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Acre House, Lindley

Revision

Job No:	1572	Page:	C/01
Prepared By:	MH	Date:	10/12/2025

Section: **Contributing Area**

GENERAL DATA	
site location:	England and Wales
60 min rainfall depth of 5 year return period 'R' [mm] =	20
M5-60 to M5-2d rainfall ratio 'r' =	0.40
proposed discharge rate 'v ₁ ' [litre/s] =	2.70
proposed discharge rate 'v ₂ ' [litre/s] =	
allowance for climate change:	40%

SUMMARY OF CALCULATIONS		
required storage volume for discharge rate 'v ₁ ' =	97.28	m ³
required storage volume for discharge rate 'v ₂ ' =		m ³

AREA DATA	impermeability [%]	effective area [m ²]
impermeable area 'A ₁ ' [m ²] =	100.00	1699
landscaping and/or green roof area 'A ₂ ' [m ²] =		0
other partially permeable area 'A ₃ ' [m ²] =		0
AREA DRAINED TO ATTENUATION TANK =		1699 m²

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v ₁													
rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M30-D			M50-D			M100-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.37	7.47	1.46	15.24	25.89	1.60	16.77	28.49	1.85	19.33	32.84	0.81	32.03
10	0.52	10.47	1.49	21.88	37.18	1.65	24.25	41.19	1.92	28.10	47.74	1.62	46.12
15	0.63	12.67	1.51	26.77	45.48	1.68	29.73	50.52	1.95	34.63	58.83	2.43	56.40
30	0.80	16.07	1.53	34.42	58.48	1.71	38.38	65.21	2.00	44.95	76.38	4.86	71.52
60	1.00	20.00	1.54	43.21	73.42	1.73	48.44	82.30	2.03	56.84	96.57	9.72	86.85
120	1.21	24.13	1.54	51.86	88.12	1.72	58.17	98.83	2.01	68.03	115.58	19.44	96.14
240	1.45	28.93	1.52	61.47	104.44	1.70	69.03	117.29	1.98	80.14	136.16	38.88	97.28
360	1.60	32.07	1.50	67.51	114.69	1.69	75.76	128.72	1.95	87.70	149.00	58.32	90.68
600	1.79	35.87	1.49	74.61	126.77	1.66	83.60	142.03	1.92	96.56	164.06	97.20	66.86
1440	2.24	44.80	1.44	90.58	153.90	1.61	101.05	171.69	1.85	116.13	197.31	233.28	0.00

* Z2 is a growth factor from M5 rainfalls

REQUIRED STORAGE VOLUME PER RAINFALL DURATION FOR DISCHARGE RATE v ₂													
rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M20-D			M30-D			outflow from attenuation tank [m ³]	required storage [m ³]
			Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]	Z2	rainfalls [mm]	inflow [m ³]		
5	0.37	7.47											
10	0.52	10.47											
15	0.63	12.67											
30	0.80	16.07											
60	1.00	20.00											
120	1.21	24.13											
240	1.45	28.93											
360	1.60	32.07											
600	1.79	35.87											
1440	2.24	44.80											

* Z2 is a growth factor from M5 rainfalls