DRAINAGE LEGEND (1:100)

TD	Threshold Drain
FW	Proposed Foul Sewer Outlet
RWP	Rainwater Pipe outlet
RG/YG	Road / yard gully Gully
SW	Proposed Perforated Pipe
SW	New Surface Water Sewer
	Storm Rodding Point
	Storm Inspection Chamber for Ø see plan
	Storm Concrete Manhole
	Flow Control Manhole
FW	New Foul Sewer
	Foul Polypropylene Inspection Chamber
	Foul Concrete Manhole
	Proposed 'Permeable' Paving Construction
FG	Foul water floor gully
IL 54.95 IL 54.95	Backdrop High level IL Low level IL
00.000	Finished floor level
100Ø 4.5m 1:100	Pipe info - diameter, length, gradient,

ABBREVIATIONS

MH - MANHOLE
IC - INSPECTION CHAMBER
AC - ACCESS CHAMBER
CP - CATCHPIT
BC - BRAKE CHAMBER
RE - RODDING EYE
IL - INVERT LEVEL
SL - SUMP LEVEL
CL - COVER LEVEL
TH - THRESHOLD DRAINAGE
RG - ROAD GULLY
AT - ATTENUATION TANK
VP - ATTENUATION TANK VENTILATION
PT IL - PNEUMATIC TUBE IL (TOTAL 1.5m TO TRENCH IL)
CF - CHEMICAL FOUL
FW - FOUL WATER
SW - SURFACE WATER
PP PERFORATED PIPE

DESIGN SUBJECT TO THE APPROVAL OF:
PLANNING AUTHORITY
BUILDING CONTROL
THAMES WATER

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4. Invert level, size and cover levels to existing manholes and sewers to be checked prior to any construction. Any discrepancies to be reported immediately.
5. Invert to base of soil stack bends to be 450mm below lowest branch connection for up to 3 storeys buildings. For buildings up to 5 storeys the invert to base of soil stack bends should be not less than 750mm.
6. All RWP and Foul Water drain point setting out is to be confirmed by Architect.
7. All RWP & SVP sizes & setting out by Architect / M&E Engineer. All below ground connections to match above ground outlet size, Min 100/110mm diameter.
8. Foul drains to project 100mm above finished floor level.
9. All internal Manholes and Inspection Chambers to have double sealed recessed covers to suit floor finishes by Architect.
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N

Rev.	Amendment	Drn	Chkd	Date
P01	First Issue	TZ	CS	18.10.21

Drg. Status **PRELIMINARY** Suitability **S1**

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Client **YMCA**

Project **One YMCA Pear Tree Welwyn Garden City**

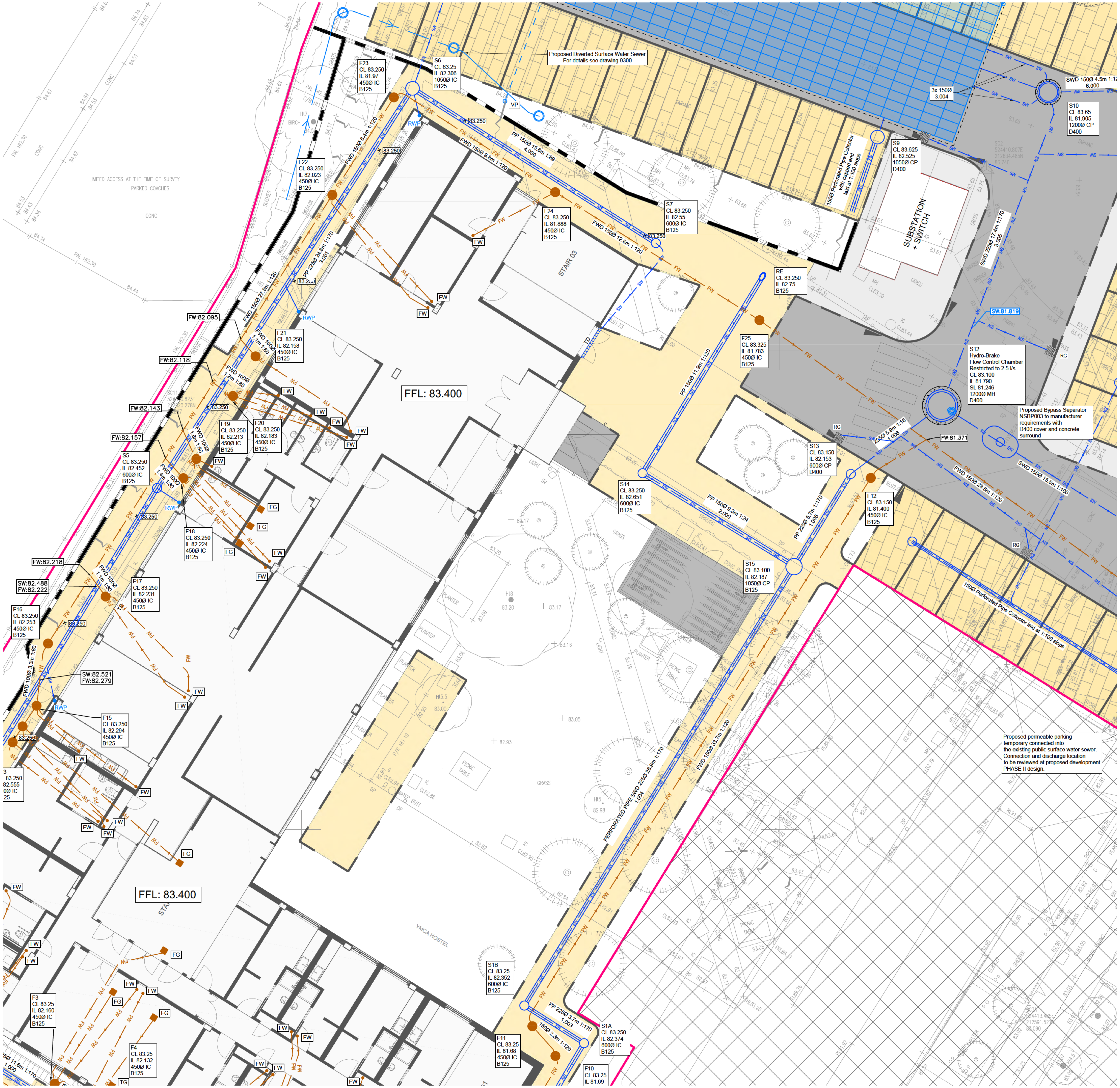
Title **Proposed Drainage Layout Sheet 1 of 4**

Reviewed Scheme CS Date 13.08.21

Reviewed Final Date

Scales at A1 1:100 Project No. **L211016**

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
C190906	AKSW	XX	XX	DR	C	9201	P01



DRAINAGE LEGEND (1:100)

- TD — Threshold Drain
- FW — Proposed Foul Sewer Outlet
- RWP — Rainwater Pipe outlet
- RG/YG — Road / yard gully Gully
- SW — Proposed Perforated Pipe
- SW — New Surface Water Sewer
- Storm Rodding Point
- Storm Inspection Chamber for Ø see plan
- Storm Concrete Manhole
- Flow Control Manhole
- FW — New Foul Sewer
- Foul Polypropylene Inspection Chamber
- Foul Concrete Manhole
- Proposed 'Permeable' Paving Construction
- FG — Foul water floor gully
- IL 54.95 / IL 54.95 — Backdrop, High level IL, Low level IL
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Rev.	Amendment	Drn	Chkd	Date
P01	First Issue	TZ	CS	18.10.21

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Client **YMCA**

Project **One YMCA Pear Tree Welwyn Garden City**

Title **Proposed Drainage Layout Sheet 2 of 4**

Reviewed Scheme	CS	Date	13.08.21
Reviewed Final		Date	
Scales at A1	1:100	Project No.	**L211016**

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
C190906	AKSW	XX	XX	DR	C	9202	P01

DRAINAGE LEGEND (1:100)

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- FW — Proposed Foul Sewer Outlet
- RWP — Rainwater Pipe outlet
- RG/YG — Road / yard gully Gully
- SW — Proposed Perforated Pipe
- SW — New Surface Water Sewer
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BUILDING CONTROL
THAMES WATER

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Rev.	Amendment	Drn	Chkd	Date
P01	First Issue	TZ	CS	18.10.21

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Client **YMCA**

Project **One YMCA Pear Tree Welwyn Garden City**

Title **Proposed Drainage Layout Sheet 3 of 4**

Reviewed Scheme	CS	Date	13.08.21
Reviewed Final		Date	
Scales at A1	1:100	Project No.	L211016

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
C190906	AKSW	XX	XX	DR	C	9203	P01

DRAINAGE LEGEND (1:100)

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Title **Proposed Drainage Layout Sheet 4 of 4**

Reviewed Scheme CS Date 13.08.21
Reviewed Final Date
Scales at A1 1:100 Project No. **L211016**

Project Ref.	Originator	Zone	Level	Type	Role	Drg No.	Rev.
C190906	AKSW	XX	XX	DR	C	9204	P01

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	4.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
S1	0.015	4.00	83.250	1200	524381.135	212573.829	0.776
S2	0.014	4.00	83.250	1200	524365.510	212583.476	0.668
S3	0.011	4.00	83.250	1200	524356.449	212589.259	0.600
S4	0.009	4.00	83.250	1200	524354.355	212596.288	0.650
S5	0.029	4.00	83.250	1200	524367.451	212617.836	0.798
S6	0.035	4.00	83.250	1200	524380.801	212638.721	0.950
S7	0.005	4.00	83.250	1200	524393.521	212630.637	0.700
S8	0.013	4.00	84.400	1200	524385.432	212648.892	2.192
S9	0.014	4.00	83.650	1200	524405.099	212636.177	1.125
S10			83.650	1200	524414.035	212638.524	1.745
S11	0.020	4.00	83.650	1200	524418.577	212638.616	1.300
S12			83.100	1200	524408.459	212622.183	1.310
S13	0.007	4.00	83.150	1200	524403.699	212618.583	0.997
S14	0.007	4.00	83.250	1200	524392.825	212618.611	0.599
S15	0.010	4.00	83.100	1200	524400.738	212613.729	0.913
AT1	0.048	4.00	83.650	1200	524399.211	212643.646	1.700
S16			83.100	225	524407.325	212623.310	1.293
S1A	0.005	4.00	83.250	1200	524389.762	212588.832	0.882
S1B			83.250	1200	524386.646	212590.797	0.904

Links (Results)

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)
1.000	1.037	41.2	1.5	0.375	0.443	0.011	0.0	29
1.001	1.000	39.7	3.4	0.443	0.551	0.025	0.0	44
1.002	1.020	40.6	5.4	0.551	0.657	0.040	0.0	55
1.003	1.007	40.1	6.1	0.657	0.679	0.045	0.0	59
1.004	1.002	39.8	6.1	0.679	0.688	0.045	0.0	59
1.005	1.008	40.1	8.4	0.688	0.772	0.062	0.0	70
2.000	2.068	36.5	0.9	0.449	0.688	0.007	0.0	17
1.006	3.168	126.0	9.4	0.772	1.068	0.069	0.0	41
3.000	0.999	39.7	1.2	0.425	0.573	0.009	0.0	27
3.001	1.021	40.6	5.1	0.573	0.725	0.038	0.0	54
3.002	1.185	47.1	10.6	0.725	1.967	0.078	0.0	73
3.003	4.228	168.1	12.3	1.967	1.475	0.091	0.0	41
3.004	1.484	59.0	20.7	1.475	1.520	0.153	0.0	92
6.000	2.891	51.1	2.7	1.150	1.520	0.020	0.0	23

Links (Results)

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)
4.000	1.065	18.8	0.7	0.550	0.719	0.005	0.0	20
5.000	2.489	44.0	1.9	0.975	1.550	0.014	0.0	21
3.005	1.001	39.8	23.4	1.520	1.068	0.173	0.0	124
1.007	1.348	53.6	32.8	1.068	1.085	0.242	0.0	127

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S1	524381.135	212573.829	83.250	0.776	1200	1	1.001	82.474	225
						0	1.002	82.474	225
S2	524365.510	212583.476	83.250	0.668	1200	1	1.000	82.582	225
						0	1.001	82.582	225
S3	524356.449	212589.259	83.250	0.600	1200	0	1.000	82.650	225
S4	524354.355	212596.288	83.250	0.650	1200	0	3.000	82.600	225
S5	524367.451	212617.836	83.250	0.798	1200	1	3.000	82.452	225
						0	3.001	82.452	225
S6	524380.801	212638.721	83.250	0.950	1200	1	4.000	82.381	150
						2	3.001	82.300	225
						0	3.002	82.300	225
S7	524393.521	212630.637	83.250	0.700	1200	0	4.000	82.550	150
S8	524385.432	212648.892	84.400	2.192	1200	1	3.002	82.208	225
						0	3.003	82.208	225
S9	524405.099	212636.177	83.650	1.125	1200	0	5.000	82.525	150
S10	524414.035	212638.524	83.650	1.745	1200	1	6.000	81.980	150
						2	3.004	81.905	225
						0	3.005	81.905	225

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
S11	524418.577	212638.616	83.650	1.300	1200	0	6.000	82.350	150
S12	524408.459	212622.183	83.100	1.310	1200	1	1.007	81.790	225
S13	524403.699	212618.583	83.150	0.997	1200	1	1.005	82.153	225
						0	1.006	82.153	225
S14	524392.825	212618.611	83.250	0.599	1200	0	2.000	82.651	150
S15	524400.738	212613.729	83.100	0.913	1200	1	2.000	82.262	150
						2	1.004	82.187	225
						0	1.005	82.187	225
AT1	524399.211	212643.646	83.650	1.700	1200	1	5.000	81.950	150
						2	3.003	81.950	225
						0	3.004	81.950	225
S16	524407.325	212623.310	83.100	1.293	225	1	3.005	81.807	225
						2	1.006	81.807	225
						0	1.007	81.807	225
S1A	524389.762	212588.832	83.250	0.882	1200	1	1.002	82.368	225
						0	1.003	82.368	225
S1B	524386.646	212590.797	83.250	0.904	1200	1	1.003	82.346	225
						0	1.004	82.346	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m^3/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

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 %)
1	0	0	0
10	0	0	0
30	0	0	0
100	40	0	0

Node S12 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	81.790	Product Number	CTL-SHE-0074-2500-1100-2500
Design Depth (m)	1.100	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node AT1 Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	81.950	Depth (m)	0.800
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Inf Depth (m)	
Safety Factor	2.0	Pit Width (m)	8.500	Number Required	1
Porosity	0.95	Pit Length (m)	18.000		

Approval Settings

Node Size	✓	Minimum Full Bore Velocity (m/s)	
Node Losses	✓	Maximum Full Bore Velocity (m/s)	3.000
Link Size	✓	Proportional Velocity	✓
Minimum Diameter (mm)	150	Return Period (years)	
Link Length	✓	Minimum Proportional Velocity (m/s)	0.750
Maximum Length (m)	100.000	Maximum Proportional Velocity (m/s)	3.000
Coordinates	✓	Surcharged Depth	✓
Accuracy (m)	1.000	Return Period (years)	
Crossings	✓	Maximum Surcharged Depth (m)	0.100
Cover Depth	✓	Flooding	✓
Minimum Cover Depth (m)		Return Period (years)	30
Maximum Cover Depth (m)	3.000	Time to Half Empty	x
Backdrops	✓	Discharge Rates	✓
Minimum Backdrop Height (m)		Discharge Volume	✓
Maximum Backdrop Height (m)	1.500	100 year 360 minute (m³)	
Full Bore Velocity	✓		

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 15 minute summer	109.521	30.991	1 year 240 minute winter	12.274	4.882
1 year 15 minute winter	76.857	30.991	1 year 360 minute summer	14.169	3.646
1 year 30 minute summer	71.439	20.215	1 year 360 minute winter	9.210	3.646
1 year 30 minute winter	50.133	20.215	1 year 480 minute summer	11.185	2.956
1 year 60 minute summer	48.435	12.800	1 year 480 minute winter	7.431	2.956
1 year 60 minute winter	32.179	12.800	1 year 600 minute summer	9.182	2.511
1 year 120 minute summer	30.053	7.942	1 year 600 minute winter	6.274	2.511
1 year 120 minute winter	19.966	7.942	1 year 720 minute summer	8.203	2.199
1 year 180 minute summer	23.233	5.979	1 year 720 minute winter	5.513	2.199
1 year 180 minute winter	15.102	5.979	1 year 960 minute summer	6.768	1.782
1 year 240 minute summer	18.475	4.882	1 year 960 minute winter	4.483	1.782

Rainfall

Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)	Event	Peak Intensity (mm/hr)	Average Intensity (mm/hr)
1 year 1440 minute summer	4.949	1.326	30 year 240 minute winter	27.641	10.995
1 year 1440 minute winter	3.326	1.326	30 year 360 minute summer	31.221	8.034
10 year 15 minute summer	211.819	59.937	30 year 360 minute winter	20.295	8.034
10 year 15 minute winter	148.645	59.937	30 year 480 minute summer	24.324	6.428
10 year 30 minute summer	136.831	38.718	30 year 480 minute winter	16.160	6.428
10 year 30 minute winter	96.022	38.718	30 year 600 minute summer	19.756	5.404
10 year 60 minute summer	90.826	24.003	30 year 600 minute winter	13.498	5.404
10 year 60 minute winter	60.342	24.003	30 year 720 minute summer	17.490	4.687
10 year 120 minute summer	54.899	14.508	30 year 720 minute winter	11.754	4.687
10 year 120 minute winter	36.474	14.508	30 year 960 minute summer	14.215	3.743
10 year 180 minute summer	41.666	10.722	30 year 960 minute winter	9.416	3.743
10 year 180 minute winter	27.084	10.722	30 year 1440 minute summer	10.161	2.723
10 year 240 minute summer	32.645	8.627	30 year 1440 minute winter	6.829	2.723
10 year 240 minute winter	21.689	8.627	100 year +40% CC 15 minute summer	488.233	138.153
10 year 360 minute summer	24.632	6.339	100 year +40% CC 15 minute winter	342.620	138.153
10 year 360 minute winter	16.012	6.339	100 year +40% CC 30 minute summer	320.551	90.705
10 year 480 minute summer	19.260	5.090	100 year +40% CC 30 minute winter	224.948	90.705
10 year 480 minute winter	12.796	5.090	100 year +40% CC 60 minute summer	214.603	56.713
10 year 600 minute summer	15.690	4.291	100 year +40% CC 60 minute winter	142.577	56.713
10 year 600 minute winter	10.720	4.291	100 year +40% CC 120 minute summer	129.587	34.246
10 year 720 minute summer	13.925	3.732	100 year +40% CC 120 minute winter	86.094	34.246
10 year 720 minute winter	9.358	3.732	100 year +40% CC 180 minute summer	97.729	25.149
10 year 960 minute summer	11.365	2.993	100 year +40% CC 180 minute winter	63.526	25.149
10 year 960 minute winter	7.528	2.993	100 year +40% CC 240 minute summer	75.977	20.078
10 year 1440 minute summer	8.174	2.191	100 year +40% CC 240 minute winter	50.477	20.078
10 year 1440 minute winter	5.493	2.191	100 year +40% CC 360 minute summer	56.677	14.585
30 year 15 minute summer	268.706	76.035	100 year +40% CC 360 minute winter	36.841	14.585
30 year 15 minute winter	188.566	76.035	100 year +40% CC 480 minute summer	43.979	11.622
30 year 30 minute summer	174.929	49.499	100 year +40% CC 480 minute winter	29.219	11.622
30 year 30 minute winter	122.757	49.499	100 year +40% CC 600 minute summer	35.604	9.738
30 year 60 minute summer	116.589	30.811	100 year +40% CC 600 minute winter	24.327	9.738
30 year 60 minute winter	77.459	30.811	100 year +40% CC 720 minute summer	31.433	8.424
30 year 120 minute summer	70.438	18.615	100 year +40% CC 720 minute winter	21.125	8.424
30 year 120 minute winter	46.797	18.615	100 year +40% CC 960 minute summer	25.432	6.697
30 year 180 minute summer	53.298	13.715	100 year +40% CC 960 minute winter	16.847	6.697
30 year 180 minute winter	34.645	13.715	100 year +40% CC 1440 minute summer	18.055	4.839
30 year 240 minute summer	41.604	10.995	100 year +40% CC 1440 minute winter	12.134	4.839

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	82.533	0.059	5.9	0.0889	0.0000	OK
15 minute winter	S2	10	82.628	0.046	3.7	0.0709	0.0000	OK
15 minute winter	S3	10	82.680	0.030	1.6	0.0451	0.0000	OK
15 minute winter	S4	10	82.628	0.028	1.3	0.0388	0.0000	OK
15 minute winter	S5	10	82.507	0.055	5.6	0.1026	0.0000	OK
15 minute winter	S6	10	82.379	0.079	11.3	0.1484	0.0000	OK
15 minute winter	S7	10	82.570	0.020	0.7	0.0253	0.0000	OK
15 minute summer	S8	9	82.262	0.054	13.0	0.0681	0.0000	OK
15 minute summer	S9	9	82.548	0.023	2.1	0.0324	0.0000	OK
120 minute winter	S10	96	82.072	0.167	5.9	0.1884	0.0000	OK
15 minute summer	S11	9	82.376	0.026	3.0	0.0370	0.0000	OK
120 minute winter	S12	102	82.072	0.282	5.9	0.3189	0.0000	OK
15 minute winter	S13	11	82.195	0.042	9.5	0.0531	0.0000	OK
15 minute winter	S14	10	82.668	0.017	1.0	0.0238	0.0000	OK
15 minute winter	S15	11	82.260	0.073	8.6	0.0988	0.0000	OK
120 minute winter	AT1	98	82.071	0.121	8.2	17.8334	0.0000	OK
120 minute winter	S16	108	82.072	0.265	4.5	0.0106	0.0000	SURCHARGED
15 minute winter	S1A	11	82.434	0.066	6.5	0.0820	0.0000	OK
15 minute winter	S1B	11	82.406	0.060	6.3	0.0683	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 winter	S1	1.002	S1A	5.8	0.648	0.142	0.1537	
15 minute winter	S2	1.001	S1	3.7	0.525	0.092	0.1282	
15 minute winter	S3	1.000	S2	1.6	0.363	0.039	0.0479	
15 minute winter	S4	3.000	S5	1.3	0.255	0.032	0.1299	
15 minute winter	S5	3.001	S6	5.4	0.545	0.134	0.2486	
15 minute winter	S6	3.002	S8	11.1	1.181	0.236	0.1094	
15 minute winter	S7	4.000	S6	0.7	0.504	0.036	0.0205	
15 minute summer	S8	3.003	AT1	13.1	2.690	0.078	0.0147	
15 minute summer	S9	5.000	AT1	2.1	1.459	0.048	0.0398	
120 minute winter	S10	3.005	S16	4.5	0.353	0.112	0.5927	
15 minute summer	S11	6.000	S10	3.1	1.515	0.061	0.0190	
120 minute winter	S12	Hydro-Brake®		2.4				31.2
15 minute winter	S13	1.006	S16	9.5	0.592	0.076	0.1336	
15 minute winter	S14	2.000	S15	1.0	0.891	0.027	0.0104	
15 minute winter	S15	1.005	S13	8.6	1.082	0.216	0.0462	
120 minute winter	AT1	3.004	S10	5.9	0.487	0.100	0.0933	
120 minute winter	S16	1.007	S12	5.9	0.318	0.110	0.0636	
15 minute winter	S1A	1.003	S1B	6.3	0.706	0.158	0.0336	
15 minute winter	S1B	1.004	S15	6.4	0.647	0.160	0.2655	

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	S1	10	82.559	0.085	11.5	0.1287	0.0000	OK
15 minute winter	S2	10	82.646	0.064	7.2	0.0995	0.0000	OK
15 minute winter	S3	10	82.692	0.042	3.2	0.0631	0.0000	OK
15 minute winter	S4	10	82.639	0.039	2.6	0.0544	0.0000	OK
15 minute winter	S5	10	82.531	0.079	11.0	0.1462	0.0000	OK
15 minute winter	S6	10	82.416	0.116	22.3	0.2166	0.0000	OK
15 minute summer	S7	10	82.578	0.028	1.4	0.0352	0.0000	OK
15 minute summer	S8	9	82.282	0.074	25.7	0.0930	0.0000	OK
15 minute summer	S9	10	82.556	0.031	4.0	0.0423	0.0000	OK
180 minute winter	S10	172	82.230	0.325	5.9	0.3675	0.0000	SURCHARGED
15 minute summer	S11	10	82.384	0.034	5.8	0.0492	0.0000	OK
180 minute winter	S12	172	82.230	0.440	5.0	0.4975	0.0000	OK
180 minute winter	S13	172	82.230	0.077	4.2	0.0978	0.0000	OK
15 minute summer	S14	10	82.675	0.024	2.0	0.0330	0.0000	OK
15 minute winter	S15	11	82.291	0.104	17.1	0.1405	0.0000	OK
180 minute winter	AT1	172	82.230	0.280	12.2	41.1867	0.0000	SURCHARGED
180 minute winter	S16	168	82.232	0.425	5.0	0.0170	0.0000	SURCHARGED
15 minute winter	S1A	10	82.465	0.097	12.8	0.1201	0.0000	OK
15 minute winter	S1B	11	82.433	0.087	12.5	0.0988	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 winter	S1	1.002	S1A	11.4	0.760	0.280	0.2591	
15 minute winter	S2	1.001	S1	7.2	0.625	0.180	0.2111	
15 minute winter	S3	1.000	S2	3.2	0.448	0.078	0.0776	
15 minute winter	S4	3.000	S5	2.6	0.314	0.065	0.2127	
15 minute winter	S5	3.001	S6	10.8	0.659	0.267	0.4086	
15 minute winter	S6	3.002	S8	22.1	1.422	0.469	0.1765	
15 minute summer	S7	4.000	S6	1.4	0.586	0.074	0.0399	
15 minute summer	S8	3.003	AT1	25.8	2.837	0.154	0.0377	
15 minute summer	S9	5.000	AT1	4.0	1.491	0.091	0.0865	
180 minute winter	S10	3.005	S16	5.0	0.215	0.126	0.6613	
15 minute summer	S11	6.000	S10	5.8	1.707	0.114	0.0389	
180 minute winter	S12	Hydro-Brake®		2.5				56.8
180 minute winter	S13	1.006	S16	4.2	0.478	0.033	0.1542	
15 minute summer	S14	2.000	S15	2.0	1.078	0.056	0.0186	
15 minute winter	S15	1.005	S13	17.1	1.320	0.426	0.0743	
180 minute winter	AT1	3.004	S10	5.9	0.476	0.099	0.1392	
180 minute winter	S16	1.007	S12	5.0	0.328	0.093	0.0636	
15 minute winter	S1A	1.003	S1B	12.5	0.827	0.313	0.0559	
15 minute winter	S1B	1.004	S15	12.6	0.781	0.315	0.4331	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	S1	10	82.572	0.098	14.6	0.1483	0.0000	OK
15 minute summer	S2	10	82.655	0.073	9.1	0.1127	0.0000	OK
15 minute winter	S3	10	82.697	0.047	4.0	0.0704	0.0000	OK
15 minute winter	S4	10	82.643	0.043	3.3	0.0612	0.0000	OK
15 minute winter	S5	10	82.541	0.089	13.9	0.1661	0.0000	OK
15 minute winter	S6	10	82.434	0.134	28.3	0.2494	0.0000	OK
15 minute winter	S7	10	82.581	0.031	1.8	0.0399	0.0000	OK
180 minute winter	S8	176	82.337	0.129	8.9	0.1608	0.0000	OK
15 minute winter	S9	10	82.560	0.035	5.1	0.0477	0.0000	OK
180 minute winter	S10	176	82.336	0.431	4.5	0.4878	0.0000	SURCHARGED
15 minute winter	S11	10	82.388	0.038	7.3	0.0552	0.0000	OK
180 minute winter	S12	176	82.335	0.545	3.4	0.6168	0.0000	OK
180 minute winter	S13	176	82.336	0.183	5.6	0.2326	0.0000	OK
15 minute summer	S14	9	82.678	0.027	2.6	0.0374	0.0000	OK
180 minute winter	S15	176	82.336	0.149	5.0	0.2014	0.0000	OK
180 minute winter	AT1	176	82.337	0.387	16.6	56.8346	0.0000	SURCHARGED
180 minute winter	S16	176	82.337	0.530	5.6	0.0212	0.0000	SURCHARGED
15 minute winter	S1A	10	82.480	0.112	16.3	0.1396	0.0000	OK
15 minute winter	S1B	11	82.447	0.101	16.0	0.1138	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	S1	1.002	S1A	14.5	0.802	0.358	0.3132	
15 minute summer	S2	1.001	S1	9.1	0.662	0.229	0.2534	
15 minute winter	S3	1.000	S2	4.0	0.473	0.097	0.0918	
15 minute winter	S4	3.000	S5	3.3	0.336	0.083	0.2525	
15 minute winter	S5	3.001	S6	13.7	0.701	0.338	0.4860	
15 minute winter	S6	3.002	S8	28.1	1.491	0.596	0.2112	
15 minute winter	S7	4.000	S6	1.8	0.582	0.096	0.0614	
180 minute winter	S8	3.003	AT1	11.6	1.679	0.069	0.0792	
15 minute winter	S9	5.000	AT1	5.1	1.586	0.116	0.0945	
180 minute winter	S10	3.005	S16	-2.9	0.265	-0.073	0.6613	
15 minute winter	S11	6.000	S10	7.3	1.693	0.143	0.0472	
180 minute winter	S12	Hydro-Brake®		2.5				56.7
180 minute winter	S13	1.006	S16	5.6	0.448	0.044	0.2216	
15 minute summer	S14	2.000	S15	2.6	1.127	0.071	0.0291	
180 minute winter	S15	1.005	S13	5.0	0.918	0.125	0.1780	
180 minute winter	AT1	3.004	S10	-4.3	0.468	-0.074	0.1392	
180 minute winter	S16	1.007	S12	3.4	0.410	0.063	0.0636	
15 minute winter	S1A	1.003	S1B	16.0	0.871	0.401	0.0679	
15 minute winter	S1B	1.004	S15	16.0	0.834	0.402	0.5172	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.15%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	S1	344	82.732	0.258	3.4	0.3911	0.0000	SURCHARGED
360 minute winter	S2	344	82.732	0.150	2.1	0.2318	0.0000	OK
360 minute winter	S3	344	82.732	0.082	0.9	0.1224	0.0000	OK
360 minute winter	S4	352	82.735	0.135	0.8	0.1900	0.0000	OK
360 minute winter	S5	352	82.735	0.283	3.3	0.5255	0.0000	SURCHARGED
360 minute winter	S6	352	82.735	0.435	6.7	0.8123	0.0000	SURCHARGED
360 minute winter	S7	352	82.735	0.185	0.4	0.2355	0.0000	SURCHARGED
360 minute winter	S8	352	82.734	0.526	7.6	0.6581	0.0000	SURCHARGED
360 minute winter	S9	352	82.735	0.210	1.2	0.2894	0.0000	SURCHARGED
360 minute winter	S10	352	82.734	0.829	4.3	0.9378	0.0000	SURCHARGED
360 minute winter	S11	352	82.735	0.385	1.7	0.5544	0.0000	SURCHARGED
360 minute winter	S12	352	82.706	0.916	4.0	1.0355	0.0000	OK
360 minute winter	S13	352	82.730	0.577	5.3	0.7330	0.0000	SURCHARGED
360 minute winter	S14	352	82.731	0.080	0.6	0.1096	0.0000	OK
360 minute winter	S15	344	82.730	0.543	5.3	0.7336	0.0000	SURCHARGED
360 minute winter	AT1	352	82.735	0.785	33.4	115.3792	0.0000	SURCHARGED
360 minute winter	S16	344	82.751	0.944	5.1	0.0378	0.0000	SURCHARGED
360 minute winter	S1A	352	82.733	0.365	3.8	0.4539	0.0000	SURCHARGED
360 minute winter	S1B	344	82.731	0.385	3.8	0.4357	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	S1	1.002	S1A	3.4	0.562	0.084	0.6883	
360 minute winter	S2	1.001	S1	2.1	0.452	0.053	0.6223	
360 minute winter	S3	1.000	S2	0.9	0.309	0.022	0.2205	
360 minute winter	S4	3.000	S5	0.8	0.229	0.020	0.8148	
360 minute winter	S5	3.001	S6	3.3	0.493	0.081	0.9858	
360 minute winter	S6	3.002	S8	6.5	1.052	0.138	0.4445	
360 minute winter	S7	4.000	S6	0.4	0.429	0.021	0.2653	
360 minute winter	S8	3.003	AT1	24.5	1.564	0.146	0.0994	
360 minute winter	S9	5.000	AT1	1.2	0.769	0.027	0.1674	
360 minute winter	S10	3.005	S16	-2.6	0.224	-0.066	0.6613	
360 minute winter	S11	6.000	S10	1.7	0.778	0.033	0.0800	
360 minute winter	S12	Hydro-Brake®		2.5				77.5
360 minute winter	S13	1.006	S16	5.1	0.418	0.040	0.2370	
360 minute winter	S14	2.000	S15	0.6	0.765	0.016	0.1265	
360 minute winter	S15	1.005	S13	4.7	0.857	0.117	0.2261	
360 minute winter	AT1	3.004	S10	-4.2	0.452	-0.071	0.1392	
360 minute winter	S16	1.007	S12	4.0	0.232	0.075	0.0636	
360 minute winter	S1A	1.003	S1B	3.8	0.606	0.095	0.1465	
360 minute winter	S1B	1.004	S15	3.8	0.513	0.095	1.0705	

Appendix B
SWH Drainage Design Review

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Drainage Design Summary and Calculations

Date: November 2022
Project No. 203905
Report Reference: 203905-SWH-ZZ-XX-RP-C-0001
Revision:00

Prepared by [redacted]
Nigel Coulton MCIHT

Issue and Amendment Record:

Revision	Comment/Amendment	Prepared	Reviewed	Approved	Date
00	First Issue	NSC	JD	JD	Nov 22

Contents

1.0 Introduction

For full details of the drainage strategy refer to the 'Drainage Strategy Report' produced by Pinnacle Consulting Engineers for Saunders Architects, dated 5th June 2020.

Calculations in this summary are based on AKS Ward's proposed drainage layout and the Drainage Strategy Report.

In line with the Drainage Strategy report the following has been incorporated into the design:

- The site is underlain with Lewes Nodular Chalk Formation and Seaford Chalk Formation
- Infiltration rates vary between 4.5×10^{-5} m/s and 7.0×10^{-6} m/s
- Thames Water approval has been obtained for 2.5l/s discharge rate from this site (5.0l/s granted for the whole site which has been split 50/50 between the two phases)

2.0 Drainage Design

A simplified drainage network model was used to confirm that the AKS Ward design was correct.

Only the main runs were modelled with a restricted discharge and the attenuation tank.

Although the contributing areas of permeable paved areas were included in the model, the slowing effect of flow rates in, and the attenuation volume provided within the sub-base layer has not been taken into account. This check is therefore conservative.

3.0 Summary

The proposed system will cater for the 1 in 100 year storm event with a 40% allowance for climate change without any flooding (the minor flood volume indicated in the Microdrainage calculations will actually be contained within the sub-base layer of the permeable paving.

4.0 Appendices

A. Drainage Calculations

B. Schematic Drainage Layout

Appendix A

Drainage Calculation

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for 203905-Site3D-Model.sws

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	21.000	Add Flow / Climate Change (%)	0
Ratio R	0.439	Minimum Backdrop Height (m)	0.500
Maximum Rainfall (mm/hr)	0	Maximum Backdrop Height (m)	2.000
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	0.000
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	0.10
Volumetric Runoff Coeff.	1.000	Min Slope for Optimisation (1:X)	500

Designed with Level Inverts

Network Design Table for 203905-Site3D-Model.sws

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	55.895	0.294	190.1	0.073	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	12.057	0.092	131.1	0.017	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	14.008	0.093	150.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.003	18.129	0.045	402.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.004	17.705	0.115	154.0	0.081	0.00	0.0	0.600	o	225	Pipe/Conduit	
S2.000	6.086	0.288	21.1	0.068	5.00	0.0	0.600	o	225	Pipe/Conduit	
S1.005	10.467	0.105	99.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	0.00	5.99	82.600	0.073	0.0	0.0	0.0	0.94	37.6	0.0
S1.001	0.00	6.16	82.306	0.090	0.0	0.0	0.0	1.14	45.3	0.0
S1.002	0.00	6.38	82.214	0.090	0.0	0.0	0.0	1.06	42.3	0.0
S1.003	0.00	6.85	81.950	0.090	0.0	0.0	0.0	0.65	25.7	0.0
S1.004	0.00	7.13	81.905	0.171	0.0	0.0	0.0	1.05	41.8	0.0
S2.000	0.00	5.04	82.153	0.068	0.0	0.0	0.0	2.86	113.7	0.0
S1.005	0.00	7.26	81.790	0.239	0.0	0.0	0.0	1.31	52.1	0.0

Manhole Schedules for 203905-Site3D-Model.sws

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S5	83.250	0.650	Open Manhole	1200	S1.000	82.600	225				
S6	83.250	0.944	Open Manhole	1200	S1.001	82.306	225	S1.000	82.306	225	
S8	84.405	2.191	Open Manhole	1200	S1.002	82.214	225	S1.001	82.214	225	
Stank	84.083	2.133	Junction		S1.003	81.950	225	S1.002	82.121	225	171
S10	83.650	1.745	Open Manhole	1200	S1.004	81.905	225	S1.003	81.905	225	
S13	83.150	0.997	Open Manhole	1200	S2.000	82.153	225				
S12	83.100	1.310	Open Manhole	1200	S1.005	81.790	225	S1.004	81.790	225	
								S2.000	81.865	225	75
Sout	83.080	1.395	Open Manhole	0		OUTFALL		S1.005	81.685	225	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S5	524352.278	212590.751	524352.278	212590.751	Required	
S6	524381.896	212638.153	524381.896	212638.153	Required	
S8	524383.651	212650.082	524383.651	212650.082	Required	
Stank	524396.673	212644.921			No Entry	
S10	524413.794	212638.961	524413.794	212638.961	Required	
S13	524403.180	212618.572	524403.180	212618.572	Required	
S12	524408.058	212622.211	524408.058	212622.211	Required	
Sout	524416.892	212616.597			No Entry	

Area Summary for 203905-Site3D-Model.sws

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	-	-	100	0.073	0.073	0.073
1.001	-	-	100	0.017	0.017	0.017
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
1.004	-	-	100	0.081	0.081	0.081
2.000	-	-	100	0.068	0.068	0.068
1.005	-	-	100	0.000	0.000	0.000
				Total 0.239	Total 0.239	Total 0.239

Free Flowing Outfall Details for 203905-Site3D-Model.sws

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.005	Sout	83.080	81.685	0.000	0	0

Simulation Criteria for 203905-Site3D-Model.sws

Volumetric Runoff Coeff	1.000	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	1
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	1.000
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	21.000	Storm Duration (mins)	30
Ratio R	0.439		

Online Controls for 203905-Site3D-Model.sws

Hydro-Brake® Optimum Manhole: S12, DS/PN: S1.005, Volume (m³): 2.3

Unit Reference	MD-SHE-0072-2500-1200-2500
Design Head (m)	1.200
Design Flow (l/s)	2.5
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	72
Invert Level (m)	81.790
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	**Head (m)**	**Flow (l/s)**
Design Point (Calculated)	1.200	2.5
Flush-Flo™	0.318	2.3
Kick-Flo®	0.644	1.9
Mean Flow over Head Range	-	2.1

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 (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**
0.100	1.9	1.200	2.5	3.000	3.8	7.000	5.7
0.200	2.2	1.400	2.7	3.500	4.1	7.500	5.9
0.300	2.3	1.600	2.8	4.000	4.4	8.000	6.0
0.400	2.3	1.800	3.0	4.500	4.6	8.500	6.2
0.500	2.2	2.000	3.2	5.000	4.8	9.000	6.4
0.600	2.0	2.200	3.3	5.500	5.1	9.500	6.5
0.800	2.1	2.400	3.4	6.000	5.3		
1.000	2.3	2.600	3.6	6.500	5.5		

Storage Structures for 203905-Site3D-Model.sws

Tank or Pond Manhole: Stank, DS/PN: S1.003

Invert Level (m) 82.092

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	212.5	0.800	212.5	0.801	0.0

Summary of Critical Results by Maximum Level (Rank 1) for 203905-Site3D-Model.sws

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 1
Number of Online Controls 1 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.441
Region England and Wales Cv (Summer) 1.000
M5-60 (mm) 20.000 Cv (Winter) 1.000

Margin for Flood Risk Warning (mm) 300.0
Analysis Timestep 2.5 Second Increment (Extended)
DTS Status ON
DVD Status ON
Inertia Status ON

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S5	15 Summer	100	+40%	100/15 Summer	100/15 Summer		
S1.001	S6	240 Winter	100	+40%	100/15 Summer			
S1.002	S8	240 Winter	100	+40%	100/15 Summer			
S1.003	Stank	240 Winter	100	+40%	1/60 Summer			
S1.004	S10	15 Summer	100	+40%	1/15 Summer			
S2.000	S13	15 Summer	100	+40%	30/15 Summer	100/15 Summer		
S1.005	S12	15 Summer	100	+40%	1/15 Summer			

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.000	S5	83.251	0.426	0.521	1.32			47.7	FLOOD
S1.001	S6	82.771	0.240	0.000	0.31			11.9	SURCHARGED
S1.002	S8	82.769	0.330	0.000	0.32			11.7	SURCHARGED
S1.003	Stank	82.767	0.592	0.000	0.09			2.4	SURCHARGED*

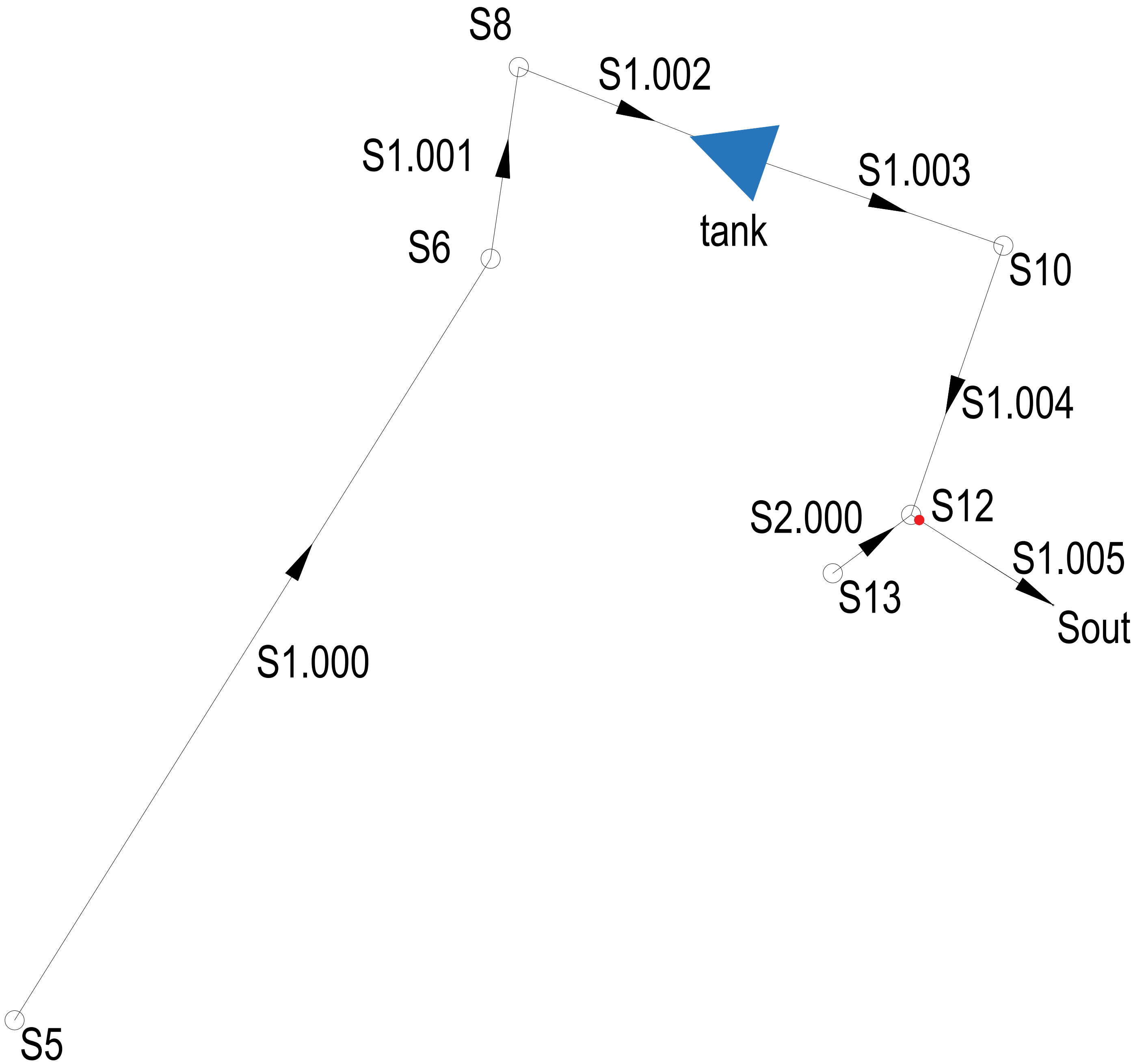
Summary of Critical Results by Maximum Level (Rank 1) for 203905-Site3D-Model.sws

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status
S1.004	S10	82.981	0.851	0.000	0.13			4.9	SURCHARGED
S2.000	S13	83.153	0.775	2.955	0.70			52.8	FLOOD
S1.005	S12	83.087	1.072	0.000	0.06			2.5	FLOOD RISK

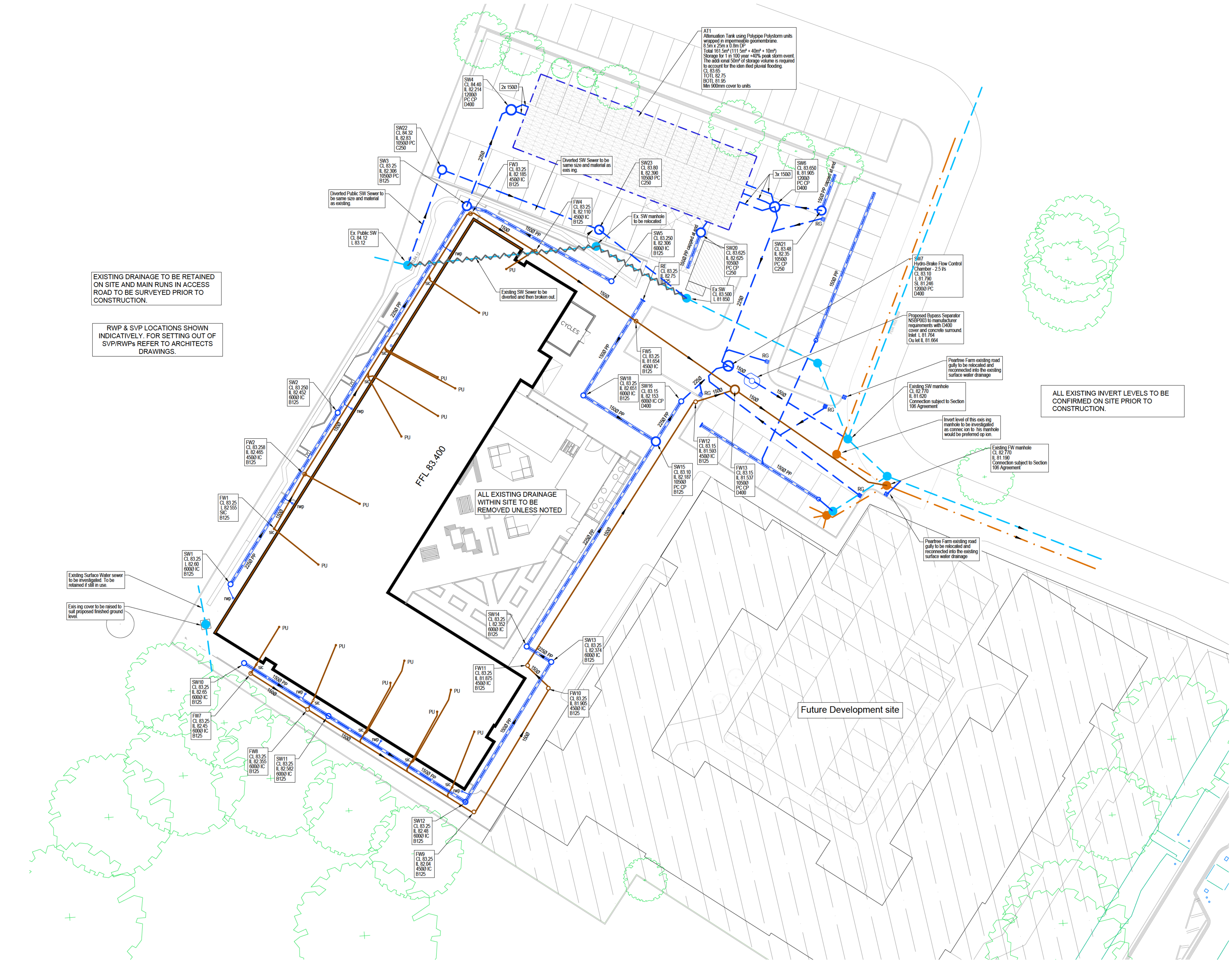
PN	US/MH Name	Level Exceeded
S1.000	S5	1
S1.001	S6	
S1.002	S8	
S1.003	Stank	
S1.004	S10	
S2.000	S13	1
S1.005	S12	

Appendix B

Schematic Drainage Layout


S8
S1.002
S1.001
S1.003
tank
S6
S10
S1.004
S2.000
S12
S1.005
S13
Sout
S1.000
S5

Appendix C
SWH Drainage Design Drawing



DO NOT SCALE FROM THIS DRAWING

Notes

For General and Drainage notes refer to drawing no. 203905-SWH-ZZ-XX-DR-C-5700.

Key

- Proposed SW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic).
- Proposed FW manhole, Plastic Inspection Chamber (ppic) or Shallow Inspection Chamber (sic).
- Existing SW manhole
- Existing FW manhole
- Proposed SW sewer
- Existing SW sewer
- Proposed SW connection
- Existing SW connection
- Proposed FW sewer
- Existing FW sewer
- Proposed FW connection
- Existing FW connection
- Perforated pipe in trench
- RG Proposed new road gully
- rwp Rainwater downpipe
- PU Pop up for Soil Vent Pipe / Stub Stack to Architects requirements
- RE Rodding eye
- Cellular attenuation tank

HAZARDS LEADING TO UNUSUAL OR SIGNIFICANT RISKS DURING THE CONSTRUCTION PROCESS ARE IDENTIFIED ON THIS DRAWING AS:

NOTE: THE LIST BELOW IDENTIFIES CERTAIN RISKS WHICH ARE DEEMED TO BE UNUSUAL, ABNORMAL OR UNEXPECTED TO A COMPETENT CONTRACTOR CARRYING OUT WORK OF THIS NATURE BUT DOES NOT COVER ALL POSSIBLE SITUATIONS WHICH MAY BE ENCOUNTERED DURING THE CONSTRUCTION PROCESS. IT IS THEREFORE THE MAIN CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ANY FURTHER RISKS/HAZARDS AND TAKE APPROPRIATE ACTION.

RISKS/HAZARDS SPECIFIC TO THIS DRAWING:

Contractor to check for existing below ground services. A sub site services survey is available.

PRELIMINARY - NOT FOR CONSTRUCTION

Rev.	Amendment	Drn.	Chkd.	Appd.	Date
P02	PRELIMINARY	NSC	JD	JD	15.12.22
P01	PRELIMINARY	NSC	JD	JD	13.12.22

Project

PEARTREE LANE
WELWYN GARDEN CITY

Drawing

PROPOSED DRAINAGE LAYOUT

Client

Kori Construction

Scott White and Hookins

Structural Engineering | Civil Engineering | Sustainability and BREEAM | CDM Consultancy

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Scale at A1 - 1:200

203905-SWH-ZZ-XX-DR-C-5000-P02

Project | Originator | Zone | Level | Type | Role | Number | Rev.

CP004-01_FM_ST_008_D