

Calculated by:	Megan Au			Site Details	S				
Site name:	Ince AGI			Latitude:			53.	27941°	N
				Longitude:			2.7	79829° \	N
Site location:	Ince, Engla	and rolume requirements that are	needed to meet nerr	mal					
best practice criteria	in line with Envi	ronment Agency guidance "R	ainfall runoff manage	Deference			307	7144680	8
the non-statutory star	ndards for SuD	8), the SuDS Manual C753 (C S (Defra, 2015). It is not to be	used for detailed de	•		·	lul 22 20	022 16:4	11
• .		ded that hydraulic modelling : ails before finalising the desig							
Site characteris	stics			Methodology					
Total site area (ha):			0.18	Q _{MED} estimation metho	d: C	alculate f	rom BFI	and SA	AR
Significant public	open space	(ha):	0	BFI and SPR method:	С	alculate f	rom dor	ninant	
Area positively dra	ained (ha):		0.18	Soil characteristics	ф	PASIT	Ed	lited	
Impermeable area	a (ha):		0.18	HOST class:					
Percentage of dra	ined area tha	at is impermeable (%):	100	BFI HOST:			0.302	2	
Impervious area d	Irained via inf	iltration (ha):	0	SPR HOST:			0.6		
Return period for	infiltration sys	stem design (year):	10	Hydrological	Defa	ıult	Edi	ted	
Impervious area d	Irained to rair	nwater harvesting (ha):	0	characteristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :			0.93		
Compliance facto	r for rainwate	er harvesting system (%):	66	Q _{BAR} / Q _{MED} conversion factor:				1.075	
Net site area for s	torage volum	ne design (ha):	0.18	Rainfall 100 yrs 6 hrs:				63	
Net impermable a	rea for stora	ge volume design (ha):	0.18	Rainfall 100 yrs 12 hrs:			78.54		
Pervious area con	ntribution to r	unoff (%):	30	FEH / FSR conversion factor:					
* where rainwater	harvesting o	r infiltration has been use	ed for managing	SAAR (mm):	1102		1.02		
		the effective impermeab			om).	722		722	
	=	y drained', the 'net site a ow rates will have been r		M5-60 Rainfall Depth (r	•	20		20	
accordingly.				'r' Ratio M5-60/M5-2 d	ay:	0.4		0.4	
Design criteria				Hydological region:		10		10	
Climate change a	llowance	1.4		Growth curve factor 1 y		0.87		0.87	
factor:				Growth curve factor 10	year:	1.38		1.38	
Urban creep allow factor:	vance	1		Growth curve factor 30	year:	1.7		1.7	
Volume control ap	proach	Use long term storage	1	Growth curve factor 10	0	2.08		2.08	
Interception rainfa		5		years:	(1/0):	4		4	
(mm):		Ŭ		Q _{BAR} for total site area		1		1	
Minimum flow rate	e (l/s):	2		Q _{BAR} for net site area (l	's):	1		1	

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	94	94
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2.1	2.1	Total storage 1/100 years (m³):	94	94



Calculated by:	Megan Au			Site Detail	s				
Site name:	Rock Bank	K BVS		Latitude:			53.2	23617°	N
Site location:	Rock Bank	k, England		Longitude:			2.8	88363°	W
best practice criteria i	n line with Envi	rolume requirements that are ronment Agency guidance "F	Rainfall runoff manage	Liotoropoo:			256	672332	92
the non-statutory star	ndards for SuD	8), the SuDS Manual C753 (C S (Defra, 2015). It is not to be ded that hydraulic modelling	e used for detailed de	•		·	lul 22 20)22 16:	53
		ails before finalising the desi							
Site characteris	stics			Methodology					
Total site area (ha):			0.1050	Q _{MED} estimation metho	od: C	Calculate from BFI and SAA			
Significant public open space (ha):			0	BFI and SPR method:	С	alculate f	rom don	ninant	
Area positively dra	ained (ha):		0.105	Soil characteristics	ф	PASI T	Ed	ited	
Impermeable area	ι (ha):		0.105	HOST class:					
Percentage of dra	ined area tha	at is impermeable (%):	100	BFI HOST:			0.492)	
Impervious area d	rained via inf	iltration (ha):	0	SPR HOST:			0.47		
Return period for	infiltration sys	stem design (year):	10	Hydrological Default				Ed	lited
Impervious area d	rained to rair	nwater harvesting (ha):	0	characteristics					
Return period for	rainwater hai	vesting system (year):	10	Q _{MED} :				0.31	
Compliance factor	r for rainwate	er harvesting system (%)	: 66	Q _{BAR} / Q _{MED} conversion factor:				1.078	5
Net site area for s	torage volum	ne design (ha):	0.11	Rainfall 100 yrs 6 hrs:				55	
Net impermable a	rea for storaç	ge volume design (ha):	0.11	Rainfall 100 yrs 12 hrs:			65.52		
Pervious area con	tribution to r	unoff (%):	30	FEH / FSR conversion factor: 1.04			1.04		
* where rainwater	harvesting o	r infiltration has been us	ed for managing				698 698		
		the effective impermeat y drained', the 'net site		M5-60 Rainfall Depth (i	nm):	17		17	
estimates of Q_{BAR}		ow rates will have been		'r' Ratio M5-60/M5-2 d	lay:	0.4		0.4	
accordingly.				Hydological region:		10		10	
Design criteria Climate change al	lowance	1.4		Growth curve factor 1	/ear:	0.87		0.87	
factor:		1.4		Growth curve factor 10	year:	1.38		1.38	
Urban creep allow	/ance	1		Growth curve factor 30	year:	1.7		1.7	
factor:				Growth curve factor 10	0	2.08		2.08	
Volume control ap		Use long term storag	е	years:					
Interception rainfa (mm):	ll depth	5		Q _{BAR} for total site area	(l/s):	0.34		0.34	
Minimum flow rate	e (l/s):	2		Q _{BAR} for net site area (/s):	0.34		0.34	

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	36	36
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	36	36



Calculated by:	Megan Au			Site Details					
Site name:	Mollington	BVS		Latitude:			53.	22534° I	N.
Site location:	Mollington	, England		Longitude:			2.9	92793° V	٧
best practice criteria	in line with Envi	volume requirements that are no ronment Agency guidance "Ra	infall runoff manage	Dotoropoo:			200	3615406	6
the non-statutory sta	ndards for SuD	3), the SuDS Manual C753 (Ciri S (Defra, 2015). It is not to be ι ded that hydraulic modelling so	used for detailed de	•			Jul 22 20	022 17:0	11
		tails before finalising the design							
Site characteris	stics			Methodology					
Total site area (ha):		0.1050	Q _{MED} estimation method	d: C	: Calculate from BFI and SAAR			
Significant public	open space	(ha):	0	BFI and SPR method:	С	alculate 1	from dor	minant	
Area positively dra	ained (ha):		0.105	Soil characteristics	Ъ	PASTE	Ec	lited	
Impermeable area	a (ha):		0.1050	HOST class:					
Percentage of dra	ained area tha	at is impermeable (%):	100	BFI HOST:			0.682	2	
Impervious area o	drained via int	filtration (ha):	0	SPR HOST:			0.3		
Return period for	infiltration sys	stem design (year):	10	Hydrological Default				Edit	ied
Impervious area o	drained to rain	nwater harvesting (ha):	0	characteristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :				0.16	
Compliance facto	r for rainwate	er harvesting system (%):	66	Q _{BAR} / Q _{MED} conversior factor:	ED conversion			1.075	
Net site area for s	storage volum	ne design (ha):	0.11	Rainfall 100 yrs 6 hrs:				55	
Net impermable a	area for stora	ge volume design (ha):	0.11	Rainfall 100 yrs 12 hrs:					
Pervious area cor	ntribution to r	unoff (%):	30	-	ootori		65.52		
* where rainwater	harvesting o	r infiltration has been used	d for managing		/ FSR conversion factor: 1.04				
surface water run	off such that	the effective impermeable	area is less	SAAR (mm):	,	699		699	
	•	ly drained', the 'net site ar ow rates will have been re		M5-60 Rainfall Depth (n	-	17		17	
accordingly.	,			'r' Ratio M5-60/M5-2 da	ay:	0.4		0.4	
Design criteria				Hydological region:		9		9	
Climate change a	llowance	1.4		Growth curve factor 1 y	ear:	0.88		0.88	
factor:				Growth curve factor 10	year:	1.42		1.42	
Urban creep allow factor:	vance	1		Growth curve factor 30	year:	1.78		1.78	
Volume control ap	oproach	Use long term storage		Growth curve factor 100 years:	כ	2.18		2.18	
Interception rainfa		5		Q _{BAR} for total site area (i/e)·	0.17		0.17	
(mm):	•					0.17			
Minimum flow rate	e (l/s):	2		Q _{BAR} for net site area (I/	s):	0.17		0.17	

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	36	36
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	36	36



Calculated by:	Megan Au				Site Details					
Site name:	Aston Hall	BVS			Latitude:			53.	19439°	, N
Site location:	Aston Hall				Longitude:			3.0)3233°	W
	of the storage \	rolume requirements that are ronment Agency guidance "			Reference:				753577	65
•	,	8), the SuDS Manual C753 (S (Defra, 2015). It is not to b		esign	Date:		Jul 22 2022 17:03			.03
		ded that hydraulic modelling ails before finalising the des	•							
Site characteris	stics			Methodo	ology					
Total site area (ha):			0.1050	Q _{MED} esti	mation metho	d: C	alculate f	rom BFI	and SA	4AR
Significant public	open space	(ha):	0	BFI and S	PR method:	C	alculate f	rom dor	minant	
Area positively dra	ained (ha):		0.105	Soil cha	racteristics	Ъф	PASIT	Ec	lited	
Impermeable area	a (ha):		0.1050	HOST cla	ss:					
Percentage of dra	ained area tha	at is impermeable (%):	100	BFI HOST	•			0.492	2	
Impervious area o	drained via int	iltration (ha):	0	SPR HOS	ST:			0.47		
Return period for	infiltration sy	stem design (year):	10	Hydrological			Defa	ault	Ed	dited
Impervious area o	drained to rain	nwater harvesting (ha):	0	characte	eristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :					0.34	
Compliance facto	r for rainwate	er harvesting system (%): 66	Q_{BAR}/Q_{N} factor:	_{IED} conversior	conversion			1.07	5
Net site area for s	torage volum	ne design (ha):	0.11		00 vrs 6 hrs				61	
Net impermable a	area for stora	ge volume design (ha):	0.11	Rainfall 100 yrs 6 hrs:					75.92	
Pervious area cor	ntribution to r	unoff (%):	30	Rainfall 100 yrs 12 hrs:						
* where rainwater	harvesting o	r infiltration has been us	sed for managing	FEH / FSR conversion factor: SAAR (mm):			1.04		1.04	
		the effective impermea		•	infall Depth (n	am).	719		719	
		y drained', the 'net site ow rates will have been				-	17		17	
accordingly.					15-60/M5-2 da	ay:	0.3		0.3	
Design criteria				Hydologic	J		9		9	
Climate change a factor:	llowance	1.4			urve factor 1 y		0.88		0.88	
	vonoo				urve factor 10	-	1.42		1.42	
Urban creep allow factor:	varice	1			urve factor 30	-	1.78		1.78	
Volume control ap	oproach	Use long term storag	je	Growth cu years:	urve factor 100)	2.18		2.18	
Interception rainfa	all depth	5		Q _{BAR} for t	otal site area (l/s):	0.36		0.36	
(mm):	4()			Q _{BAR} for r	net site area (l/	s):	0.36		0.36	
Minimum flow rate	e (l/s):	2								

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	39	39
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	39	39



Calculated by:	Megan Au			Site Details	S				
Site name:	Northop H	lall AGI		Latitude:			53.	20337° N	
Site location:		lall, England		Longitude:			3.	10989° W	
	of the storage v	volume requirements that are ne ronment Agency guidance "Rai		Dotoropoo:			37 ⁻	18859926	
•	,	3), the SuDS Manual C753 (Ciria S (Defra, 2015). It is not to be u		esign Date:		,	Jul 22 20	022 17:09	
		ded that hydraulic modelling so tails before finalising the design							
Site characteris	stics			Methodology					
Total site area (ha):		0.115	Q _{MED} estimation metho	d: C	alculate f	rom BFI	and SAAR	
Significant public open space (ha):			0	BFI and SPR method:		alculate f	rom dor	ninant	
Area positively dra	ained (ha):		0.115	Soil characteristics	фę	PASTE	Ed	lited	
Impermeable area	a (ha):		0.115	HOST class:					
Percentage of dra	ained area tha	at is impermeable (%):	100	BFI HOST:			0.492	2	
Impervious area o	drained via int	filtration (ha):	0	SPR HOST:			0.47		
Return period for	infiltration sy	stem design (year):	10	Hydrological Default					
Impervious area o	drained to rai	nwater harvesting (ha):	0	characteristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :				0.46	
Compliance facto	or for rainwate	er harvesting system (%):	66	Q _{BAR} / Q _{MED} conversion factor:				1.075	
Net site area for s	storage volum	ne design (ha):	0.12	Rainfall 100 yrs 6 hrs:				61	
Net impermable a	area for stora	ge volume design (ha):	0.12	Rainfall 100 yrs 12 hrs:				77.38	
Pervious area cor	ntribution to r	unoff (%):	30	FEH / FSR conversion f	actor:	1.06		1.06	
* where rainwater	harvesting o	r infiltration has been used	d for managing	SAAR (mm):		787		787	
		the effective impermeable ly drained', the 'net site are		M5-60 Rainfall Depth (n	nm):	17		17	
estimates of Q_{BAF}	•	ow rates will have been re		'r' Ratio M5-60/M5-2 d	-	0.3		0.3	
accordingly.				Hydological region:		9		9	
Design criteria				Growth curve factor 1 y	ear:	0.88		0.88	
Climate change a factor:	lliowance	1.4		Growth curve factor 10		1.42		1.42	
Urban creep allov	vance	1		Growth curve factor 30	-	1.78		1.78	
factor:				Growth curve factor 10	-	2.18		2.18	
Volume control ap	oproach	Use long term storage		years:	-	2.10		2.10	
Interception rainfa	all depth	5		Q _{BAR} for total site area	(l/s):	0.5		0.5	
(mm):	o (I/o):			Q _{BAR} for net site area (l	/s):	0.5		0.5	
Minimum flow rate	e (I/S):	2							

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	47	47
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	47	47

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Summary of Results for 100 year Return Period (+40%)

	Storm Event		Max Level (m)	Max Depth (m)	Max Control (1/s)		Status
15	min	Summer	51.327	0.197	2.0	201.6	O K
30	min	Summer	51.390	0.260	2.0	269.9	Flood Risk
60	min	Summer	51.458	0.328	2.0	346.3	Flood Risk
120	min	Summer	51.513	0.383	2.0	408.6	Flood Risk
180	min	Summer	51.544	0.414	2.0	444.7	Flood Risk
240	min	Summer	51.564	0.434	2.0	469.1	Flood Risk
360	min	Summer	51.590	0.460	2.0	500.1	Flood Risk
480	min	Summer	51.605	0.475	2.0	517.9	Flood Risk
600	min	Summer	51.614	0.484	2.0	528.5	Flood Risk
720	min	Summer	51.619	0.489	2.0	534.4	Flood Risk
960	min	Summer	51.621	0.491	2.0	537.4	Flood Risk
1440	min	Summer	51.611	0.481	2.0	524.6	Flood Risk
2160	min	Summer	51.577	0.447	2.0	483.8	Flood Risk
2880	min	Summer	51.548	0.418	2.0	449.2	Flood Risk
4320	min	Summer	51.507	0.377	2.0	402.1	Flood Risk
5760	min	Summer	51.479	0.349	2.0	369.8	Flood Risk
7200	min	Summer	51.462	0.332	2.0	351.1	Flood Risk
8640	min	Summer	51.452	0.322	2.0	339.5	Flood Risk
10080	min	Summer	51.448	0.318	2.0	334.3	Flood Risk
15	min	Winter	51.327	0.197	2.0	201.6	O K
30	min	Winter	51.390	0.260	2.0	270.0	Flood Risk

	Stor Even		Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
				(m°)	(m°)	
15	min	Summer	154.086	0.0	168.8	27
30	min	Summer	103.378	0.0	163.6	42
60	min	Summer	66.653	0.0	320.7	72
120	min	Summer	39.817	0.0	309.9	130
180	min	Summer	29.225	0.0	305.6	190
240	min	Summer	23.384	0.0	303.6	250
360	min	Summer	16.986	0.0	302.8	370
480	min	Summer	13.480	0.0	303.7	488
600	min	Summer	11.238	0.0	305.4	608
720	min	Summer	9.671	0.0	307.4	728
960	min	Summer	7.608	0.0	311.4	966
1440	min	Summer	5.395	0.0	316.2	1444
2160	min	Summer	3.796	0.0	629.7	2144
2880	min	Summer	2.958	0.0	617.0	2452
4320	min	Summer	2.087	0.0	576.3	3168
5760	min	Summer	1.645	0.0	838.8	3984
7200	min	Summer	1.395	0.0	888.9	4832
8640	min	Summer	1.236	0.0	945.1	5704
10080	min	Summer	1.128	0.0	1006.6	6552
15	min	Winter	154.086	0.0	168.8	27
30	min	Winter	103.378	0.0	163.6	41
		©1	982-20	19 Inno	vyze	

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Summary of Results for 100 year Return Period (+40%)

	Stor Even		Max Level (m)	Max Depth (m)	Max Control (1/s)	Max Volume (m³)	Status
60	min	Winter	51.458	0.328	2.0	346.4	Flood Risk
120	min	Winter	51.513	0.383	2.0	408.9	Flood Risk
180	min	Winter	51.544	0.414	2.0	445.2	Flood Risk
240	min	Winter	51.565	0.435	2.0	469.8	Flood Risk
360	min	Winter	51.591	0.461	2.0	501.2	Flood Risk
480	min	Winter	51.607	0.477	2.0	519.4	Flood Risk
600	min	Winter	51.616	0.486	2.0	530.4	Flood Risk
720	min	Winter	51.621	0.491	2.0	536.7	Flood Risk
960	min	Winter	51.624	0.494	2.0	540.5	Flood Risk
1440	min	Winter	51.615	0.485	2.0	530.1	Flood Risk
2160	min	Winter	51.585	0.455	2.0	493.8	Flood Risk
2880	min	Winter	51.551	0.421	2.0	452.9	Flood Risk
4320	min	Winter	51.502	0.372	2.0	396.4	Flood Risk
5760	min	Winter	51.462	0.332	2.0	351.0	Flood Risk
7200	min	Winter	51.432	0.302	2.0	316.8	Flood Risk
8640	min	Winter	51.406	0.276	2.0	288.3	Flood Risk
10080	min	Winter	51.388	0.258	2.0	268.5	Flood Risk

	Stor	m	Rain	Flooded	Discharge	Time-Peak
	Even	t	(mm/hr)	Volume	Volume	(mins)
				(m³)	(m³)	
60	min	Winter	66.653	0.0	320.7	70
120	min	Winter	39.817	0.0	309.7	128
180	min	Winter	29.225	0.0	305.3	188
240	min	Winter	23.384	0.0	303.2	246
360	min	Winter	16.986	0.0	302.2	364
480	min	Winter	13.480	0.0	302.9	480
600	min	Winter	11.238	0.0	304.4	598
720	min	Winter	9.671	0.0	306.3	714
960	min	Winter	7.608	0.0	309.9	946
1440	min	Winter	5.395	0.0	313.3	1404
2160	min	Winter	3.796	0.0	624.0	2064
2880	min	Winter	2.958	0.0	616.3	2680
4320	min	Winter	2.087	0.0	580.8	3328
5760	min	Winter	1.645	0.0	838.8	4264
7200	min	Winter	1.395	0.0	888.8	5192
8640	min	Winter	1.236	0.0	944.7	6048
10080	min	Winter	1.128	0.0	1007.0	6864

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Rainfall Details

Rainfall Model FEH Return Period (years) 100 FEH Rainfall Version 2013 Site Location GB 325134 370797 SJ 25134 70797 Data Type Point Summer Storms Yes Winter Storms Yes Cv (Summer) 0.950 Cv (Winter) 0.950 Shortest Storm (mins) 15 Longest Storm (mins) 10080 Climate Change % +40

Time Area Diagram

Total Area (ha) 0.559

							(mins)	
From:	To:	(ha)	From:	To:	(ha)	From:	To:	(ha)
0	4	0.187	4	8	0.187	8	12	0.186

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Model Details

Storage is Online Cover Level (m) 51.630

Tank or Pond Structure

Invert Level (m) 51.130

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	980.2	0.500	1214.8	0.501	1215.3

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0070-2000-0800-2000 Design Head (m) 0.800 Design Flow (1/s) 2.0 Calculated Flush-Flo™ Objective Minimise upstream storage Application Surface Sump Available Yes Diameter (mm) 70 Invert Level (m) 50.930 Minimum Outlet Pipe Diameter (mm) 100 Suggested Manhole Diameter (mm) 1200

Control	Points	Head (m)	Flow (1/s)	Control Points	Head (m)	Flow (1/s)
Design Point	(Calculated)	0.800	2.0	Kick-Flo®	0.504	1.6
	Flush-Flo™	0.240	2.0	Mean Flow over Head Range	_	1.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (1/s)	Depth (m) Flow	v (1/s)	Depth (m) Flow	(1/s)	Depth (m)	Flow (1/s)
0.100	1.8	1.200	2.4	3.000	3.7	7.000	5.5
0.200	2.0	1.400	2.6	3.500	3.9	7.500	5.6
0.300	2.0	1.600	2.7	4.000	4.2	8.000	5.8
0.400	1.9	1.800	2.9	4.500	4.4	8.500	6.0
0.500	1.6	2.000	3.0	5.000	4.7	9.000	6.2
0.600	1.8	2.200	3.2	5.500	4.9	9.500	6.3
0.800	2.0	2.400	3.3	6.000	5.1		
1.000	2.2	2.600	3.4	6.500	5.3		

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Calculated by:	Megan Au			Site Detail	s				
Site name:	Cornist La	ne BVS		Latitude:			53.	24336°	N
Site location:	Cornist La	ne, Wales		Longitude:			3.1	17405°	W
best practice criteria	in line with Envi	volume requirements that are ronment Agency guidance "F	Rainfall runoff manage	Dotoropoo.			188	369329	71
the non-statutory sta	ndards for SuD	3), the SuDS Manual C753 (C S (Defra, 2015). It is not to be ded that hydraulic modelling	e used for detailed de	•		·	Jul 22 20)22 17:	15
		ails before finalising the design							
Site characteris	stics			Methodology					
Total site area (ha)):		0.105	Q _{MED} estimation metho	d: C	alculate f	rom BFI	and SA	√ AR
Significant public	open space	(ha):	0	BFI and SPR method:	С	alculate f	rom dor	ninant	
Area positively dra	ained (ha):		0.105	Soil characteristics	ф	PASTE	Ed	ited	
Impermeable area	a (ha):		0.105	HOST class:					
Percentage of dra	ained area tha	at is impermeable (%):	100	BFI HOST:			0.492	2	
Impervious area o	Irained via inf	iltration (ha):	0	SPR HOST:			0.47		
Return period for	infiltration sys	stem design (year):	10	Hydrological		Defa	ıult	Ed	lited
Impervious area o	Irained to rair	nwater harvesting (ha):	0	characteristics					
Return period for	rainwater ha	vesting system (year):	10	Q _{MED} :				0.48	
Compliance facto	r for rainwate	er harvesting system (%)	: 66	Q _{BAR} / Q _{MED} conversio factor:	n			1.075	5
Net site area for s	torage volum	ne design (ha):	0.11	Rainfall 100 yrs 6 hrs:				61	
Net impermable a	area for stora	ge volume design (ha):	0.11	Rainfall 100 yrs 12 hrs:				77.38	
Pervious area cor	ntribution to n	unoff (%):	30	FEH / FSR conversion	factor:	1.06		1.06	
* where rainwater	harvesting o	r infiltration has been us	ed for managing	SAAR (mm):		831		831	
		the effective impermeab y drained', the 'net site a		M5-60 Rainfall Depth (r	nm):	17		17	
estimates of $Q_{\rm BAF}$		ow rates will have been		'r' Ratio M5-60/M5-2 c	lay:	0.3		0.3	
accordingly. Design criteria				Hydological region:		9		9	
Climate change a	llowance	1.4		Growth curve factor 1 y	/ear:	0.88		0.88	
factor:		1.4		Growth curve factor 10	year:	1.42		1.42	
Urban creep allow	vance	1		Growth curve factor 30	year:	1.78		1.78	
factor:				Growth curve factor 10	0	2.18		2.18	
Volume control ap	•	Use long term storage	9	years:					
Interception rainfa (mm):	all depth	5		Q _{BAR} for total site area	(l/s):	0.52		0.52	
Minimum flow rate	e (l/s):	2		Q _{BAR} for net site area (l	/s):	0.52		0.52	
	V -7	-							

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	40	40
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	40	40



Calculated by:	Megan Au				Site Details	3				
Site name:	Pentre Hal	kvn BVS	Latitude:			53.25007° N				
Site location:		kyn, Wales	Longitude:					3.2	23855°	W
This is an estimation of the storage volume requirements that are needed to meet norm best practice criteria in line with Environment Agency guidance "Rainfall runoff manage					Reference:	3469493473				
the non-statutory sta	ndards for SuD	ß), the SuDS Manual C753 (Ci S (Defra, 2015). It is not to be	used for detailed de		Date:		· ·	Jul 22 20	022 17:	17
		ded that hydraulic modelling stails before finalising the desig								
Site characteris	stics			Methodol	logy					
Total site area (ha)):		0.105	Q _{MED} estim	nation metho	d: Ca	alculate f	rom BFI	and SA	•AR
Significant public	open space	(ha):	0	BFI and SF	PR method:			lculate from dominant		
Area positively dra	ained (ha):		0.105	Soil characteristics			Edited		lited	
Impermeable area	a (ha):		0.105	HOST class:						
Percentage of dra	ained area tha	at is impermeable (%):	100	BFI HOST:				0.682		
Impervious area o	Irained via int	iltration (ha):	0	SPR HOST	•			0.21	0.21	
Return period for	infiltration sy	stem design (year):	10	Hydrological Default					Ed	lited
Impervious area o	Irained to rair	nwater harvesting (ha):	0	character	aracteristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :				0.27		
Compliance factor for rainwater harvesting system (%):			66	Q _{BAR} / Q _{ME} factor:	ED conversion	1		1.075	5	
Net site area for s	torage volum	ne design (ha):	0.11	Rainfall 100) vrs 6 hrs					
Net impermable a	area for stora	ge volume design (ha):	0.11		O yrs 12 hrs:					<u> </u>
Pervious area cor	ntribution to r	unoff (%):	30		conversion f	actor				
* where rainwater	harvesting o	r infiltration has been use	ed for managing	SAAR (mm): 875				1.05 875		
		the effective impermeab		•	_n . nfall Depth (n	am).				
	•	ly drained', the 'net site a ow rates will have been r			5-60/M5-2 d	-				
accordingly.						ay.	0.3		0.3	
Design criteria				Hydologica			9		9	
Climate change a factor:	llowance	1.4			ve factor 1 y		0.88		0.88	
	vonoo				ve factor 10		1.42		1.42	
Urban creep allow factor:	varice	1			ve factor 30		1.78		1.78	
Volume control approach Use long term storage			Growth cur	rowth curve factor 100 2.18 2.18						
Interception rainfall depth 5				Q _{BAR} for to	tal site area (l/s):	0.29 0.2		0.29	
(mm):	<i>a</i> ()			Q _{BAR} for ne	et site area (l/	's):	0.29		0.29	
Minimum flow rate	e (l/s):	2								

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	40	40
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	40	40



Calculated by:	Megan Au				Site Details					
Site name:	Babell BVS		Latitude:			53.26070° N		N		
Site location:	Babell, Wa		Longitude:					3.2	27731° V	N
This is an estimation of the storage volume requirements that are needed to meet norm best practice criteria in line with Environment Agency guidance "Rainfall runoff manage					Reference:	247217570				
the non-statutory star	ndards for SuD	3), the SuDS Manual C753 (Ciri S (Defra, 2015). It is not to be ι	used for detailed de	-	Date:		022 17:2	<u>'</u> O		
0 ,		ded that hydraulic modelling so tails before finalising the design								
Site characteris	stics			Methodo	logy					
Total site area (ha)	:		0.1050	Q _{MED} estir	mation metho	d: C	alculate f	rom BFI	and SA	4R
Significant public	open space	(ha):	0	BFI and SI	PR method:	C	alculate f	rom dor	minant	
Area positively dra	ained (ha):		0.105	Soil characteristics			desit Edited		lited	
Impermeable area	ι (ha):		0.105	HOST class:						
Percentage of dra	ined area tha	at is impermeable (%):	100	BFI HOST:	:			0.682		
Impervious area drained via infiltration (ha):			0	SPR HOS	Т:			0.3		
Return period for	infiltration sy	stem design (year):	10	Hydrological Default					Edit	:ed
Impervious area d	rained to rair	nwater harvesting (ha):	0	characte	ristics					
Return period for	rainwater ha	rvesting system (year):	10	Q _{MED} :					0.26	
Compliance factor	r for rainwate	er harvesting system (%):	66	Q _{BAR} / Q _M factor:	_{IED} conversior	1			1.075	
Net site area for s	torage volum	ne design (ha):	0.11		0 yrs 6 hrs:					
Net impermable a	rea for stora	ge volume design (ha):	0.11		0 yrs 12 hrs:				75.92	
Pervious area con	tribution to r	unoff (%):	30		R conversion f	actor:	1.04		1.04	
* where rainwater	harvesting o	r infiltration has been used	d for managing	SAAR (mn		859			859	
		the effective impermeable by drained', the 'net site ar		M5-60 Ra	infall Depth (m	nm):	17	17		
estimates of Q _{BAR}	•	ow rates will have been re		'r' Ratio M	15-60/M5-2 da	ay:			0.3	
	accordingly.				al region:		9		9	
Design criteria Climate change allowance 1.4				Growth cu	ırve factor 1 y	rear: 0.88		0.88		
factor:		1		Growth cu	ırve factor 10	year:	1.42		1.42	
Urban creep allow	/ance	1		Growth cu	ırve factor 30	year:	1.78		1.78	
factor:				Growth curve factor 100 2.18 2.18			2.18			
Volume control ap	•	Use long term storage		years:						
Interception rainfa (mm):	ll depth	5		Q _{BAR} for to	otal site area (l/s):	0.28		0.28	
Minimum flow rate (I/s): 2				Q _{BAR} for n	et site area (l/	s):	0.28			

Site discharge rates	Default	Edited	Estimated storage volumes	Default	Edited
1 in 1 year (l/s):	2	2	Attenuation storage 1/100 years (m³):	39	39
1 in 30 years (l/s):	2	2	Long term storage 1/100 years (m³):	0	0
1 in 100 year (l/s):	2	2	Total storage 1/100 years (m³):	39	39