916 1066
www.campbellreith.com

From: "Abigail Hall" <Abigail.Hall@bristol.gov.uk>
To: "TamiloreAkande@campbellreith.com" <TamiloreAkande@campbellreith.com>, "BlessingFarirai@campbellreith.com" <BlessingFarirai@campbellreith.com>
Date: 23/08/2021 09:05
Subject: RE: 13492 Brislington Meadows - Drainage Parameters

Dear Tamilore and Blessing,

I have just received this so apologies for the delay.

According to our SFRA and West of England Sustainable Drainage Developers Guide a brownfield site should aim to provide post-development runoff rates as close to greenfield equivalents as possible, if this is not possible then a minimum of 50% betterment is required. Therefore the approach you have taken to calculating runoff rates is acceptable in principle, this is subject to review of calculations within the planning application.

The SFRA has a requirement to provide at least three out of four pillars of SuDS design within the drainage strategy – reduction in water quantity, improvement in water quality, amenity value and biodiversity value.

Many Thanks
Abi

Abi Hall
Flood Risk Officer
0117 3525497

From: TamiloreAkande@campbellreith.com <TamiloreAkande@campbellreith.com>
Sent: 25 June 2021 10:51
To: Matthew Sugden <Matthew.Sugden@bristol.gov.uk>
Cc: BlessingFarirai@campbellreith.com
Subject: 13492 Brislington Meadows - Drainage Parameters

Hi Matthew,

Hope you are doing well.

Our client is proposing to develop an existing greenfield site located at Brislington Meadows in Bristol. The grid reference for the site is ST 62628 71123 and nearest postcode reference BS4 4NZ. The total site area is 9.33ha. However, due to the nature and constraints of the existing site, the area being proposed for development is 7.28Ha. The constraints include:

- Site Topography (i.e. steep slopes ranging from 1 in 6 to 1 in 20)
- Tree Protection Orders (TPO's)
- Electricity Pylons on site
- Biodiversity Net Gain (BNG) requirements

An indicative site layout (design development is still in progress) is attached.

The proposed scheme will include the construction of between 250 up to 300 new residential dwellings alongside the provision of associated car parking, access routes and landscaping.

In line with the West of England Developer Design guide, we are proposing to limit the proposed surface water discharge rate for the site to the Greenfield QBar rate. Please refer to the drainage design parameters below for a breakdown of our surface water discharge proposals.

1.0 Rainfall Data and Greenfield Runoff

1.1. The runoff for the site has been calculated using the IH124 method with a greenfield site area of 7.28ha, SAAR of 850mm and soil value of 0.450. The resulting existing flows are indicated in table 1 below.

Site	Area	Discharge Rate (Q _{bar})	Discharge Rate (Q ₁)	Discharge Rate (Q ₃₀)	Discharge Rate (Q ₁₀₀)
Development Site (GF)	7.28 ha	40.10 l/s	31.30 l/s	76.50 l/s	97.10 l/s

Table 1: Greenfield Runoff Rates

The surface water drainage proposal is therefore to limit the overall site flows to 40.10l/s for all events up to and including the 1 in 100 year rainfall event +40% climate change.

Due to the topography of the site, the existing site is split into 3 catchments and we propose to mimic the existing catchments for the proposed surface water drainage strategy. This will mean utilising different outfalls based on the number of sub-catchments. In this instance, the strategy will be to discharge the surface water flows from the site based upon the sub-catchment area fraction with a total combined runoff rate at 40.10l/s.

Please can you confirm if our surface water discharge proposals will be acceptable?

In relation to the proposed surface water drainage design, can we still utilise the FSR method or is the FEH method preferred?

For attenuation & pipe sizing, we have assumed a Cv value of 0.84 in winter and 0.75 in summer. Please confirm if this is acceptable?

For attenuation requirements on the site, we have assumed a 40% allowance for climate change in addition to the 1 in 100 year rainfall event based upon a design life of 40 years. I trust that this is acceptable.

Based on the nature and type of development proposed, we have also assumed a 4% requirement for urban creep. This is in line with the LASOO Industry Guidance and West of England Developer Design Guide. I trust that this is acceptable?

I have attached copies of the site location plan and preliminary site layout for further information.

Please contact me if you require further information.

Kind Regards,

Tamilore Akande
Project Engineer

Wessex House,
Pixash Lane,
Keynsham, Bristol
BS31 1TP

Tel +44 (0)117 916 1066
www.campbellreith.com

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Consultations: <http://webdefence.global.blackspider.com/urlwrap/?q=AXicHcy9DsIgFABQb3AwPgZUH1rTySbOuvqCFG8sAgW5IMTJV9e4n5zVgE8LrK8A-3ejniJxEUFbb-KcOXphYsC2uxxV687Nrl0e9x0sD4yDU7PdzozHZaRvGeyefr7Keell7LWKka2Kf-aRyzi5WQiLtYQgI0Cvpt6J9M&Z>

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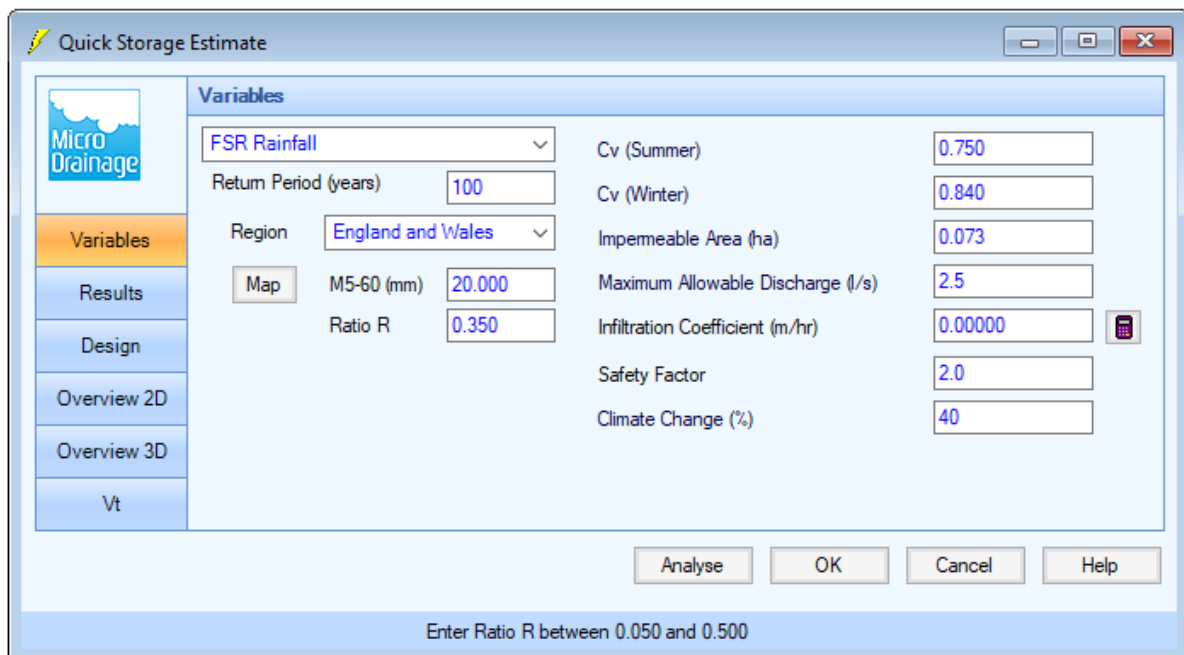
Privacy Notice: <http://webdefence.global.blackspider.com/urlwrap/?q=AXicHcy9DsIgFABQb3AwPgZUH1rTySbOuvqCFG8sAgW5IMTJV9e4n5zVgE8LrK8A-3ejniJxEUFbb-KcOXphYsC2uxxV687Nrl0e9x0sD4yDU7PdzozHZaRvGeyefr7Keell7LWKka2Kf-aRyzi5WQiLtYQgI0Cvpt6J9M&Z>

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Appendix M: Preliminary Storage Calculations

Preliminary Storage Calculations

Catchment A

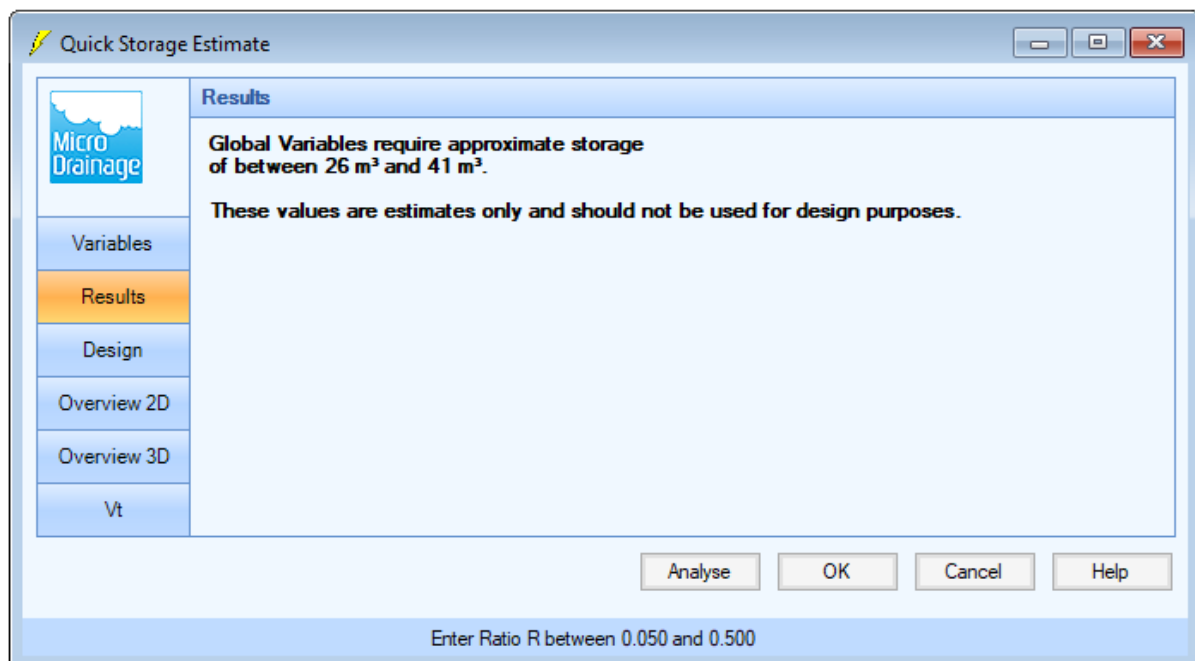


The 'Variables' screen of the 'Quick Storage Estimate' software. It features a sidebar with navigation buttons: Variables (selected), Results, Design, Overview 2D, Overview 3D, and Vt. The main area contains input fields for various parameters. A status bar at the bottom indicates 'Enter Ratio R between 0.050 and 0.500'.

Variable	Value
FSR Rainfall	FSR Rainfall
Return Period (years)	100
Region	England and Wales
Map	M5-60 (mm)
Ratio R	0.350
Cv (Summer)	0.750
Cv (Winter)	0.840
Impervious Area (ha)	0.073
Maximum Allowable Discharge (l/s)	2.5
Infiltration Coefficient (m/hr)	0.00000
Safety Factor	2.0
Climate Change (%)	40

Buttons: Analyse, OK, Cancel, Help

Enter Ratio R between 0.050 and 0.500



The 'Results' screen of the 'Quick Storage Estimate' software. The sidebar shows 'Results' as the selected tab. The main area displays the calculated storage range and a disclaimer. The status bar at the bottom is identical to the Variables screen.

Global Variables require approximate storage of between 26 m³ and 41 m³.

These values are estimates only and should not be used for design purposes.

Buttons: Analyse, OK, Cancel, Help

Enter Ratio R between 0.050 and 0.500

Catchment B

Quick Storage Estimate

Micro Drainage

Variables

FSR Rainfall

Return Period (years) 100

Region England and Wales

Map M5-60 (mm) 20.000

Ratio R 0.350

Cv (Summer) 0.750

Cv (Winter) 0.840

Impervious Area (ha) 1.714

Maximum Allowable Discharge (l/s) 17.8

Infiltration Coefficient (m/hr) 0.00000

Safety Factor 2.0

Climate Change (%) 40

Analyse OK Cancel Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0

Quick Storage Estimate

Micro Drainage

Results

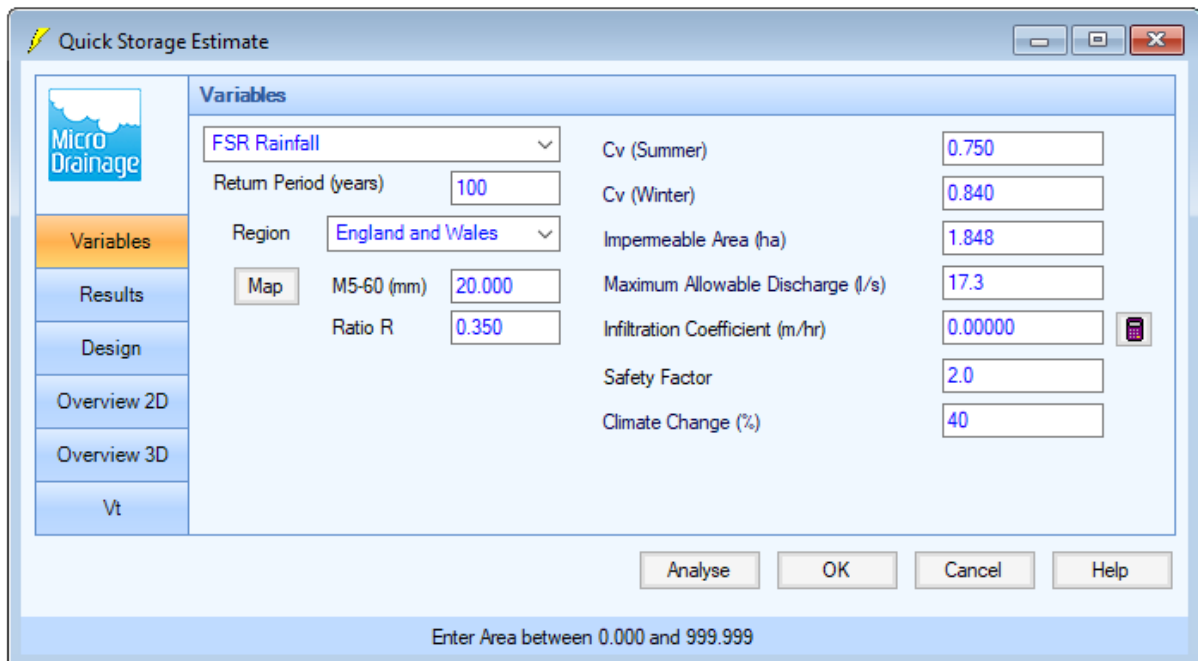
Global Variables require approximate storage of between 954 m³ and 1373 m³.

These values are estimates only and should not be used for design purposes.

Analyse OK Cancel Help

Enter Maximum Allowable Discharge between 0.0 and 999999.0

Catchment C



Micro Drainage Quick Storage Estimate

Variables

FSR Rainfall (dropdown)

Return Period (years): 100

Region: England and Wales (dropdown)

Map

M5-60 (mm): 20.000

Ratio R: 0.350

Cv (Summer): 0.750

Cv (Winter): 0.840

Impemeable Area (ha): 1.848

Maximum Allowable Discharge (l/s): 17.3

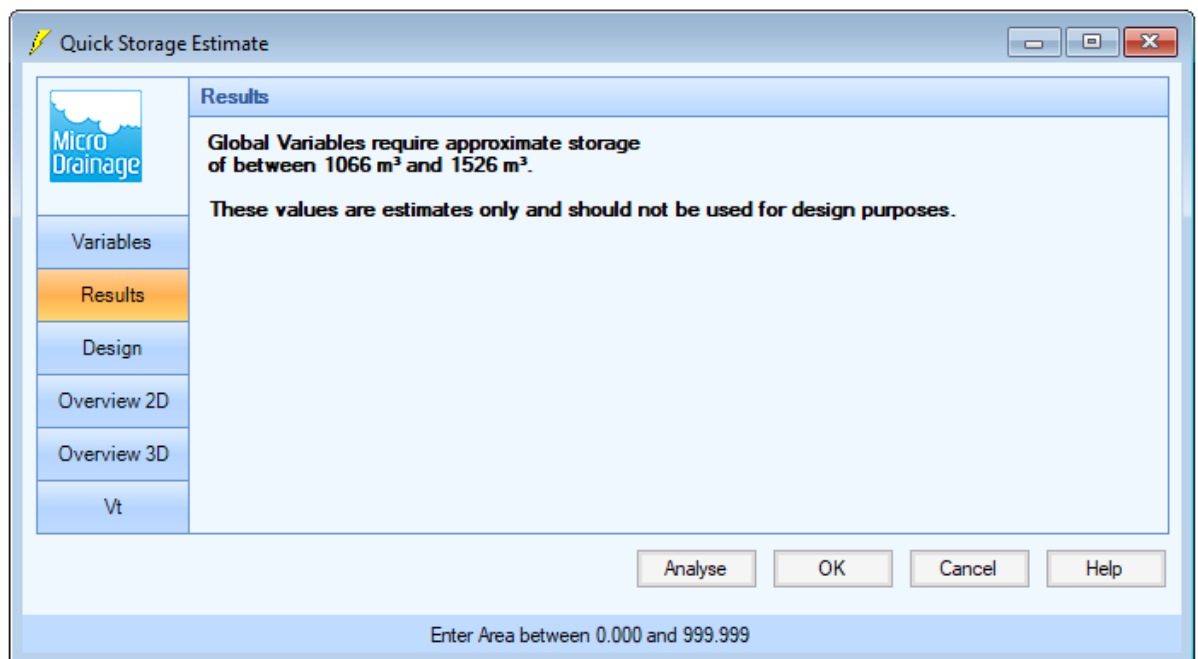
Infiltration Coefficient (m/hr): 0.00000

Safety Factor: 2.0

Climate Change (%): 40

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999



Micro Drainage Quick Storage Estimate

Results

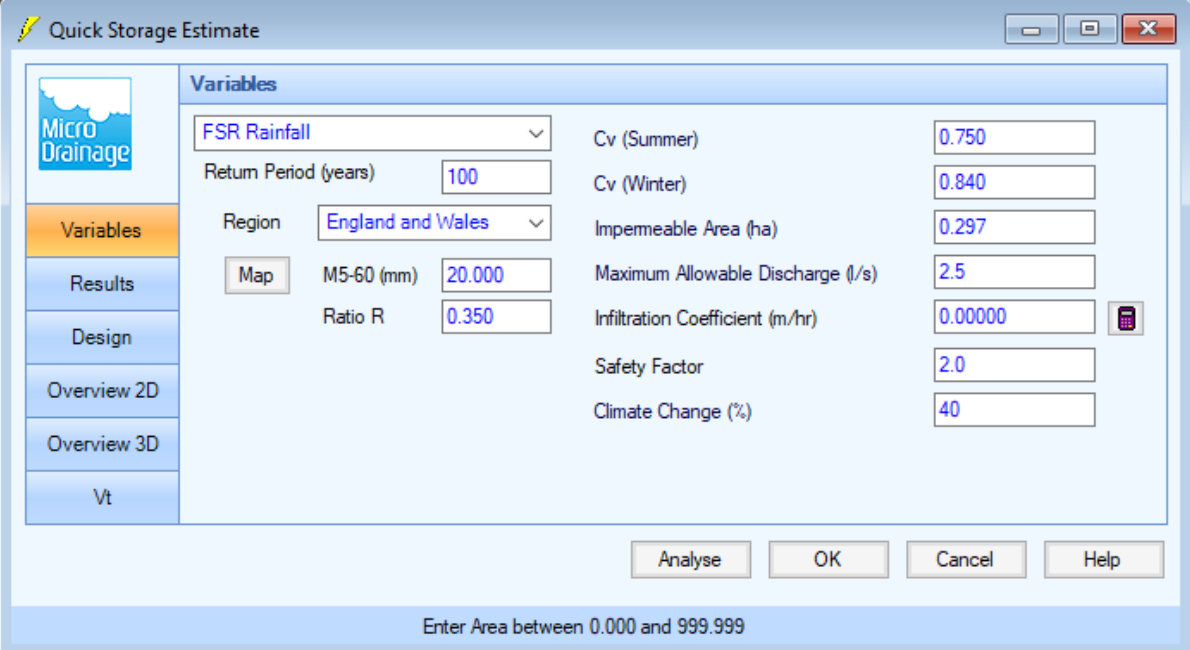
Global Variables require approximate storage of between 1066 m³ and 1526 m³.

These values are estimates only and should not be used for design purposes.

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999

Catchment D



Micro Drainage

Variables

FSR Rainfall

Return Period (years) 100

Region England and Wales

Map M5-60 (mm) 20.000

Ratio R 0.350

Cv (Summer) 0.750

Cv (Winter) 0.840

Impervious Area (ha) 0.297

Maximum Allowable Discharge (l/s) 2.5

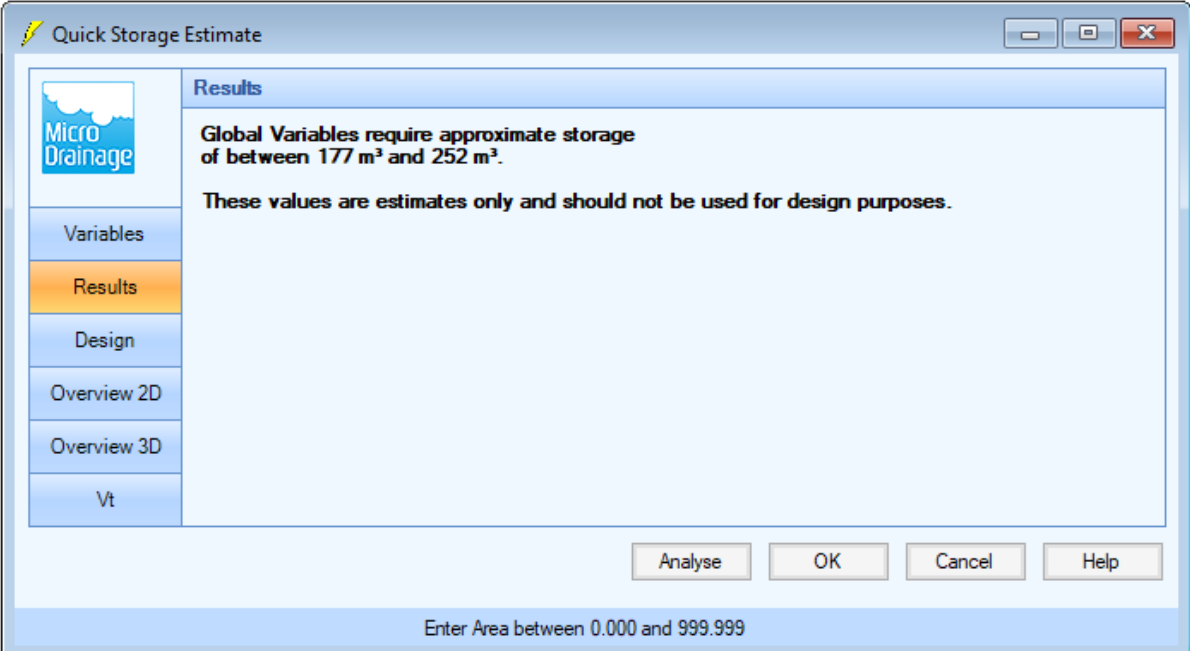
Infiltration Coefficient (m/hr) 0.00000

Safety Factor 2.0

Climate Change (%) 40

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999



Micro Drainage

Results

Global Variables require approximate storage of between 177 m³ and 252 m³.

These values are estimates only and should not be used for design purposes.

Analyse OK Cancel Help

Enter Area between 0.000 and 999.999

Appendix N: Proposed Overland Flood Flow Routes



Notes

- Do not scale from this drawing on print or electronically. Work from figured dimensions only.
- No deviation from the details on this drawing is allowed without CampbellReith's prior permission in writing.
- Read this drawing with all Architect's, Service Engineer's and CampbellReith's relevant details, specifications and drawings.
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- Drawing status:**
Work in progress
S0 - Initial status
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S1 - Suitable for coordination, **S2** - Suitable for information, **S3** - Suitable for review and comment, **S4** - Suitable for stage approval.
Published (For contractors purposes)
A1, An etc - Authorised and accepted ('n' relates to work stages)
B1, Bn etc - Partial sign-off (with comments)
CR - As constructed record document (Final Construction ONLY. Any deviations to that which is on site is not the liability of CampbellReith)
- Work Stages:**
2 - Concept, **3** - Definition, **4** - Design, **5** - Build & commission, **6** - Handover
- Only drawings with **revision Cn** and **status A5** to be used for **Construction**

LEGEND

Site Boundary

Existing Overland Flood Routes

P1	Issued for Information	17.03.22	TA
Rev	Description	Date	By

CampbellReith

consulting engineers

London020 7340 1700

Surrey01737 784 500

Bristol0117 916 1066

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Job Title

BRISLINGTON MEADOWS

Client

BRISTOL CITY COUNCIL

PROPOSED
OVERLAND FLOOD FLOW ROUTES

Drawn by	Date made	Scale @ A1	Checked by	Suitability	CR Project
TA	17.03.22	1:1000		S2	13492

Project No.	Originator	Volume	Lvl/Loc	Type	Role	Number	Rev
13492	CRH	XX	00	DR	C	5055	P1

J113000-13499/13492 - BRISLINGTON MEADOWS, BRISTOL/DWGS/2-INFRASTRUCTURE/1-AUTOCAD/1-WORKING DRAWINGS/13492-CRH-XX-00-DR-C-5055.DWG

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London

15 Bermondsey Square
London
SE1 3UN

T: +44 (0)20 7340 1700
E: london@campbellreith.com

Birmingham

Chantry House
High Street, Coleshill
Birmingham B46 3BP

T: +44 (0)1675 467 484
E: birmingham@campbellreith.com

Surrey

Raven House
29 Linkfield Lane, Redhill
Surrey RH1 1SS

T: +44 (0)1737 784 500
E: surrey@campbellreith.com

Manchester

No. 1 Marsden Street
Manchester
M2 1HW

T: +44 (0)161 819 3060
E: manchester@campbellreith.com

Bristol

Unit 5.03,
HERE,
470 Bath Road,
Bristol BS4 3AP

T: +44 (0)117 916 1066
E: bristol@campbellreith.com

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A list of Members is available at our Registered Office at: 15 Bermondsey Square, London, SE1 3UN
VAT No 974 8892 43