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**Land off Station Road,
 Sturton**

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Job No:	2223STRT	Date:	22/01/2026
Prepared By:	JCB		

Section: **1 in 100 yr + 40%**

ALTERNATIVE SOAKAWAY SIZES			
	trench soakaways		
	width of trench [mm]:	450	600
required trench length [m]:	57.00	47.45	35.79
	ring soakaways		
	diameter of ring [mm]:	1050	1350
required pit diameter [m]:	2.94	2.70	2.56

* Based on effective depth and number of pits as in Soakaway Data table

SUMMARY OF CALCULATIONS		
critical design rainfall duration 't _{crit} '	=	120 min
required storage volume 'V _{req} '	=	14.16 m ³
provided storage volume 'V _{prov} '	=	14.25 m ³
utilisation factor	=	0.99 .OK
required time to discharge 50% 't ₅₀ '	=	2.68 hours
utilisation factor	=	0.11 .OK

GENERAL DATA	
site location:	England and Wales
soakaway type:	infilled pit or trench
impermeable area drained to soakaway 'A' [m ²]	286.18
60 min rainfall depth of 5 year return period 'R' [mm]	20
M5-60 to M5-2d rainfall ratio 'r'	0.40
allowance for climate change:	40%

SOAKAWAY DATA	
soakaway width 'W' [m]	4.75
soakaway length 'L' [m]	10.00
total depth from ground level 'D _b ' [m]	1.60
depth to drain invert level 'D _d ' [m]	0.60
soakaway effective depth 'D _{eff} ' [m]	1.00
free volume in infill aggregate [%]	30

SOIL INFILTRATION DATA	
allowance for infiltration through soakaway base:	No
available on-site infiltration test results:	<input type="radio"/> Yes <input checked="" type="radio"/> No
soil infiltration rate 'f' [m/s]	5.00E-05

REQUIRED STORAGE CAPACITY PER RAINFALL DURATION													
rainfall duration [min]	rainfall factor Z1	M5-D rainfalls [mm]	M10-D			M50-D			M100-D			outflow from soakaway [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	1.20	12.59	3.60	1.60	16.77	4.80	1.85	19.33	5.53	0.22	5.31
10	0.52	10.47	1.22	17.90	5.12	1.65	24.25	6.94	1.92	28.10	8.04	0.44	7.60
15	0.63	12.67	1.23	21.82	6.25	1.68	29.73	8.51	1.95	34.63	9.91	0.66	9.25
30	0.80	16.07	1.24	27.89	7.98	1.71	38.38	10.98	2.00	44.95	12.86	1.33	11.54
60	1.00	20.00	1.24	34.72	9.94	1.73	48.44	13.86	2.03	56.84	16.27	2.66	13.61
120	1.21	24.13	1.24	41.90	11.99	1.72	58.17	16.65	2.01	68.03	19.47	5.31	14.16
240	1.45	28.93	1.22	49.59	14.19	1.70	69.03	19.76	1.98	80.14	22.94	10.62	12.32
360	1.60	32.07	1.21	54.49	15.59	1.69	75.76	21.68	1.95	87.70	25.10	15.93	9.17
600	1.79	35.87	1.20	60.38	17.28	1.66	83.60	23.92	1.92	96.56	27.63	26.55	1.08
1440	2.24	44.80	1.18	74.03	21.19	1.61	101.05	28.92	1.85	116.13	33.23	63.72	0.00

* Z2 is growth factor from M5 rainfalls