

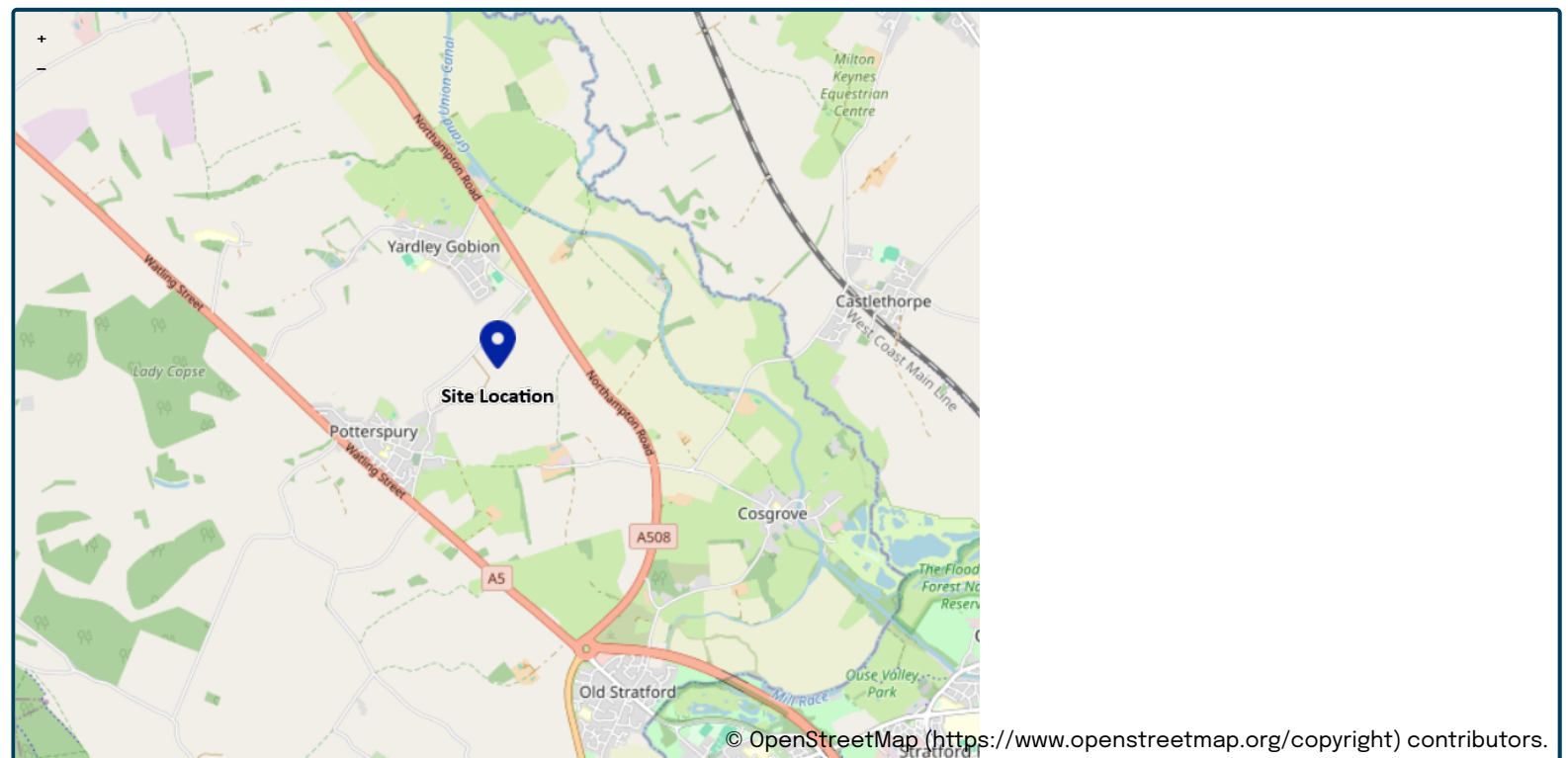
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	29/04/2025
Calculated by	WC
Reference	5763
Model version	2.0.0

Location

Site name	Potterspury Solar Farm
Site location	Towcester



Site easting	476806
Site northing	243599

Site details

Total site area (ha)	1	ha
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Greenfield runoff

Method

Method	IH124		
	<u>My value</u>	☐	<u>Map value</u>
SAAR (mm)	620mm		620
How should SPR be derived?	WRAP soil type		
WRAP soil type	4	☐	4
SPR	0.47		
QBar (IH124) (l/s)	4.2l/s		

Growth curve factors

	<u>My value</u>	☐	<u>Map value</u>
Hydrological region	5		5
1 year growth factor	0.87		
2 year growth factor	0.89		
10 year growth factor	1.65		
30 year growth factor	2.45		
100 year growth factor	3.56		
200 year growth factor	4.21		

Results

Method	IH124
Flow rate 1 year (l/s)	3.6l/s
Flow rate 2 year (l/s)	3.7l/s
Flow rate 10 years (l/s)	6.9l/s
Flow rate 30 years (l/s)	10.3l/s
Flow rate 100 years (l/s)	14.9l/s
Flow rate 200 years (l/s)	17.6l/s

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.0.0) developed by HR Wallingford and available at uksuds.com (<https://www.uknuts.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.uknuts.com/terms-conditions) (<https://www.uknuts.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. 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.

APPENDIX C

Surface Water Attenuation - Storage Volume Calculation

Design Settings

Rainfall Methodology	FEH-22	Minimum Velocity (m/s)	1.00
Return Period (years)	100	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	0.200
CV	1.000	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1.0	0.065	5.00	91.000	600	476960.198	243866.537	0.600
1.1	0.065	5.00	90.400	600	477116.663	244023.439	0.600
1.2			90.400	600	477122.083	244018.009	0.650
1.3			91.100	600	477070.679	243966.695	1.700
1.4			90.500	600	477017.747	243913.855	1.400
1.5			91.000	600	476965.698	243861.896	2.250
1.6			89.000	600	477018.316	243789.585	0.650
2.0	0.044	5.00	91.400	600	476889.723	243827.133	0.600
2.1			91.000	600	476950.067	243849.259	0.600
3.0	0.068	5.00	92.000	600	476748.371	243699.159	0.600
2.2	0.144	5.00	90.800	600	476956.209	243846.850	0.600
1.7			88.700	600	477024.342	243789.654	0.600
1.8	0.056	5.00	83.400	600	477133.115	243637.042	0.600
4.0	0.063	5.00	88.000	600	476901.787	243507.054	0.600
1.9			83.200	600	477135.302	243631.454	0.800
HW 1.10	0.100		83.000		477141.297	243610.234	1.200
HW 1.11		5.00	83.000		477147.878	243594.268	1.200
1.12/FC			83.000	1350	477157.816	243595.794	1.300
Outfall			82.000		477160.129	243596.149	0.500

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1.0	1.1	226.800	0.600	90.400	89.800	0.600	378.0	300	9.71	50.0
1.001	1.1	1.2	7.672	0.600	89.800	89.750	0.050	153.4	300	9.81	50.0
1.002	1.2	1.3	72.633	0.600	89.750	89.400	0.350	207.5	300	10.92	50.0
1.003	1.3	1.4	74.792	0.600	89.450	89.100	0.350	213.7	300	12.09	50.0
1.004	1.4	1.5	73.545	0.600	89.100	88.750	0.350	210.1	300	13.22	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.803	56.7	11.7	0.300	0.300	0.065	0.0	92	0.636
1.001	1.267	89.5	23.5	0.300	0.350	0.130	0.0	105	1.072
1.002	1.087	76.9	23.5	0.350	1.400	0.130	0.0	113	0.958
1.003	1.071	75.7	23.5	1.350	1.100	0.130	0.0	115	0.949
1.004	1.081	76.4	23.5	1.100	1.950	0.130	0.0	114	0.954

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.005	1.5	1.6	89.429	0.600	88.750	88.350	0.400	223.6	300	14.65	50.0
1.006	1.6	1.7	6.026	0.600	88.350	88.100	0.250	24.1	300	14.68	50.0
2.000	2.0	2.1	101.600	0.600	90.800	90.400	0.400	254.0	300	6.72	50.0
2.001	2.1	2.2	6.598	0.600	90.400	90.200	0.200	33.0	300	6.76	50.0
3.000	3.0	2.2	266.800	0.600	91.400	90.200	1.200	222.3	300	9.23	50.0
2.002	2.2	1.7	88.958	0.600	90.200	88.100	2.100	42.4	300	9.85	50.0
1.007	1.7	1.8	187.409	0.600	88.100	82.800	5.300	35.4	300	15.85	50.0
1.008	1.8	1.9	6.001	0.600	82.800	82.550	0.250	24.0	300	15.89	50.0
4.000	4.0	1.9	272.400	0.600	87.400	82.550	4.850	56.2	300	7.16	50.0
1.009	1.9	HW 1.10	22.051	0.600	82.400	81.800	0.600	36.8	450	15.99	50.0
1.011	HW 1.11	1.12/FC	10.054	0.600	81.800	81.700	0.100	100.5	450	5.08	50.0
1.012	1.12/FC	Outfall	2.340	0.600	81.700	81.500	0.200	11.7	100	5.10	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.005	1.047	74.0	23.5	1.950	0.350	0.130	0.0	116	0.932
1.006	3.215	227.3	23.5	0.350	0.300	0.130	0.0	65	2.102
2.000	0.982	69.4	8.0	0.300	0.300	0.044	0.0	68	0.659
2.001	2.746	194.1	8.0	0.300	0.300	0.044	0.0	41	1.374
3.000	1.050	74.2	12.3	0.300	0.300	0.068	0.0	82	0.783
2.002	2.422	171.2	46.3	0.300	0.300	0.256	0.0	106	2.070
1.007	2.652	187.5	69.8	0.300	0.300	0.386	0.0	126	2.461
1.008	3.222	227.7	79.9	0.300	0.350	0.442	0.0	122	2.945
4.000	2.102	148.6	11.4	0.300	0.350	0.063	0.0	56	1.261
1.009	3.362	534.6	91.3	0.350	0.750	0.505	0.0	125	2.541
1.011	2.027	322.4	0.0	0.750	0.850	0.000	0.0	0	0.000
1.012	2.271	17.8	0.0	1.200	0.400	0.000	0.0	0	0.000

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	226.800	378.0	300	Circular	91.000	90.400	0.300	90.400	89.800	0.300
1.001	7.672	153.4	300	Circular	90.400	89.800	0.300	90.400	89.750	0.350
1.002	72.633	207.5	300	Circular	90.400	89.750	0.350	91.100	89.400	1.400
1.003	74.792	213.7	300	Circular	91.100	89.450	1.350	90.500	89.100	1.100

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1.0	600	Manhole	Adoptable	1.1	600	Manhole	Adoptable
1.001	1.1	600	Manhole	Adoptable	1.2	600	Manhole	Adoptable
1.002	1.2	600	Manhole	Adoptable	1.3	600	Manhole	Adoptable
1.003	1.3	600	Manhole	Adoptable	1.4	600	Manhole	Adoptable

Pipeline Schedule

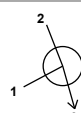
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.004	73.545	210.1	300	Circular	90.500	89.100	1.100	91.000	88.750	1.950
1.005	89.429	223.6	300	Circular	91.000	88.750	1.950	89.000	88.350	0.350
1.006	6.026	24.1	300	Circular	89.000	88.350	0.350	88.700	88.100	0.300
2.000	101.600	254.0	300	Circular	91.400	90.800	0.300	91.000	90.400	0.300
2.001	6.598	33.0	300	Circular	91.000	90.400	0.300	90.800	90.200	0.300
3.000	266.800	222.3	300	Circular	92.000	91.400	0.300	90.800	90.200	0.300
2.002	88.958	42.4	300	Circular	90.800	90.200	0.300	88.700	88.100	0.300
1.007	187.409	35.4	300	Circular	88.700	88.100	0.300	83.400	82.800	0.300
1.008	6.001	24.0	300	Circular	83.400	82.800	0.300	83.200	82.550	0.350
4.000	272.400	56.2	300	Circular	88.000	87.400	0.300	83.200	82.550	0.350
1.009	22.051	36.8	450	Circular	83.200	82.400	0.350	83.000	81.800	0.750
1.011	10.054	100.5	450	Circular	83.000	81.800	0.750	83.000	81.700	0.850
1.012	2.340	11.7	100	Circular	83.000	81.700	1.200	82.000	81.500	0.400

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.004	1.4	600	Manhole	Adoptable	1.5	600	Manhole	Adoptable
1.005	1.5	600	Manhole	Adoptable	1.6	600	Manhole	Adoptable
1.006	1.6	600	Manhole	Adoptable	1.7	600	Manhole	Adoptable
2.000	2.0	600	Manhole	Adoptable	2.1	600	Manhole	Adoptable
2.001	2.1	600	Manhole	Adoptable	2.2	600	Manhole	Adoptable
3.000	3.0	600	Manhole	Adoptable	2.2	600	Manhole	Adoptable
2.002	2.2	600	Manhole	Adoptable	1.7	600	Manhole	Adoptable
1.007	1.7	600	Manhole	Adoptable	1.8	600	Manhole	Adoptable
1.008	1.8	600	Manhole	Adoptable	1.9	600	Manhole	Adoptable
4.000	4.0	600	Manhole	Adoptable	1.9	600	Manhole	Adoptable
1.009	1.9	600	Manhole	Adoptable	HW 1.10		Junction	
1.011	HW 1.11		Junction		1.12/FC	1350	Manhole	Adoptable
1.012	1.12/FC	1350	Manhole	Adoptable	Outfall		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1.0	476960.198	243866.537	91.000	0.600	600					
						0	1.000	90.400	300	
1.1	477116.663	244023.439	90.400	0.600	600		1	1.000	89.800	300
						0	1.001	89.800	300	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1.2	477122.083	244018.009	90.400	0.650	600		1 1.001	89.750	300
							0 1.002	89.750	300
1.3	477070.679	243966.695	91.100	1.700	600		1 1.002	89.400	300
							0 1.003	89.450	300
1.4	477017.747	243913.855	90.500	1.400	600		1 1.003	89.100	300
							0 1.004	89.100	300
1.5	476965.698	243861.896	91.000	2.250	600		1 1.004	88.750	300
							0 1.005	88.750	300
1.6	477018.316	243789.585	89.000	0.650	600		1 1.005	88.350	300
							0 1.006	88.350	300
2.0	476889.723	243827.133	91.400	0.600	600				
							0 2.000	90.800	300
2.1	476950.067	243849.259	91.000	0.600	600		1 2.000	90.400	300
							0 2.001	90.400	300
3.0	476748.371	243699.159	92.000	0.600	600				
							0 3.000	91.400	300
2.2	476956.209	243846.850	90.800	0.600	600		1 2.001	90.200	300
							2 3.000	90.200	300
							0 2.002	90.200	300
1.7	477024.342	243789.654	88.700	0.600	600		1 2.002	88.100	300
							2 1.006	88.100	300
							0 1.007	88.100	300
1.8	477133.115	243637.042	83.400	0.600	600		1 1.007	82.800	300
							0 1.008	82.800	300
4.0	476901.787	243507.054	88.000	0.600	600				
							0 4.000	87.400	300
1.9	477135.302	243631.454	83.200	0.800	600		1 4.000	82.550	300
							2 1.008	82.550	300
							0 1.009	82.400	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
HW 1.10	477141.297	243610.234	83.000	1.200			1	1.009	81.800	450
HW 1.11	477147.878	243594.268	83.000	1.200			0	1.011	81.800	450
1.12/FC	477157.816	243595.794	83.000	1.300	1350		1	1.011	81.700	450
							0	1.012	81.700	100
Outfall	477160.129	243596.149	82.000	0.500			1	1.012	81.500	100

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Starting Level (m)
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s) x
Summer CV	1.000	Drain Down Time (mins)	1440	Check Discharge Volume x
Winter CV	1.000	Additional Storage (m³/ha)	20.0	

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
30	0	0	0
100	25	0	0

Node 1.12/FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	x	Sump Available	✓
Invert Level (m)	81.700	Product Number	CTL-SHE-0069-2500-1500-2500
Design Depth (m)	1.500	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node 1.5 Online Orifice Control

Flap Valve	x	Invert Level (m)	88.750	Discharge Coefficient	0.600
Replaces Downstream Link	x	Diameter (m)	0.100		

Node HW 1.11 Flow through Pond Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00	Main Channel Length (m)	10.000
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	81.800	Main Channel Slope (1:X)	500.0
Safety Factor	2.0	Time to half empty (mins)		Main Channel n	0.050

Inlets
HW 1.10

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	397.2	373.6	1.200	724.6	708.5

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1.0	12	90.479	0.079	11.4	0.1926	0.0000	OK
15 minute summer	1.1	12	89.894	0.094	19.1	0.2304	0.0000	OK
15 minute summer	1.2	13	89.841	0.091	16.1	0.0259	0.0000	OK
15 minute summer	1.3	14	89.543	0.143	15.9	0.0405	0.0000	OK
15 minute summer	1.4	15	89.187	0.087	15.3	0.0246	0.0000	OK
30 minute summer	1.5	28	89.036	0.286	14.1	0.0810	0.0000	OK
30 minute summer	1.6	29	88.392	0.042	9.5	0.0118	0.0000	OK
15 minute summer	2.0	11	90.871	0.071	7.7	0.1235	0.0000	OK
15 minute summer	2.1	12	90.439	0.039	7.3	0.0111	0.0000	OK
15 minute summer	3.0	12	91.471	0.071	11.9	0.1803	0.0000	OK
15 minute summer	2.2	12	90.298	0.098	39.7	0.4962	0.0000	OK
15 minute summer	1.7	13	88.188	0.088	37.4	0.0249	0.0000	OK
15 minute summer	1.8	13	82.900	0.100	41.9	0.2145	0.0000	OK
15 minute summer	4.0	12	87.447	0.047	11.1	0.1121	0.0000	OK
15 minute summer	1.9	13	82.500	0.100	48.5	0.0283	0.0000	OK
360 minute summer	HW 1.10	360	82.061	0.261	24.4	0.4358	0.0000	OK
360 minute summer	HW 1.11	368	82.061	0.261	20.6	0.0000	0.0000	OK
360 minute winter	1.12/FC	360	82.078	0.378	15.2	0.5415	0.0000	SURCHARGED
180 minute summer	Outfall	232	81.523	0.023	2.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1.0	1.000	1.1	8.8	0.522	0.154	3.8069	
15 minute summer	1.1	1.001	1.2	16.1	0.886	0.180	0.1414	
15 minute summer	1.2	1.002	1.3	15.9	0.645	0.207	1.8371	
15 minute summer	1.3	1.003	1.4	15.3	0.915	0.201	1.3000	
15 minute summer	1.4	1.004	1.5	14.3	0.777	0.187	2.7761	
30 minute summer	1.5	1.005	1.6	9.5	0.953	0.128	0.9134	
30 minute summer	1.6	1.006	1.7	9.5	1.183	0.042	0.0587	
15 minute summer	2.0	2.000	2.1	7.3	0.836	0.105	0.9090	
15 minute summer	2.1	2.001	2.2	7.2	0.593	0.037	0.0833	
15 minute summer	3.0	3.000	2.2	9.2	0.572	0.125	4.3379	
15 minute summer	2.2	2.002	1.7	37.4	2.061	0.218	1.6262	
15 minute summer	1.7	1.007	1.8	35.7	1.896	0.190	3.5316	
15 minute summer	1.8	1.008	1.9	40.8	2.210	0.179	0.1109	
15 minute summer	4.0	4.000	1.9	8.0	1.134	0.054	1.9132	
15 minute summer	1.9	1.009	HW 1.10	48.7	2.893	0.091	0.3973	
360 minute summer	HW 1.10	Flow through Pond	HW 1.11	20.6	0.012	0.001	108.5358	
360 minute summer	HW 1.11	1.011	1.12/FC	15.3	0.389	0.047	1.1813	
360 minute winter	1.12/FC	1.012	Outfall	2.1	1.469	0.115	0.0033	148.8

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1.0	12	90.543	0.143	32.1	0.3509	0.0000	OK
15 minute summer	1.1	12	89.987	0.187	57.0	0.4588	0.0000	OK
15 minute summer	1.2	12	89.922	0.172	50.4	0.0487	0.0000	OK
30 minute summer	1.3	26	89.806	0.406	46.7	0.1150	0.0000	SURCHARGED
30 minute summer	1.4	26	89.783	0.683	46.7	0.1933	0.0000	SURCHARGED
30 minute summer	1.5	26	89.758	1.008	33.1	0.2852	0.0000	SURCHARGED
30 minute summer	1.6	28	88.412	0.062	19.7	0.0175	0.0000	OK
15 minute summer	2.0	11	90.921	0.121	21.8	0.2118	0.0000	OK
15 minute summer	2.1	11	90.466	0.066	21.2	0.0187	0.0000	OK
15 minute summer	3.0	12	91.527	0.127	33.6	0.3243	0.0000	OK
15 minute summer	2.2	11	90.383	0.183	116.9	0.9326	0.0000	OK
15 minute summer	1.7	12	88.263	0.163	113.3	0.0462	0.0000	OK
15 minute summer	1.8	13	83.010	0.210	131.6	0.4521	0.0000	OK
15 minute summer	4.0	12	87.484	0.084	31.1	0.1994	0.0000	OK
15 minute summer	1.9	12	82.576	0.176	152.1	0.0499	0.0000	OK
480 minute winter	HW 1.10	488	82.397	0.597	29.2	0.9955	0.0000	OK
480 minute winter	HW 1.11	488	82.397	0.597	27.5	0.0000	0.0000	SURCHARGED
480 minute winter	1.12/FC	488	82.397	0.697	15.1	0.9977	0.0000	SURCHARGED
60 minute summer	Outfall	883	81.523	0.023	2.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1.0	1.000	1.1	27.0	0.691	0.475	9.0124	
15 minute summer	1.1	1.001	1.2	50.4	1.156	0.563	0.3379	
15 minute summer	1.2	1.002	1.3	49.3	1.005	0.642	3.6120	
30 minute summer	1.3	1.003	1.4	46.7	1.146	0.616	5.2668	
30 minute summer	1.4	1.004	1.5	33.1	0.659	0.433	5.1790	
30 minute summer	1.5	1.005	1.6	19.7	1.159	0.267	1.5507	
30 minute summer	1.6	1.006	1.7	19.7	1.561	0.087	0.1378	
15 minute summer	2.0	2.000	2.1	21.2	1.131	0.305	1.9346	
15 minute summer	2.1	2.001	2.2	20.9	0.755	0.108	0.1867	
15 minute summer	3.0	3.000	2.2	28.5	0.776	0.384	9.7868	
15 minute summer	2.2	2.002	1.7	112.1	2.693	0.655	3.7430	
15 minute summer	1.7	1.007	1.8	109.9	2.383	0.586	8.6188	
15 minute summer	1.8	1.008	1.9	127.5	2.803	0.560	0.2721	
15 minute summer	4.0	4.000	1.9	25.5	1.593	0.172	4.3571	
15 minute summer	1.9	1.009	HW 1.10	152.0	3.623	0.284	1.2185	
480 minute winter	HW 1.10	Flow through Pond	HW 1.11	27.5	0.015	0.001	280.3820	
480 minute winter	HW 1.11	1.011	1.12/FC	15.1	0.302	0.047	1.5930	
480 minute winter	1.12/FC	1.012	Outfall	2.1	1.469	0.115	0.0033	208.8

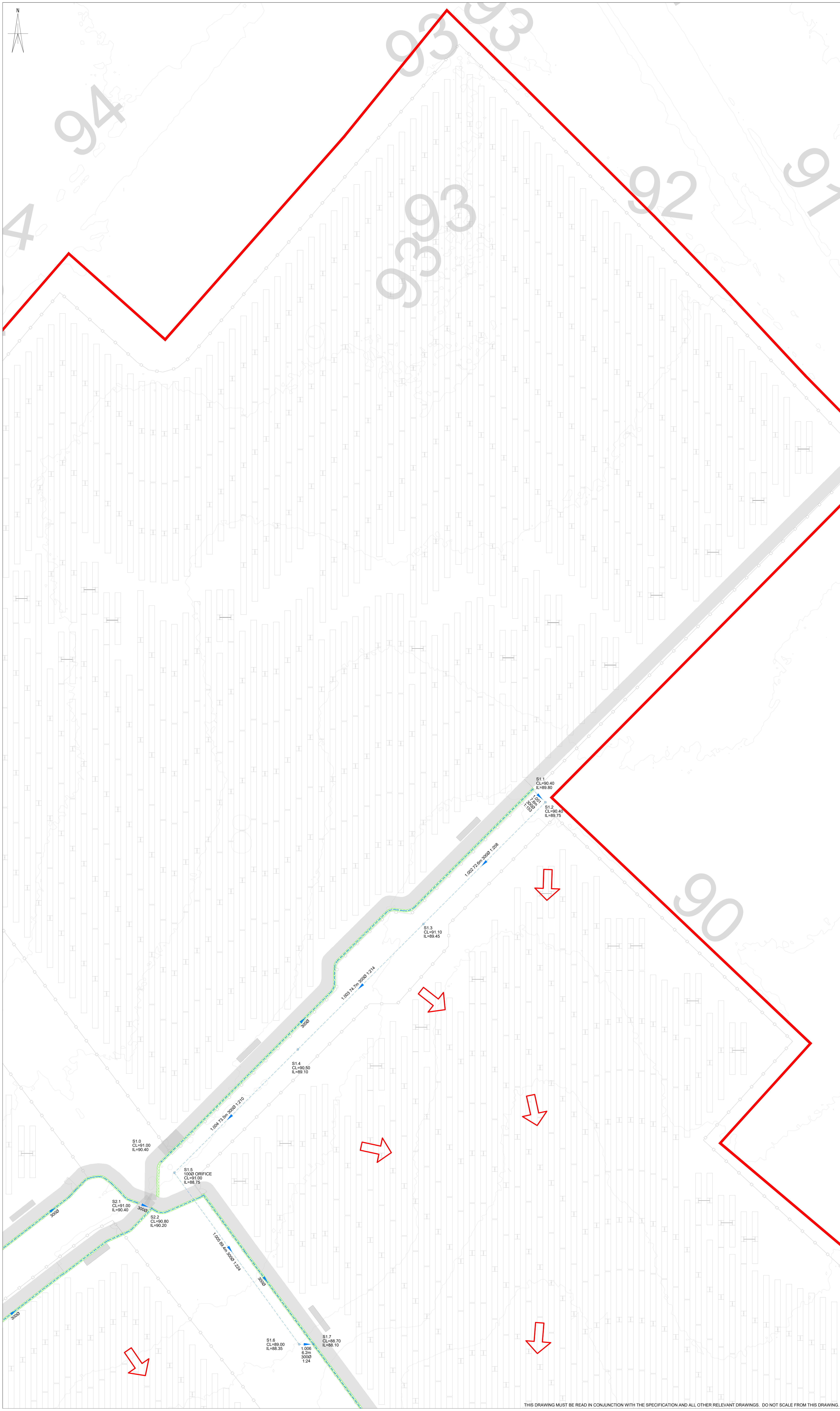
Results for 100 year +25% CC Critical Storm Duration. Lowest mass balance: 99.10%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	1.0	12	90.593	0.193	50.9	0.4737	0.0000	OK
30 minute summer	1.1	25	90.371	0.571	84.1	1.3987	0.0000	FLOOD RISK
30 minute summer	1.2	25	90.364	0.614	74.9	0.1739	0.0000	FLOOD RISK
30 minute summer	1.3	25	90.326	0.926	72.6	0.2619	0.0000	SURCHARGED
30 minute summer	1.4	25	90.286	1.186	56.4	0.3356	0.0000	FLOOD RISK
30 minute summer	1.5	25	90.246	1.496	33.6	0.4233	0.0000	SURCHARGED
30 minute summer	1.6	25	88.420	0.070	24.5	0.0199	0.0000	OK
15 minute summer	2.0	11	90.956	0.156	34.5	0.2736	0.0000	OK
15 minute summer	2.1	11	90.484	0.084	33.7	0.0237	0.0000	OK
15 minute summer	3.0	11	91.569	0.169	53.3	0.4314	0.0000	OK
15 minute summer	2.2	12	90.479	0.279	187.5	1.4160	0.0000	OK
15 minute summer	1.7	13	88.333	0.233	181.1	0.0660	0.0000	OK
15 minute summer	1.8	13	83.233	0.433	209.1	0.9312	0.0000	FLOOD RISK
15 minute summer	4.0	12	87.508	0.108	49.4	0.2583	0.0000	OK
600 minute winter	1.9	615	82.691	0.291	31.1	0.0825	0.0000	OK
600 minute winter	HW 1.10	615	82.691	0.891	37.3	1.4861	0.0000	OK
600 minute winter	HW 1.11	615	82.691	0.891	32.6	0.0000	0.0000	SURCHARGED
600 minute winter	1.12/FC	615	82.695	0.995	13.4	1.4232	0.0000	SURCHARGED
15 minute summer	Outfall	908	81.523	0.023	2.1	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	1.0	1.000	1.1	43.6	0.758	0.769	13.2993	
30 minute summer	1.1	1.001	1.2	74.9	1.215	0.836	0.5403	
30 minute summer	1.2	1.002	1.3	72.6	1.133	0.945	5.1148	
30 minute summer	1.3	1.003	1.4	56.4	1.176	0.744	5.2668	
30 minute summer	1.4	1.004	1.5	33.6	0.706	0.440	5.1790	
30 minute summer	1.5	1.005	1.6	24.5	1.238	0.330	1.8211	
30 minute summer	1.6	1.006	1.7	24.5	1.718	0.108	0.2010	
15 minute summer	2.0	2.000	2.1	33.7	1.281	0.486	2.7025	
15 minute summer	2.1	2.001	2.2	33.6	0.802	0.173	0.2764	
15 minute summer	3.0	3.000	2.2	46.4	0.835	0.625	14.5354	
15 minute summer	2.2	2.002	1.7	174.4	2.866	1.019	5.5663	
15 minute summer	1.7	1.007	1.8	180.9	2.635	0.965	12.1034	
15 minute summer	1.8	1.008	1.9	204.3	3.024	0.897	0.3765	
15 minute summer	4.0	4.000	1.9	41.9	1.832	0.282	6.2296	
600 minute winter	1.9	1.009	HW 1.10	31.1	1.105	0.058	2.9444	
600 minute winter	HW 1.10	Flow through Pond	HW 1.11	32.6	0.011	0.001	456.3427	
600 minute winter	HW 1.11	1.011	1.12/FC	13.4	0.327	0.042	1.5930	
600 minute winter	1.12/FC	1.012	Outfall	2.1	1.469	0.115	0.0033	230.3

APPENDIX D

Preliminary Drainage Layout



NOTES

- THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT WEETWOOD DRAWINGS. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF WEETWOOD.
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 - 43.5% (QBAR) AEP RAINFALL EVENT
 - 3.3% (1:30) AEP RAINFALL EVENT
 - 1.0% (1:100) AEP RAINFALL EVENT
- GROUND LEVELS TAKEN FROM LIDAR DATA OBTAINED DEC 2023.
- PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 PROPOSED SITE LAYOUT DRAWING (REF: 105-24A-250506, MAY 2025).

KEY

- EXISTING WATERCOURSE
- EXISTING SWALE/DITCH
- PROPOSED SURFACE WATER SEWER
- PROPOSED SURFACE WATER MANHOLE/PPIC
- PROPOSED ATTENUATION BASIN
- PROPOSED FILTER DRAIN
- SITE BOUNDARY
- OVERLAND FLOW ROUTE

FULL SITE ARRANGEMENT
SCALE 1:12,500

P2	11.06.25	RED LINE BOUNDARY UPDATED	WC	TB
P1	09.05.25	INITIAL ISSUE	WC	TB

REV	DATE	DESCRIPTION	DRAWN	CHECK
			BY	BY

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Client:
YARDLEY ROAD SOLAR FARM LIMITED

Drawing Status:
PLANNING

Project:
**YARDLEY SOLAR FARM
YARDLEY ROAD, TOWCESTER**

Drawing Number:
5763-WTWD-00-XX-DR-D-1101

Drawing Title:
**PROPOSED SURFACE WATER
MANAGEMENT PLAN**

Scale (A3):
1:500

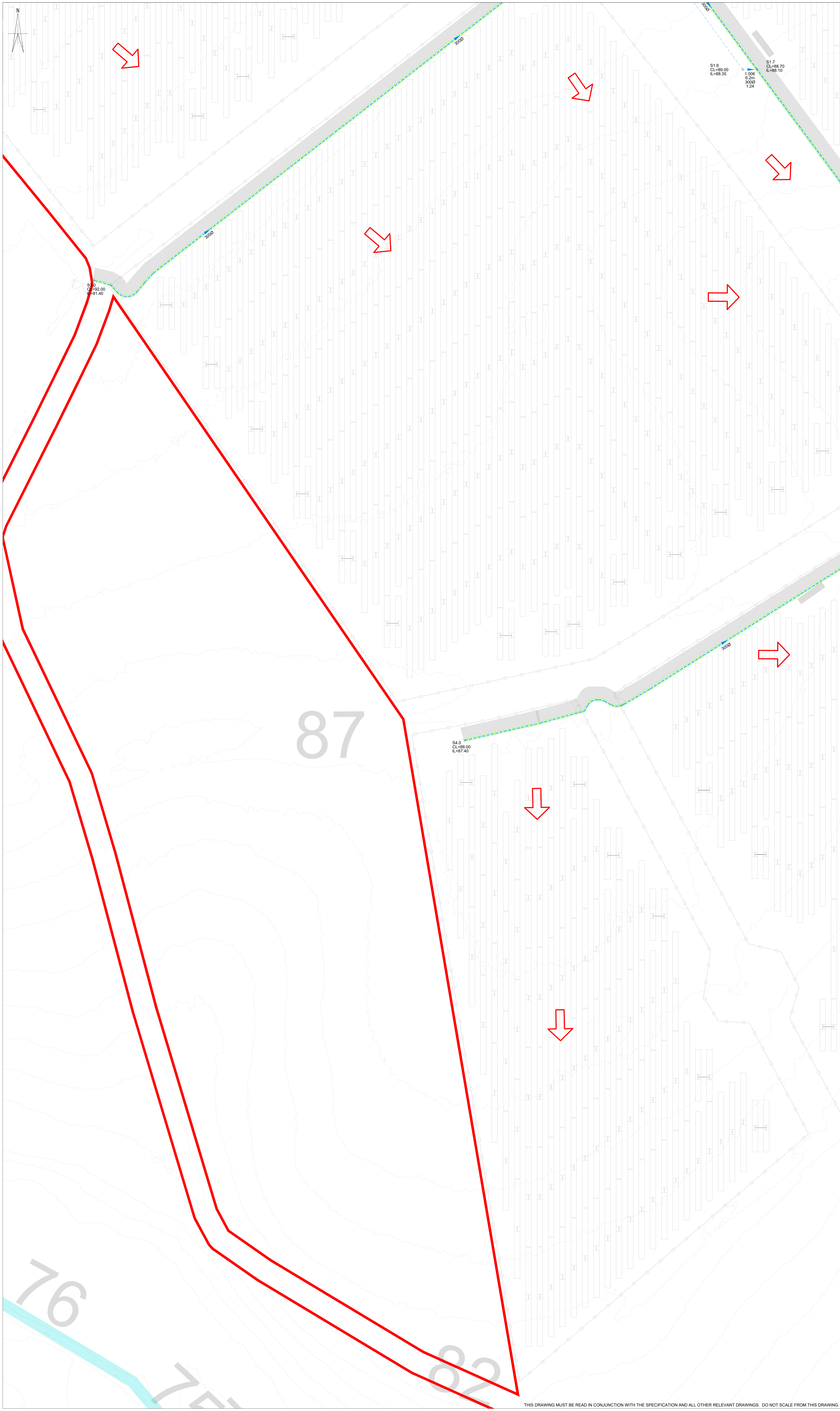
Scale (A0):
1:500

Drawn by:
WC

Check by:
TB

Revision:
P2

Client:
Park House, Fford
Byrner Gwair, Mold
CH7 1FQ
Tel 01352 700045
info@weetwood.net
www.weetwood.net



NOTES

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 - 1.0% (1:100) AEP RAINFALL EVENT
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- PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 PROPOSED SITE LAYOUT DRAWING (REF: 105-24A-250506, MAY 2025).

KEY

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- EXISTING SWALE/DITCH
- PROPOSED SURFACE WATER SEWER
- PROPOSED SURFACE WATER MANHOLE/PPIC
- PROPOSED ATTENUATION BASIN
- PROPOSED FILTER DRAIN
- SITE BOUNDARY
- OVERLAND FLOW ROUTE

FULL SITE ARRANGEMENT
SCALE 1:12,500

P2	11.08.25	RED LINE BOUNDARY UPDATED	WC	TB
P1	09.05.25	INITIAL ISSUE	WC	TB

REV	DATE	DESCRIPTION	DRAWN	CHECK
			BY	BY

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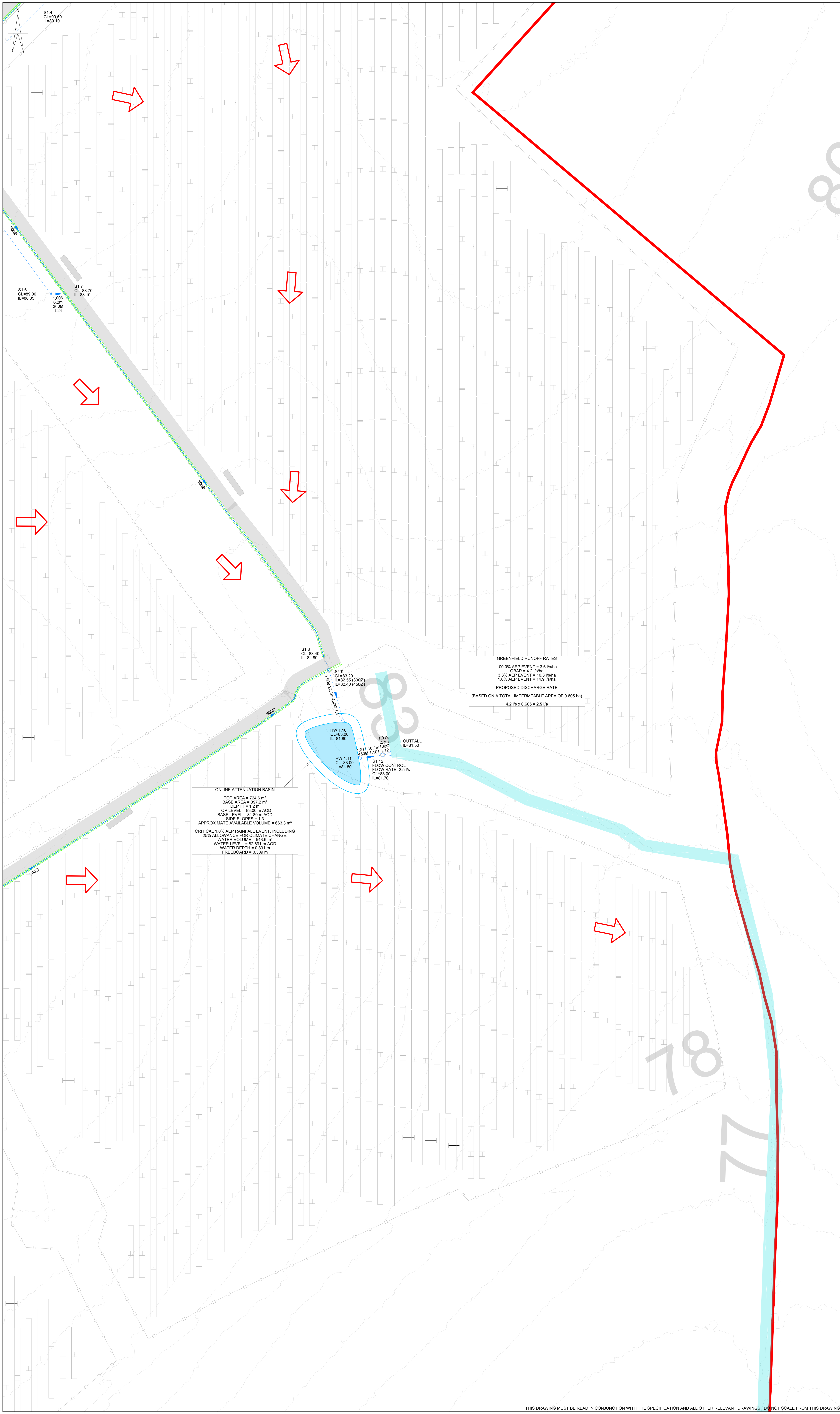
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Bymer Gwari, Mold
CH7 1FQ
Tel 01352 700045
info@weetwood.net
www.weetwood.net

Client

YARDLEY ROAD SOLAR FARM LIMITED

Drawing Status	Date
PLANNING	MAY 2025
Project	Scale (A0)
YARDLEY SOLAR FARM	1:500
YARDLEY ROAD, TOWCESTER	
Drawn by	WC
Check by	TB
Drawing Number	Revision
5763-WTWD-00-XX-DR-D-1102	P2
Drawing Title	
PROPOSED SURFACE WATER	
MANAGEMENT PLAN	
SHEET 2 OF 5	

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NOTES

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- 1.0% (1:100) AEP RAINFALL EVENT

3. GROUND LEVELS TAKEN FROM LIDAR DATA OBTAINED DEC 2023.

4. PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 PROPOSED SITE LAYOUT DRAWING (REF: 109-24A-250506, MAY 2025).

KEY

EXISTING WATERCOURSE

EXISTING SWALE/DITCH

PROPOSED SURFACE WATER SEWER

PROPOSED SURFACE WATER MANHOLE/PPIC

PROPOSED ATTENUATION BASIN

PROPOSED FILTER DRAIN

SITE BOUNDARY

OVERLAND FLOW ROUTE

FULL SITE ARRANGEMENT
SCALE 1:12,500

P2	11.08.25	RED LINE BOUNDARY UPDATED	WC	TB
P1	09.05.25	INITIAL ISSUE	WC	TB

REV	DATE	DESCRIPTION	DRAWN	CHECK
			BY	BY

Client

YARDLEY ROAD SOLAR FARM LIMITED

Drawing Status

PLANNING

Project

YARDLEY SOLAR FARM
YARDLEY ROAD, TOWCESTER

Drawing Number

5763-WTWD-00-XX-DR-D-1103

Drawing Title

PROPOSED SURFACE WATER
MANAGEMENT PLAN

Client

Park House, Florid
Byrner Court, Mold
CH7 1FQ
Tel 01352 700045
info@weetwood.net
www.weetwood.net

Date

MAY 2025

Scale (A3)

1:500

Drawn by

WC

Check by

TB

Revision

P2

Sheet

SHEET 3 OF 5

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- PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 PROPOSED SITE LAYOUT DRAWING (REF: 109-24A-250506, MAY 2025).

KEY

- EXISTING WATERCOURSE
- EXISTING SWALE/DITCH
- PROPOSED SURFACE WATER SEWER
- PROPOSED SURFACE WATER MANHOLE/PPIC
- PROPOSED ATTENUATION BASIN
- PROPOSED FILTER DRAIN
- SITE BOUNDARY
- OVERLAND FLOW ROUTE

FULL SITE ARRANGEMENT
SCALE 1:12,500

P2	11.06.25	RED LINE BOUNDARY UPDATED	WC	TB
P1	09.05.25	INITIAL ISSUE	WC	TB

REV	DATE	DESCRIPTION	DRAWN BY	CHECK BY

Client
YARDLEY ROAD SOLAR FARM LIMITED

Drawing Status PLANNING	Date MAY 2025
Project YARDLEY SOLAR FARM YARDLEY ROAD, TOWCESTER	Scale (m) 1:500
Drawing Number 5763-WTWD-00-XX-DR-D-1104	Drawn by WC
Drawing Title PROPOSED SURFACE WATER MANAGEMENT PLAN	Check by TB
Revision P2	

SHEET 4 OF 5

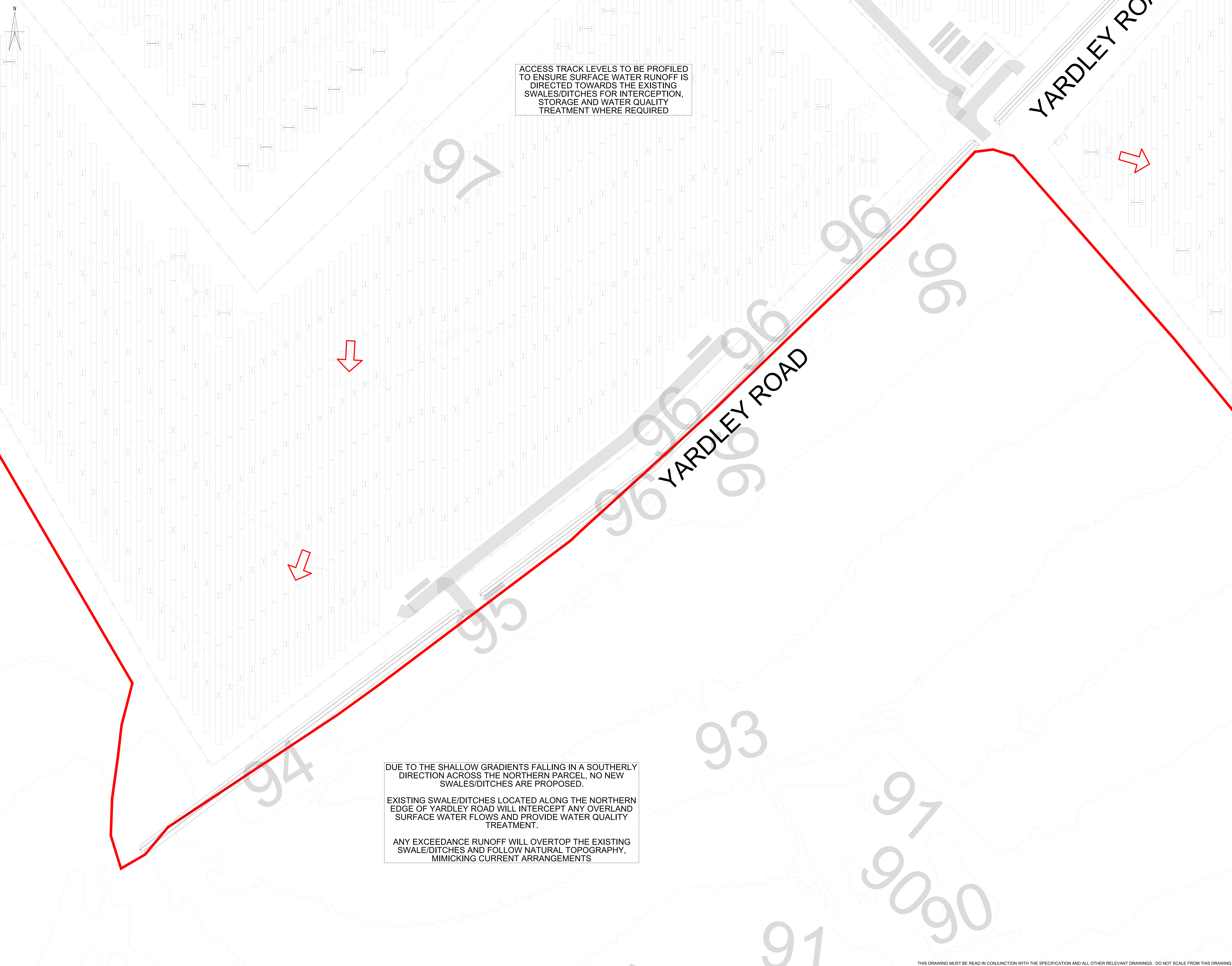
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DUE TO THE SHALLOW GRADIENTS FALLING IN A SOUTHERLY DIRECTION ACROSS THE NORTHERN PARCEL, NO NEW SWALES/DITCHES ARE PROPOSED.

EXISTING SWALE/DITCHES LOCATED ALONG THE NORTHERN EDGE OF YARDLEY ROAD WILL INTERCEPT ANY OVERLAND SURFACE WATER FLOWS AND PROVIDE WATER QUALITY TREATMENT.

ANY EXCEEDANCE RUNOFF WILL OVERTOP THE EXISTING SWALE/DITCHES AND FOLLOW NATURAL TOPOGRAPHY, MIMICKING CURRENT ARRANGEMENTS

ACCESS TRACK LEVELS TO BE PROFILED TO ENSURE SURFACE WATER RUNOFF IS DIRECTED TOWARDS THE EXISTING SWALES/DITCHES FOR INTERCEPTION, STORAGE AND WATER QUALITY TREATMENT WHERE REQUIRED



NOTES

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 - 5.5% (1:20) AEP RAINFALL EVENT
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- GROUND LEVELS TAKEN FROM LIDAR DATA OBTAINED DEC 2023.
- PROPOSED SITE LAYOUT TAKEN FROM SOLAR 2 PROPOSED SITE LAYOUT DRAWING (REF: 109-244-250506, MAY 2025).

KEY

- EXISTING WATERCOURSE
- EXISTING SWALE/DITCH
- PROPOSED SURFACE WATER SEWER
- PROPOSED SURFACE WATER MANHOLE/PPIC
- PROPOSED ATTENUATION BASIN
- PROPOSED FILTER DRAIN
- SITE BOUNDARY
- OVERLAND FLOW ROUTE

FULL SITE ARRANGEMENT
SCALE 1:12,500

P2	11.06.25	RED LINE BOUNDARY UPDATED	WC	TB
P1	09.05.25	INITIAL ISSUE	WC	TB

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CH7 1FQ
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info@weetwood.net
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Client

YARDLEY ROAD SOLAR FARM LIMITED

Drawing Status	Date
PLANNING	MAY 2025
Scale (A0)	1:500
Project	Drawn by
YARDLEY SOLAR FARM	WC
YARDLEY ROAD, TOWCESTER	TB
Drawing Number	Revision
5763-WTWD-00-XX-DR-D-1105	P2
Drawing Title	
PROPOSED SURFACE WATER MANAGEMENT PLAN	
SHEET 5 OF 5	

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