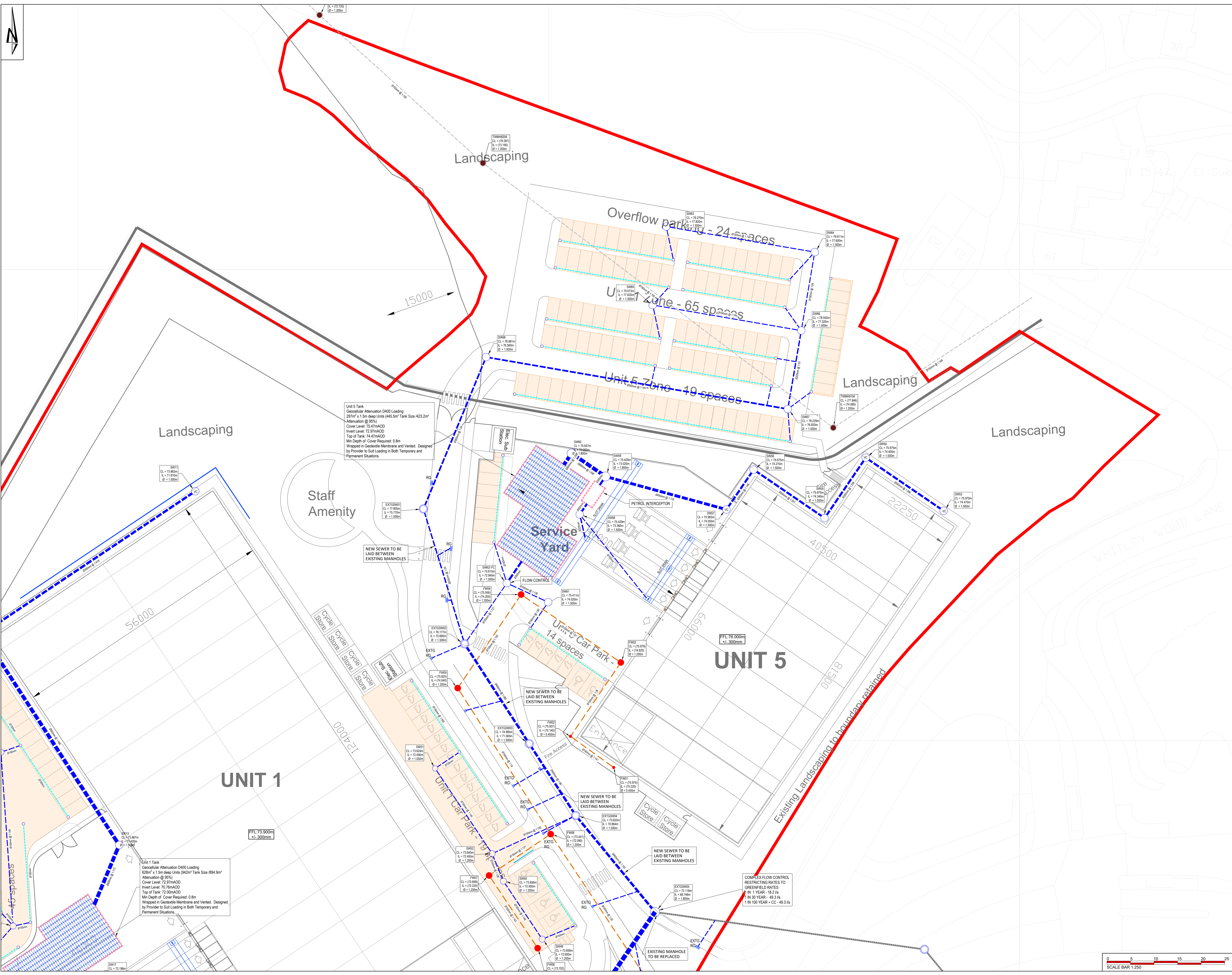


APPENDIX C – BGL DRAWINGS



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING:

CONSTRUCTION

1. Add residual risks here

MAINTENANCE

1. Add residual risks here

DEMOLITION

1. Add residual risks here

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL THE RELEVANT ARCHITECTS' ENGINEERS' AND SERVICE ENGINEERS' DRAWINGS & SPECIFICATIONS.

2. BASED ON SURVEY SOLUTIONS TOPOGRAPHIC SURVEY 677878WJG-01.08 AND CHETWOOD ARCHITECTS LAYOUT 5704-CA-ZZ-00-DR-A-00051.

KEY:

Site Boundary

Proposed Building Level

Proposed Surface Water pipe & Chamber

Proposed Foul Water pipe & Chamber

Proposed Syphonic Pipe

Proposed Linear Channel Drain

Proposed Kerb Drain

Proposed Perforated

Proposed Vent Pipe

Attenuation Tank

Proposed Lined Permeable Paving

Access Road Bio Retention Area

Proposed Road Gully

Proposed Kerb Drain Gully

Access Point

Linear Channel Gully Unit

Syphonic Rainwater Downpipe

Vented Cover

Proposed Rodding Eye

P01	07.02.2025	GL	First Issue	RM
REV	DATE	BY	DESCRIPTION	CHKD

Burrows Graham

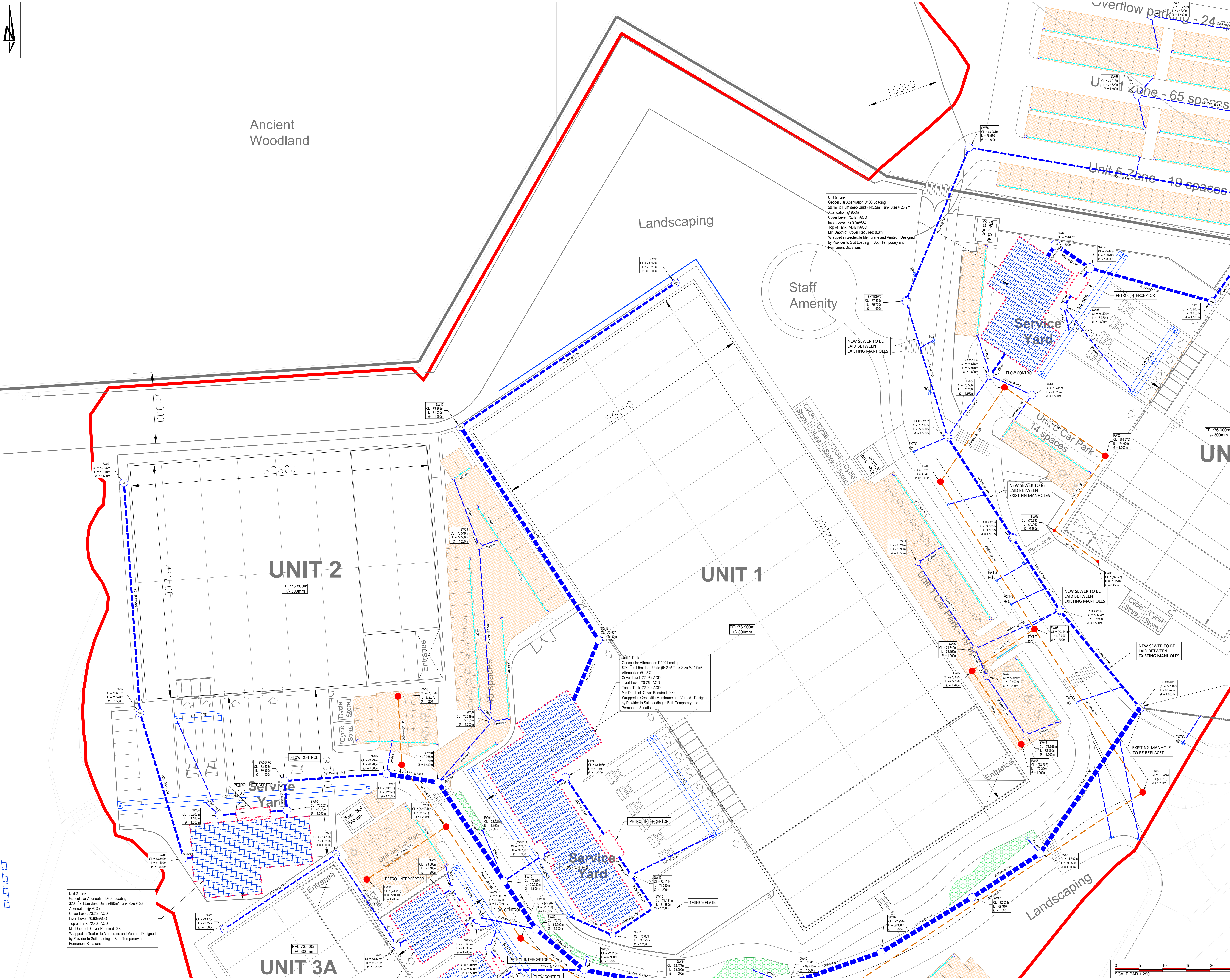
North Office:
5 Ambassadors Place, Stockport Road,
Altrincham WA15 8DQ
Tel: +44 (0)161 804 8046
South Office:
Buckfield House, Dover Mews,
High Street, Beckenham HA9 2BL
Tel: +44 (0)1473 286 402

CLIENT
WRENBRIDGE

PROJECT
SHINFILED PARK
READING

DRAWING TITLE
DRAINAGE STRATEGY
SHEET 1

SOL PROJECT NUMBER 40237	DRAWING STATUS PRELIMINARY	OFFICE SOUTH
SCALE @ A0 1:250	DATE 07.02.2025	DRAWN BY GL
DRAWING No 40237-BGL-XX-XX-DR-C-00220	CHECKED BY RM	REV P01



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MAINTENANCE

1. Add residual risks here

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GENERAL NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL THE RELEVANT ARCHITECTS' ENGINEERS' AND SERVICE ENGINEERS' DRAWINGS & SPECIFICATIONS.

2. BASED ON SURVEY SOLUTIONS TOPOGRAPHIC SURVEY 677878WIG-01, 08 AND CHETWOOD ARCHITECTS LAYOUT 5704-CA-ZZ-00-DR-A-00051.

KEY:

- Site Boundary
- S.S.L. XX.XXm Proposed Building Level
- SWD Proposed Surface Water pipe & Chamber
- FWD Proposed Foul Water pipe & Chamber
- Proposed Syphonic Pipe
- Proposed Linear Channel Drain
- Proposed Kerb Drain
- Proposed Perforated
- Proposed Vent Pipe
- Attenuation Tank
- Proposed Lined Permeable Paving
- Access Road Bio Retention Area
- Proposed Road Gully
- Proposed Kerb Drain Gully
- Access Point
- Linear Channel Gully Unit
- Syphonic Rainwater Downpipe
- Vented Cover
- Proposed Rodding Eye

REV	DATE	BY	DESCRIPTION	CHKD
P01	07.02.2025	GL	First Issue	RM

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South Office: Brookfield House, Dover Mews, High Street, Bathurst H4 2BL
Tel: +44 (0)1462 508 402

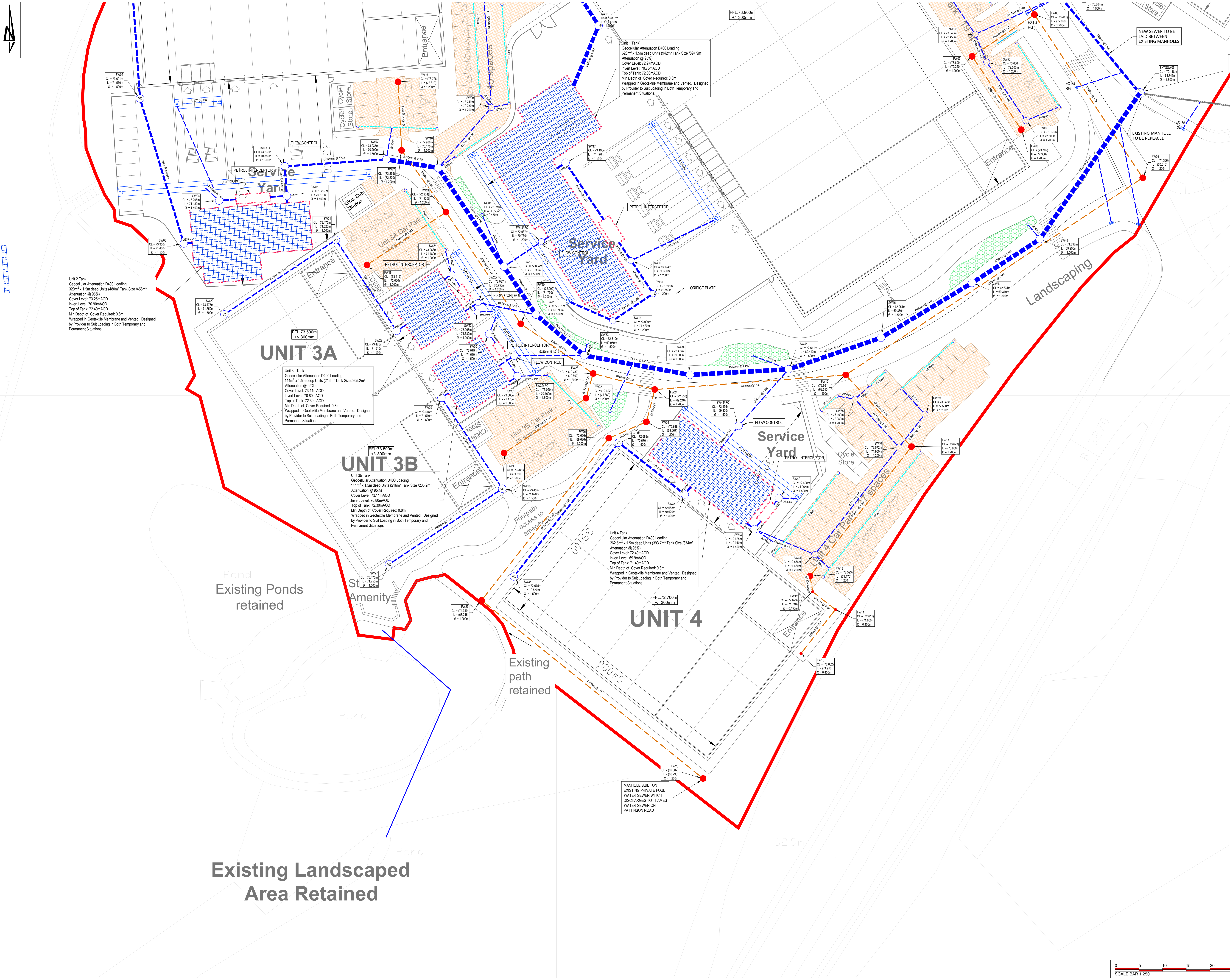
CLIENT: WRENBRIDGE

PROJECT: SHINFELD PARK READING

DRAWING TITLE: DRAINAGE STRATEGY SHEET 2

REV	DATE	DESCRIPTION	OFFICE	CHECKED BY
01	07.02.2025	PRELIMINARY	SOUTH	RM

DRAWING NO: 40237-BGL-XX-XX-DR-C-00221 P01



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SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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CONSTRUCTION

1. Add residual risks here

MAINTENANCE

1. Add residual risks here

DEMOLITION

1. Add residual risks here

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT

GENERAL NOTES

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL THE RELEVANT ARCHITECTS' ENGINEERS' AND SERVICE ENGINEERS' DRAWINGS & SPECIFICATIONS.

2. BASED ON SURVEY SOLUTIONS TOPOGRAPHIC SURVEY 677878WAG-01, 08 AND CHETWOOD ARCHITECTS LAYOUT 5704-CA-ZZ-00-DR-A-00051.

KEY:

S.S.L. XX.XXm

Proposed Building Level

SWD

Proposed Surface Water pipe & Chamber

FWO

Proposed Foul Water pipe & Chamber

Proposed Syphonic Pipe

Proposed Linear Channel Drain

Proposed Kerb Drain

Proposed Perforated

Proposed Vent Pipe

Attenuation Tank

Proposed Lined Permeable Paving

Access Road Bio Retention Area

RG

Proposed Road Gully

KG

Proposed Kerb Drain Gully

AP

Access Point

SU

Linear Channel Gully Unit

SWAP

Syphonic Rainwater Downpipe

VC

Vented Cover

RE

Proposed Rodding Eye

P01	07.02.2025	GL	First Issue	RM
REV	DATE	BY	DESCRIPTION	CHKD

Burrows Graham

North Office:
5 Ambassadors Place, Stockport Road,
Altrincham WA15 6DZ
Tel: +44 (0)161 804 8046
South Office:
Buckfield House, Dover Mews,
High Street, Beckenham HA4 2BL
Tel: +44 (0)1473 286 402

CLIENT
WRENBRIDGE

PROJECT
SHINFIELD PARK
READING

DRAWING TITLE
DRAINAGE STRATEGY
SHEET 3

SOL PROJECT NUMBER 40237	DRAWING STATUS PRELIMINARY	OFFICE SOUTH
SCALE @ A0 1:250	DATE 07.02.2025	DRAWN BY GL
DRAWING No 40237-BGL-XX-XX-DR-C-00222		CHECKED BY RM
REV		REV

APPENDIX D – BGL HYDRAULIC CALCULATIONS

Calculated by:

Paul Graveney

Site name:

Shinfield Park

Site location:

Reading

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.

Site Details

Latitude:

51.41586° N

Longitude:

0.95435° W

Reference:

2134534198

Date:

Feb 07 2025 15:09

Runoff estimation approach

IH124

Site characteristics

Total site area (ha):

4.92

Methodology

Q_{BAR} estimation method:

Calculate from SPR and SAAR

SPR estimation method:

Calculate from SOIL type

Notes

(1) Is Q_{BAR} < 2.0 l/s/ha?

When Q_{BAR} is < 2.0 l/s/ha then limiting discharge rates are set at 2.0 l/s/ha.

Soil characteristics

	Default	Edited
SOIL type:	4	4
HOST class:	N/A	N/A
SPR/SPRHOST:	0.47	0.47

Hydrological characteristics

	Default	Edited
SAAR (mm):	642	642
Hydrological region:	6	6
Growth curve factor 1 year:	0.85	0.85
Growth curve factor 30 years:	2.3	2.3
Growth curve factor 100 years:	3.19	3.19
Growth curve factor 200 years:	3.74	3.74

(2) Are flow rates < 5.0 l/s?

Where flow rates are less than 5.0 l/s consent for discharge is usually set at 5.0 l/s if blockage from vegetation and other materials is possible. Lower consent flow rates may be set where the blockage risk is addressed by using appropriate drainage elements.

(3) Is SPR/SPRHOST ≤ 0.3?

Where groundwater levels are low enough the use of soakaways to avoid discharge offsite would normally be preferred for disposal of surface water runoff.

Greenfield runoff rates

	Default	Edited
Q _{BAR} (l/s):	21.47	21.47
1 in 1 year (l/s):	18.25	18.25
1 in 30 years (l/s):	49.37	49.37
1 in 100 year (l/s):	68.48	68.48
1 in 200 years (l/s):	80.29	80.29

This report was produced using the greenfield runoff tool developed by HR Wallingford and available at www.uksuds.com. The use of this tool is subject to the UK SuDS terms and conditions and licence agreement , which can both be found at www.uksuds.com/terms-and-conditions.htm. The outputs from this tool are estimates of 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, CEH, Hydrosolutions or any other organisation for the use of this data in the design or operational characteristics of any drainage scheme.

Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	100	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)	17.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	1.200
CV	1.000	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
SW01	0.160	5.00	73.725	1350		472709.042	169110.928	1.985
SW02	0.160	5.00	73.601	1350		472712.416	169062.496	2.031
SW03			73.350	1350		472721.623	169032.000	1.890
Tank U2			73.258	1350		472735.720	169035.660	2.358
U2 Dock	0.022	5.00	72.550	450	450	472720.186	169061.300	1.000
SW04	0.157	5.00	73.208	1200		472729.059	169041.028	2.128
SW05			73.207	1350		472743.296	169042.020	2.337
SW06/ FC			73.232	1350		472742.864	169048.222	2.382
SW07	0.020	5.00	73.237	1800		472764.201	169049.696	3.037
SW08	0.016	5.00	73.549	1200		472783.734	169097.527	1.089
SW09	0.063	5.00	73.249	1200		472786.330	169060.618	0.999
SW10	0.010	5.00	72.988	1800		472775.117	169047.893	2.818
SW11	0.362	5.00	73.863	1500		472825.021	169152.939	2.053
SW12	0.362	5.00	73.862	1500		472779.814	169122.703	2.332
SW13			73.882	1500		472808.852	169077.826	2.462
U1 Dock	0.052	5.00	72.650	450	450	472833.433	169037.140	1.000
SW14	0.198	5.00	73.009	1350		472811.805	169015.762	1.589
SW15			73.191	1350		472820.324	169021.461	1.811
SW16			73.194	1350		472815.676	169028.411	1.844
SW17			73.196	1350		472801.900	169049.007	2.026
Tank U1			72.972	1500		472800.686	169037.968	2.472
SW18/ FC			72.937	1500		472796.831	169032.387	2.467
RG01	0.040	5.00	72.921	450		472784.331	169038.046	0.921
SW19			72.834	1800		472788.939	169027.133	2.804
SW20	0.049	5.00	73.475	1200		472730.161	169017.080	1.725
SW21	0.049	5.00	73.475	1200		472753.596	169032.754	1.855
SW22			73.475	1200		472766.388	169013.639	1.965
SW23	0.033	5.00	73.068	1200		472783.325	169017.574	1.438
SW24	0.027	5.00	73.068	1200		472777.996	169025.540	1.588
Tank U3a			73.117	1200		472773.364	169017.630	2.317
SW25/ FC			73.037	1350		472783.477	169019.582	2.287
SW26			72.791	1800		472795.663	169017.033	2.801
SW27	0.049	5.00	73.475	1200		472764.795	168964.541	1.725
SW28	0.049	5.00	73.452	1200		472788.579	168980.450	1.832
SW29			73.475	1200		472775.797	168999.571	1.965
SW30	0.033	5.00	73.079	1200		472785.841	169012.985	1.449
SW31	0.033	5.00	73.066	1200		472791.793	169004.085	1.596
Tank U3b			73.117	1200		472781.566	169004.462	2.317
SW32/ FC			73.020	1350		472791.095	169008.430	2.260
RG03	0.025	5.00	72.709	450		472811.238	168996.727	0.899
RG02	0.034	5.00	72.958	450		472806.421	169011.042	0.908

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Width (mm)	Easting (m)	Northing (m)	Depth (m)
SW33			72.810	1800		472805.807	169008.455	2.860
SW34			72.477	1800		472828.055	169004.369	2.577
SW38	0.025	5.00	73.109	1200		472862.760	168999.260	1.059
SW39	0.018	5.00	73.643	1200		472877.453	168996.109	1.053
SW40			73.572	1200		472872.011	168989.170	1.622
SW41	0.043	5.00	72.536	1200		472854.297	168966.585	1.056
SW42	0.080	5.00	72.490	1200		472846.747	168978.477	1.425
SW43	0.012	5.00	72.628	1200		472841.609	168971.925	1.688
SW35	0.110	5.00	72.675	1200		472791.007	168961.963	1.805
SW36	0.110	5.00	72.683	1200		472813.080	168990.109	2.013
SW37			72.683	1200		472826.958	168979.225	2.063
Tank U4			72.498	1350		472832.178	168983.451	2.598
SW44/ FC			72.496	1500		472838.306	168993.659	2.676
RG04	0.060	5.00	72.633	450		472841.114	169008.467	0.903
SW45			72.641	1800		472848.775	169005.545	3.231
SW46			72.951	1800		472868.220	169012.174	3.591
SW47			72.631	1800		472887.371	169023.723	3.321
RG05	0.060	5.00	71.976	450		472899.027	169036.063	1.906
SW48	0.050	5.00	71.892	1800		472902.125	169033.255	2.642
SW63	0.029	5.00	79.270	1200		472925.004	169209.113	1.450
SW64	0.028	5.00	78.811	1200		472956.540	169203.686	1.211
SW65	0.095	5.00	79.073	1200		472922.141	169192.457	1.453
SW66	0.040	5.00	78.550	1200		472953.678	169187.031	1.230
SW67	0.108	5.00	78.229	1200		472950.815	169170.377	1.309
SW68			78.981	1200		472886.757	169181.400	2.421
EXTGSW01	0.044	5.00	77.079	1200		472873.456	169149.174	1.309
SW53	0.120	5.00	75.975	1200		472983.918	169148.764	1.505
SW54	0.025	5.00	75.975	1200		472967.371	169160.040	1.575
SW55			75.975	1200		472958.643	169147.232	1.635
SW56			75.975	1200		472943.562	169157.509	1.705
SW57	0.169	5.00	75.983	1500		472937.790	169149.043	1.933
U5 Dock	0.035	5.00	74.750	450	450	472921.195	169130.017	1.000
SW58	0.144	5.00	75.429	1200		472906.638	169148.010	2.069
SW59			75.429	1500		472912.120	169156.055	2.409
SW60			75.647	1500		472904.922	169160.961	2.647
Tank U5			75.475	1350		472897.558	169150.343	2.505
SW61	0.011	5.00	75.374	1200		472900.791	169130.616	1.354
SW62/ FC	0.009	5.00	75.543	1500		472891.170	169133.422	2.609
EXTGSW02	0.040	5.00	76.177	1350		472882.197	169120.518	3.517
EXTGSW03	0.027	5.00	74.917	1350		472895.921	169099.330	3.352
SW51	0.049	5.00	73.624	1200		472875.934	169094.084	1.034
SW49	0.025	5.00	73.656	1200		472898.672	169057.840	1.056
SW50			73.656	1200		472890.439	169070.150	1.156
SW52	0.012	5.00	73.640	1200		472888.036	169075.990	1.200
EXTGSW04	0.034	5.00	73.653	1350		472905.787	169084.098	2.789
EXTGSW05	0.017	5.00	72.118	1800		472922.626	169063.598	3.368
EXTGSW06			72.000	1200		472979.849	169055.665	3.445

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	SW01	SW02	48.549	0.600	71.740	71.570	0.170	285.6	375	5.76	50.0
1.001	SW02	SW03	31.856	0.600	71.570	71.460	0.110	289.6	375	6.26	50.0
1.002	SW03	Tank U2	14.564	0.600	71.460	71.410	0.050	291.3	375	6.49	50.0
1.003	Tank U2	SW05	9.892	0.600	70.900	70.870	0.030	329.7	375	6.66	50.0
2.000	U2 Dock	SW04	22.129	0.600	71.550	71.330	0.220	100.6	150	5.37	50.0
2.001	SW04	SW05	14.272	0.600	71.080	70.950	0.130	109.8	300	5.53	50.0
1.004	SW05	SW06/ FC	6.217	0.600	70.870	70.850	0.020	310.9	375	6.76	50.0
1.005	SW06/ FC	SW07	21.388	0.600	70.850	70.700	0.150	142.6	375	6.99	50.0
1.006	SW07	SW10	11.064	0.600	70.200	70.170	0.030	368.8	750	7.12	50.0
3.000	SW08	SW09	37.000	0.600	72.460	72.250	0.210	176.2	150	5.82	50.0
3.001	SW09	SW10	16.960	0.600	72.250	72.130	0.120	141.3	150	6.15	50.0
1.007	SW10	SW19	24.940	0.600	70.170	70.030	0.140	178.1	750	7.32	50.0
4.000	SW11	SW12	54.386	0.600	71.810	71.680	0.130	418.4	450	5.92	50.0
4.001	SW12	SW13	53.452	0.600	71.530	71.420	0.110	485.9	600	6.73	50.0
4.002	SW13	Tank U1	40.686	0.600	71.420	71.200	0.220	184.9	600	7.11	50.0
5.000	U1 Dock	SW16	19.787	0.600	71.650	71.510	0.140	141.3	225	5.30	50.0
6.000	SW14	SW15	10.249	0.600	71.420	71.380	0.040	256.2	375	5.15	50.0
6.001	SW15	SW16	8.361	0.600	71.380	71.350	0.030	278.7	375	5.28	50.0
5.001	SW16	SW17	24.778	0.600	71.350	71.170	0.180	137.7	375	5.57	50.0
5.002	SW17	Tank U1	11.106	0.600	71.170	70.910	0.260	42.7	375	5.63	50.0
4.003	Tank U1	SW18/ FC	6.783	0.600	70.500	70.470	0.030	226.1	225	7.24	50.0
4.004	SW18/ FC	SW19	9.481	0.600	70.470	70.420	0.050	189.6	225	7.41	50.0
7.000	RG01	SW19	11.846	0.600	72.000	71.920	0.080	148.1	150	5.24	50.0
1.008	SW19	SW26	12.134	0.600	70.030	69.990	0.040	303.3	750	7.53	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)
1.000	1.067	117.8	28.9	1.610	1.656	0.160	0.0
1.001	1.059	117.0	57.8	1.656	1.515	0.320	0.0
1.002	1.056	116.7	57.8	1.515	1.473	0.320	0.0
1.003	0.992	109.6	57.8	1.983	1.962	0.320	0.0
2.000	1.002	17.7	4.0	0.850	1.728	0.022	0.0
2.001	1.500	106.0	32.3	1.828	1.957	0.179	0.0
1.004	1.022	112.9	90.2	1.962	2.007	0.499	0.0
1.005	1.515	167.3	90.2	2.007	2.162	0.499	0.0
1.006	1.451	641.0	93.8	2.287	2.068	0.519	0.0
3.000	0.754	13.3	2.9	0.939	0.849	0.016	0.0
3.001	0.843	14.9	14.3	0.849	0.708	0.079	0.0
1.007	2.093	924.8	109.9	2.068	2.054	0.608	0.0
4.000	0.987	157.0	65.4	1.603	1.732	0.362	0.0
4.001	1.098	310.4	130.8	1.732	1.862	0.724	0.0
4.002	1.787	505.3	130.8	1.862	1.172	0.724	0.0
5.000	1.098	43.6	9.4	0.775	1.459	0.052	0.0
6.000	1.127	124.5	35.8	1.214	1.436	0.198	0.0
6.001	1.080	119.3	35.8	1.436	1.469	0.198	0.0
5.001	1.542	170.3	45.2	1.469	1.651	0.250	0.0
5.002	2.779	306.9	45.2	1.651	1.687	0.250	0.0
4.003	0.865	34.4	176.0	2.247	2.242	0.974	0.0
4.004	0.946	37.6	176.0	2.242	2.189	0.974	0.0
7.000	0.823	14.5	7.2	0.771	0.764	0.040	0.0
1.008	1.601	707.4	293.1	2.054	2.051	1.622	0.0

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)
8.000	SW20	SW21	28.194	0.600	71.750	71.620	0.130	216.9	225	5.53	50.0
8.001	SW21	SW22	23.000	0.600	71.620	71.510	0.110	209.1	225	5.96	50.0
8.002	SW22	Tank U3a	8.037	0.600	71.510	71.470	0.040	200.9	225	6.10	50.0
9.000	SW23	SW24	9.584	0.600	71.630	71.560	0.070	136.9	150	5.19	50.0
9.001	SW24	Tank U3a	9.166	0.600	71.480	71.430	0.050	183.3	225	5.35	50.0
8.003	Tank U3a	SW25/ FC	10.300	0.600	70.800	70.750	0.050	206.0	225	6.29	50.0
8.004	SW25/ FC	SW26	12.450	0.600	70.750	70.690	0.060	207.5	225	6.52	50.0
1.009	SW26	SW33	13.285	0.600	69.990	69.950	0.040	332.1	750	7.68	50.0
10.000	SW27	SW28	28.614	0.600	71.750	71.620	0.130	220.1	225	5.54	50.0
10.001	SW28	SW29	23.000	0.600	71.620	71.510	0.110	209.1	225	5.97	50.0
10.002	SW29	Tank U3b	7.563	0.600	71.510	71.470	0.040	189.1	225	6.10	50.0
11.000	SW30	SW31	10.707	0.600	71.630	71.550	0.080	133.8	150	5.21	50.0
11.001	SW31	Tank U3b	10.234	0.600	71.470	71.420	0.050	204.7	225	5.39	50.0
10.003	Tank U3b	SW32/ FC	10.322	0.600	70.800	70.760	0.040	258.1	225	6.32	50.0
10.004	SW32/ FC	SW33	14.712	0.600	70.760	70.690	0.070	210.2	225	6.59	50.0
12.000	RG03	SW33	12.924	0.600	71.810	71.720	0.090	143.6	150	5.26	50.0
13.000	RG02	SW33	2.659	0.600	72.050	72.030	0.020	132.9	150	5.05	50.0
1.010	SW33	SW34	22.620	0.600	69.950	69.900	0.050	452.4	750	7.97	50.0
1.011	SW34	SW45	20.753	0.600	69.900	69.850	0.050	415.1	750	8.22	50.0
14.000	SW38	SW40	13.689	0.600	72.050	71.950	0.100	136.9	150	5.27	50.0
15.000	SW39	SW40	8.818	0.600	72.590	71.950	0.640	13.8	150	5.05	50.0
14.001	SW40	SW41	28.703	0.600	71.950	71.480	0.470	61.1	150	5.64	50.0
14.002	SW41	SW43	13.766	0.600	71.480	71.380	0.100	137.7	150	5.91	50.0
16.000	SW42	SW43	8.326	0.600	71.065	71.020	0.045	185.0	225	5.14	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)
8.000	0.884	35.1	8.9	1.500	1.630	0.049	0.0
8.001	0.900	35.8	17.7	1.630	1.740	0.098	0.0
8.002	0.919	36.5	17.7	1.740	1.422	0.098	0.0
9.000	0.857	15.1	6.0	1.288	1.358	0.033	0.0
9.001	0.962	38.3	10.8	1.363	1.462	0.060	0.0
8.003	0.907	36.1	28.6	2.092	2.062	0.158	0.0
8.004	0.904	35.9	28.6	2.062	1.876	0.158	0.0
1.009	1.530	675.8	321.6	2.051	2.110	1.780	0.0
10.000	0.877	34.9	8.9	1.500	1.607	0.049	0.0
10.001	0.900	35.8	17.7	1.607	1.740	0.098	0.0
10.002	0.947	37.7	17.7	1.740	1.422	0.098	0.0
11.000	0.867	15.3	6.0	1.299	1.366	0.033	0.0
11.001	0.910	36.2	11.9	1.371	1.472	0.066	0.0
10.003	0.809	32.2	29.6	2.092	2.035	0.164	0.0
10.004	0.898	35.7	29.6	2.035	1.895	0.164	0.0
12.000	0.836	14.8	4.5	0.749	0.940	0.025	0.0
13.000	0.870	15.4	6.1	0.758	0.630	0.034	0.0
1.010	1.309	578.2	361.9	2.110	1.827	2.003	0.0
1.011	1.367	603.9	361.9	1.827	2.041	2.003	0.0
14.000	0.857	15.1	4.5	0.909	1.472	0.025	0.0
15.000	2.728	48.2	3.3	0.903	1.472	0.018	0.0
14.001	1.289	22.8	7.8	1.472	0.906	0.043	0.0
14.002	0.854	15.1	15.5	0.906	1.098	0.086	0.0
16.000	0.958	38.1	14.5	1.200	1.383	0.080	0.0

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)
14.003	SW43	Tank U4	14.893	0.600	70.940	70.890	0.050	300.0	300	6.18	50.0
17.000	SW35	SW36	35.769	0.600	70.870	70.750	0.120	298.1	300	5.66	50.0
17.001	SW36	SW37	17.637	0.600	70.670	70.620	0.050	352.7	375	5.97	50.0
17.002	SW37	Tank U4	6.716	0.600	70.620	70.600	0.020	335.8	375	6.08	50.0
14.004	Tank U4	SW44/ FC	11.906	0.600	69.900	69.820	0.080	148.8	150	6.42	50.0
14.005	SW44/ FC	SW45	15.839	0.600	69.820	69.710	0.110	144.0	150	6.74	50.0
18.000	RG04	SW45	8.199	0.600	71.730	71.670	0.060	136.7	150	5.16	50.0
1.012	SW45	SW46	20.544	0.600	69.410	69.360	0.050	410.9	750	8.47	50.0
1.013	SW46	SW47	22.364	0.600	69.360	69.310	0.050	450.0	750	8.75	50.0
1.014	SW47	SW48	17.565	0.600	69.310	69.270	0.040	439.1	750	8.97	50.0
19.000	RG05	SW48	4.181	0.600	70.070	70.000	0.070	59.7	150	5.05	50.0
1.015	SW48	EXTGSW05	36.620	0.600	69.250	69.128	0.122	300.0	750	9.35	50.0
20.000	SW63	SW64	32.000	0.600	77.820	77.600	0.220	145.5	150	5.64	50.0
20.001	SW64	SW66	16.899	0.600	77.600	77.400	0.200	84.5	150	5.90	50.0
21.000	SW65	SW66	32.000	0.600	77.620	77.400	0.220	145.5	150	5.64	50.0
20.002	SW66	SW67	16.898	0.600	77.320	77.000	0.320	52.8	225	6.06	50.0
20.003	SW67	SW68	64.999	0.600	76.920	76.560	0.360	180.6	300	6.98	50.0
20.004	SW68	EXTGSW01	34.863	0.600	76.560	75.920	0.640	54.5	300	7.26	50.0
20.005	EXTGSW01	EXTGSW02	29.959	0.600	75.770	74.540	1.230	24.4	300	7.41	50.0
22.000	SW53	SW54	20.024	0.600	74.470	74.400	0.070	286.1	300	5.36	50.0
22.001	SW54	SW55	15.499	0.600	74.400	74.340	0.060	258.3	300	5.63	50.0
22.002	SW55	SW56	18.250	0.600	74.340	74.270	0.070	260.7	300	5.94	50.0
22.003	SW56	SW57	10.246	0.600	74.270	74.200	0.070	146.4	300	6.07	50.0
22.004	SW57	SW59	26.610	0.600	74.050	73.850	0.200	133.1	450	6.32	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)
14.003	0.902	63.8	32.2	1.388	1.308	0.178	0.0
17.000	0.905	64.0	19.9	1.505	1.633	0.110	0.0
17.001	0.959	105.9	39.8	1.638	1.688	0.220	0.0
17.002	0.983	108.6	39.8	1.688	1.523	0.220	0.0
14.004	0.821	14.5	71.9	2.448	2.526	0.398	0.0
14.005	0.835	14.8	71.9	2.526	2.781	0.398	0.0
18.000	0.857	15.2	10.8	0.753	0.821	0.060	0.0
1.012	1.374	607.0	444.7	2.481	2.841	2.461	0.0
1.013	1.312	579.8	444.7	2.841	2.571	2.461	0.0
1.014	1.329	587.0	444.7	2.571	1.872	2.461	0.0
19.000	1.304	23.0	10.8	1.756	1.742	0.060	0.0
1.015	1.610	711.3	464.6	1.892	2.240	2.571	0.0
20.000	0.831	14.7	5.2	1.300	1.061	0.029	0.0
20.001	1.094	19.3	10.3	1.061	1.000	0.057	0.0
21.000	0.831	14.7	17.2	1.303	1.000	0.095	0.0
20.002	1.804	71.7	34.7	1.005	1.004	0.192	0.0
20.003	1.167	82.5	54.2	1.009	2.121	0.300	0.0
20.004	2.134	150.9	54.2	2.121	0.859	0.300	0.0
20.005	3.198	226.1	62.2	1.009	1.337	0.344	0.0
22.000	0.924	65.3	21.7	1.205	1.275	0.120	0.0
22.001	0.973	68.8	26.2	1.275	1.335	0.145	0.0
22.002	0.969	68.5	26.2	1.335	1.405	0.145	0.0
22.003	1.297	91.7	26.2	1.405	1.483	0.145	0.0
22.004	1.761	280.0	56.7	1.483	1.129	0.314	0.0

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)
23.000	U5 Dock	SW58	23.144	0.600	73.750	73.510	0.240	96.4	150	5.38	50.0
23.001	SW58	SW59	9.735	0.600	73.360	73.320	0.040	243.4	300	5.54	50.0
22.005	SW59	SW60	8.711	0.600	73.020	73.000	0.020	435.5	600	6.45	50.0
22.006	SW60	Tank U5	12.922	0.600	73.000	72.970	0.030	430.7	600	6.63	50.0
22.007	Tank U5	SW62/ FC	18.087	0.600	72.970	72.934	0.036	500.0	600	6.91	50.0
24.000	SW61	SW62/ FC	10.022	0.600	74.020	73.950	0.070	143.2	150	5.20	50.0
22.008	SW62/ FC	EXTGSW02	15.717	0.600	72.940	72.810	0.130	120.9	150	7.20	50.0
20.006	EXTGSW02	EXTGSW03	25.244	0.600	72.660	72.565	0.095	265.7	450	7.75	50.0
20.007	EXTGSW03	EXTGSW04	18.148	0.600	71.565	71.380	0.185	98.1	450	7.90	50.0
25.000	SW51	SW52	21.768	0.600	72.590	72.440	0.150	145.1	150	5.44	50.0
26.000	SW49	SW50	14.809	0.600	72.600	72.500	0.100	148.1	150	5.30	50.0
26.001	SW50	SW52	6.315	0.600	72.500	72.450	0.050	126.3	150	5.42	50.0
25.001	SW52	EXTGSW04	19.515	0.600	72.450	72.320	0.130	150.0	150	5.83	50.0
20.008	EXTGSW04	EXTGSW05	26.529	0.600	70.864	70.600	0.264	100.5	450	8.12	50.0
1.016	EXTGSW05	EXTGSW06	57.770	0.600	68.750	68.555	0.195	296.3	300	10.41	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)
23.000	1.023	18.1	6.3	0.850	1.769	0.035	0.0
23.001	1.003	70.9	32.3	1.769	1.809	0.179	0.0
22.005	1.160	328.0	89.1	1.809	2.047	0.493	0.0
22.006	1.167	329.9	89.1	2.047	1.905	0.493	0.0
22.007	1.082	305.9	89.1	1.905	2.009	0.493	0.0
24.000	0.838	14.8	2.0	1.204	1.443	0.011	0.0
22.008	0.913	16.1	92.7	2.453	3.217	0.513	0.0
20.006	1.242	197.5	162.1	3.067	1.902	0.897	0.0
20.007	2.052	326.4	167.0	2.902	1.823	0.924	0.0
25.000	0.832	14.7	8.9	0.884	1.050	0.049	0.0
26.000	0.823	14.5	4.5	0.906	1.006	0.025	0.0
26.001	0.893	15.8	4.5	1.006	1.040	0.025	0.0
25.001	0.818	14.5	15.5	1.040	1.183	0.086	0.0
20.008	2.028	322.5	188.7	2.339	1.068	1.044	0.0
1.016	0.908	64.2	656.3	3.068	3.145	3.632	0.0

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	48.549	285.6	375	Circular	73.725	71.740	1.610	73.601	71.570	1.656
1.001	31.856	289.6	375	Circular	73.601	71.570	1.656	73.350	71.460	1.515
1.002	14.564	291.3	375	Circular	73.350	71.460	1.515	73.258	71.410	1.473
1.003	9.892	329.7	375	Circular	73.258	70.900	1.983	73.207	70.870	1.962
2.000	22.129	100.6	150	Circular	72.550	71.550	0.850	73.208	71.330	1.728

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	SW01	1350		Manhole	Adoptable	SW02	1350	Manhole	Adoptable
1.001	SW02	1350		Manhole	Adoptable	SW03	1350	Manhole	Adoptable
1.002	SW03	1350		Manhole	Adoptable	Tank U2	1350	Manhole	Adoptable
1.003	Tank U2	1350		Manhole	Adoptable	SW05	1350	Manhole	Adoptable
2.000	U2 Dock	450	450	Manhole	Adoptable	SW04	1200	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)
2.001	14.272	109.8	300	Circular	73.208	71.080	1.828	73.207	70.950	1.957
1.004	6.217	310.9	375	Circular	73.207	70.870	1.962	73.232	70.850	2.007
1.005	21.388	142.6	375	Circular	73.232	70.850	2.007	73.237	70.700	2.162
1.006	11.064	368.8	750	Circular	73.237	70.200	2.287	72.988	70.170	2.068
3.000	37.000	176.2	150	Circular	73.549	72.460	0.939	73.249	72.250	0.849
3.001	16.960	141.3	150	Circular	73.249	72.250	0.849	72.988	72.130	0.708
1.007	24.940	178.1	750	Circular	72.988	70.170	2.068	72.834	70.030	2.054
4.000	54.386	418.4	450	Circular	73.863	71.810	1.603	73.862	71.680	1.732
4.001	53.452	485.9	600	Circular	73.862	71.530	1.732	73.882	71.420	1.862
4.002	40.686	184.9	600	Circular	73.882	71.420	1.862	72.972	71.200	1.172
5.000	19.787	141.3	225	Circular	72.650	71.650	0.775	73.194	71.510	1.459
6.000	10.249	256.2	375	Circular	73.009	71.420	1.214	73.191	71.380	1.436
6.001	8.361	278.7	375	Circular	73.191	71.380	1.436	73.194	71.350	1.469
5.001	24.778	137.7	375	Circular	73.194	71.350	1.469	73.196	71.170	1.651
5.002	11.106	42.7	375	Circular	73.196	71.170	1.651	72.972	70.910	1.687
4.003	6.783	226.1	225	Circular	72.972	70.500	2.247	72.937	70.470	2.242
4.004	9.481	189.6	225	Circular	72.937	70.470	2.242	72.834	70.420	2.189
7.000	11.846	148.1	150	Circular	72.921	72.000	0.771	72.834	71.920	0.764
1.008	12.134	303.3	750	Circular	72.834	70.030	2.054	72.791	69.990	2.051
8.000	28.194	216.9	225	Circular	73.475	71.750	1.500	73.475	71.620	1.630
8.001	23.000	209.1	225	Circular	73.475	71.620	1.630	73.475	71.510	1.740
8.002	8.037	200.9	225	Circular	73.475	71.510	1.740	73.117	71.470	1.422
9.000	9.584	136.9	150	Circular	73.068	71.630	1.288	73.068	71.560	1.358
9.001	9.166	183.3	225	Circular	73.068	71.480	1.363	73.117	71.430	1.462
8.003	10.300	206.0	225	Circular	73.117	70.800	2.092	73.037	70.750	2.062

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.001	SW04	1200	450	Manhole	Adoptable	SW05	1350	Manhole	Adoptable
1.004	SW05	1350		Manhole	Adoptable	SW06/ FC	1350	Manhole	Adoptable
1.005	SW06/ FC	1350		Manhole	Adoptable	SW07	1800	Manhole	Adoptable
1.006	SW07	1800		Manhole	Adoptable	SW10	1800	Manhole	Adoptable
3.000	SW08	1200		Manhole	Adoptable	SW09	1200	Manhole	Adoptable
3.001	SW09	1200		Manhole	Adoptable	SW10	1800	Manhole	Adoptable
1.007	SW10	1800		Manhole	Adoptable	SW19	1800	Manhole	Adoptable
4.000	SW11	1500		Manhole	Adoptable	SW12	1500	Manhole	Adoptable
4.001	SW12	1500		Manhole	Adoptable	SW13	1500	Manhole	Adoptable
4.002	SW13	1500		Manhole	Adoptable	Tank U1	1500	Manhole	Adoptable
5.000	U1 Dock	450	450	Manhole	Adoptable	SW16	1350	Manhole	Adoptable
6.000	SW14	1350		Manhole	Adoptable	SW15	1350	Manhole	Adoptable
6.001	SW15	1350		Manhole	Adoptable	SW16	1350	Manhole	Adoptable
5.001	SW16	1350		Manhole	Adoptable	SW17	1350	Manhole	Adoptable
5.002	SW17	1350		Manhole	Adoptable	Tank U1	1500	Manhole	Adoptable
4.003	Tank U1	1500		Manhole	Adoptable	SW18/ FC	1500	Manhole	Adoptable
4.004	SW18/ FC	1500		Manhole	Adoptable	SW19	1800	Manhole	Adoptable
7.000	RG01	450		Manhole	Adoptable	SW19	1800	Manhole	Adoptable
1.008	SW19	1800		Manhole	Adoptable	SW26	1800	Manhole	Adoptable
8.000	SW20	1200		Manhole	Adoptable	SW21	1200	Manhole	Adoptable
8.001	SW21	1200	450	Manhole	Adoptable	SW22	1200	Manhole	Adoptable
8.002	SW22	1200		Manhole	Adoptable	Tank U3a	1200	Manhole	Adoptable
9.000	SW23	1200		Manhole	Adoptable	SW24	1200	Manhole	Adoptable
9.001	SW24	1200		Manhole	Adoptable	Tank U3a	1200	Manhole	Adoptable
8.003	Tank U3a	1200	450	Manhole	Adoptable	SW25/ FC	1350	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)
8.004	12.450	207.5	225	Circular	73.037	70.750	2.062	72.791	70.690	1.876
1.009	13.285	332.1	750	Circular	72.791	69.990	2.051	72.810	69.950	2.110
10.000	28.614	220.1	225	Circular	73.475	71.750	1.500	73.452	71.620	1.607
10.001	23.000	209.1	225	Circular	73.452	71.620	1.607	73.475	71.510	1.740
10.002	7.563	189.1	225	Circular	73.475	71.510	1.740	73.117	71.470	1.422
11.000	10.707	133.8	150	Circular	73.079	71.630	1.299	73.066	71.550	1.366
11.001	10.234	204.7	225	Circular	73.066	71.470	1.371	73.117	71.420	1.472
10.003	10.322	258.1	225	Circular	73.117	70.800	2.092	73.020	70.760	2.035
10.004	14.712	210.2	225	Circular	73.020	70.760	2.035	72.810	70.690	1.895
12.000	12.924	143.6	150	Circular	72.709	71.810	0.749	72.810	71.720	0.940
13.000	2.659	132.9	150	Circular	72.958	72.050	0.758	72.810	72.030	0.630
1.010	22.620	452.4	750	Circular	72.810	69.950	2.110	72.477	69.900	1.827
1.011	20.753	415.1	750	Circular	72.477	69.900	1.827	72.641	69.850	2.041
14.000	13.689	136.9	150	Circular	73.109	72.050	0.909	73.572	71.950	1.472
15.000	8.818	13.8	150	Circular	73.643	72.590	0.903	73.572	71.950	1.472
14.001	28.703	61.1	150	Circular	73.572	71.950	1.472	72.536	71.480	0.906
14.002	13.766	137.7	150	Circular	72.536	71.480	0.906	72.628	71.380	1.098
16.000	8.326	185.0	225	Circular	72.490	71.065	1.200	72.628	71.020	1.383
14.003	14.893	300.0	300	Circular	72.628	70.940	1.388	72.498	70.890	1.308
17.000	35.769	298.1	300	Circular	72.675	70.870	1.505	72.683	70.750	1.633
17.001	17.637	352.7	375	Circular	72.683	70.670	1.638	72.683	70.620	1.688
17.002	6.716	335.8	375	Circular	72.683	70.620	1.688	72.498	70.600	1.523
14.004	11.906	148.8	150	Circular	72.498	69.900	2.448	72.496	69.820	2.526
14.005	15.839	144.0	150	Circular	72.496	69.820	2.526	72.641	69.710	2.781
18.000	8.199	136.7	150	Circular	72.633	71.730	0.753	72.641	71.670	0.821

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
8.004	SW25/ FC	1350		Manhole	Adoptable	SW26	1800	Manhole	Adoptable
1.009	SW26	1800		Manhole	Adoptable	SW33	1800	Manhole	Adoptable
10.000	SW27	1200		Manhole	Adoptable	SW28	1200	Manhole	Adoptable
10.001	SW28	1200		Manhole	Adoptable	SW29	1200	Manhole	Adoptable
10.002	SW29	1200		Manhole	Adoptable	Tank U3b	1200	Manhole	Adoptable
11.000	SW30	1200		Manhole	Adoptable	SW31	1200	Manhole	Adoptable
11.001	SW31	1200		Manhole	Adoptable	Tank U3b	1200	Manhole	Adoptable
10.003	Tank U3b	1200		Manhole	Adoptable	SW32/ FC	1350	Manhole	Adoptable
10.004	SW32/ FC	1350		Manhole	Adoptable	SW33	1800	Manhole	Adoptable
12.000	RG03	450		Manhole	Adoptable	SW33	1800	Manhole	Adoptable
13.000	RG02	450		Manhole	Adoptable	SW33	1800	Manhole	Adoptable
1.010	SW33	1800		Manhole	Adoptable	SW34	1800	Manhole	Adoptable
1.011	SW34	1800		Manhole	Adoptable	SW45	1800	Manhole	Adoptable
14.000	SW38	1200		Manhole	Adoptable	SW40	1200	Manhole	Adoptable
15.000	SW39	1200		Manhole	Adoptable	SW40	1200	Manhole	Adoptable
14.001	SW40	1200		Manhole	Adoptable	SW41	1200	Manhole	Adoptable
14.002	SW41	1200		Manhole	Adoptable	SW43	1200	Manhole	Adoptable
16.000	SW42	1200		Manhole	Adoptable	SW43	1200	Manhole	Adoptable
14.003	SW43	1200		Manhole	Adoptable	Tank U4	1350	Manhole	Adoptable
17.000	SW35	1200		Manhole	Adoptable	SW36	1200	Manhole	Adoptable
17.001	SW36	1200		Manhole	Adoptable	SW37	1200	Manhole	Adoptable
17.002	SW37	1200		Manhole	Adoptable	Tank U4	1350	Manhole	Adoptable
14.004	Tank U4	1350		Manhole	Adoptable	SW44/ FC	1500	Manhole	Adoptable
14.005	SW44/ FC	1500		Manhole	Adoptable	SW45	1800	Manhole	Adoptable
18.000	RG04	450		Manhole	Adoptable	SW45	1800	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)
1.012	20.544	410.9	750	Circular	72.641	69.410	2.481	72.951	69.360	2.841
1.013	22.364	450.0	750	Circular	72.951	69.360	2.841	72.631	69.310	2.571
1.014	17.565	439.1	750	Circular	72.631	69.310	2.571	71.892	69.270	1.872
19.000	4.181	59.7	150	Circular	71.976	70.070	1.756	71.892	70.000	1.742
1.015	36.620	300.0	750	Circular	71.892	69.250	1.892	72.118	69.128	2.240
20.000	32.000	145.5	150	Circular	79.270	77.820	1.300	78.811	77.600	1.061
20.001	16.899	84.5	150	Circular	78.811	77.600	1.061	78.550	77.400	1.000
21.000	32.000	145.5	150	Circular	79.073	77.620	1.303	78.550	77.400	1.000
20.002	16.898	52.8	225	Circular	78.550	77.320	1.005	78.229	77.000	1.004
20.003	64.999	180.6	300	Circular	78.229	76.920	1.009	78.981	76.560	2.121
20.004	34.863	54.5	300	Circular	78.981	76.560	2.121	77.079	75.920	0.859
20.005	29.959	24.4	300	Circular	77.079	75.770	1.009	76.177	74.540	1.337
22.000	20.024	286.1	300	Circular	75.975	74.470	1.205	75.975	74.400	1.275
22.001	15.499	258.3	300	Circular	75.975	74.400	1.275	75.975	74.340	1.335
22.002	18.250	260.7	300	Circular	75.975	74.340	1.335	75.975	74.270	1.405
22.003	10.246	146.4	300	Circular	75.975	74.270	1.405	75.983	74.200	1.483
22.004	26.610	133.1	450	Circular	75.983	74.050	1.483	75.429	73.850	1.129
23.000	23.144	96.4	150	Circular	74.750	73.750	0.850	75.429	73.510	1.769
23.001	9.735	243.4	300	Circular	75.429	73.360	1.769	75.429	73.320	1.809
22.005	8.711	435.5	600	Circular	75.429	73.020	1.809	75.647	73.000	2.047
22.006	12.922	430.7	600	Circular	75.647	73.000	2.047	75.475	72.970	1.905
22.007	18.087	500.0	600	Circular	75.475	72.970	1.905	75.543	72.934	2.009
24.000	10.022	143.2	150	Circular	75.374	74.020	1.204	75.543	73.950	1.443
22.008	15.717	120.9	150	Circular	75.543	72.940	2.453	76.177	72.810	3.217
20.006	25.244	265.7	450	Circular	76.177	72.660	3.067	74.917	72.565	1.902

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.012	SW45	1800		Manhole	Adoptable	SW46	1800	Manhole	Adoptable
1.013	SW46	1800		Manhole	Adoptable	SW47	1800	Manhole	Adoptable
1.014	SW47	1800		Manhole	Adoptable	SW48	1800	Manhole	Adoptable
19.000	RG05	450		Manhole	Adoptable	SW48	1800	Manhole	Adoptable
1.015	SW48	1800		Manhole	Adoptable	EXTGSW05	1800	Manhole	Adoptable
20.000	SW63	1200		Manhole	Adoptable	SW64	1200	Manhole	Adoptable
20.001	SW64	1200		Manhole	Adoptable	SW66	1200	Manhole	Adoptable
21.000	SW65	1200		Manhole	Adoptable	SW66	1200	Manhole	Adoptable
20.002	SW66	1200		Manhole	Adoptable	SW67	1200	Manhole	Adoptable
20.003	SW67	1200		Manhole	Adoptable	SW68	1200	Manhole	Adoptable
20.004	SW68	1200		Manhole	Adoptable	EXTGSW01	1200	Manhole	Adoptable
20.005	EXTGSW01	1200		Manhole	Adoptable	EXTGSW02	1350	Manhole	Adoptable
22.000	SW53	1200		Manhole	Adoptable	SW54	1200	Manhole	Adoptable
22.001	SW54	1200		Manhole	Adoptable	SW55	1200	Manhole	Adoptable
22.002	SW55	1200		Manhole	Adoptable	SW56	1200	Manhole	Adoptable
22.003	SW56	1200		Manhole	Adoptable	SW57	1500	Manhole	Adoptable
22.004	SW57	1500		Manhole	Adoptable	SW59	1500	Manhole	Adoptable
23.000	U5 Dock	450	450	Manhole	Adoptable	SW58	1200	Manhole	Adoptable
23.001	SW58	1200		Manhole	Adoptable	SW59	1500	Manhole	Adoptable
22.005	SW59	1500		Manhole	Adoptable	SW60	1500	Manhole	Adoptable
22.006	SW60	1500		Manhole	Adoptable	Tank U5	1350	Manhole	Adoptable
22.007	Tank U5	1350		Manhole	Adoptable	SW62/ FC	1500	Manhole	Adoptable
24.000	SW61	1200		Manhole	Adoptable	SW62/ FC	1500	Manhole	Adoptable
22.008	SW62/ FC	1500		Manhole	Adoptable	EXTGSW02	1350	Manhole	Adoptable
20.006	EXTGSW02	1350		Manhole	Adoptable	EXTGSW03	1350	Manhole	Adoptable

Pipeline Schedule

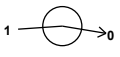
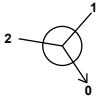
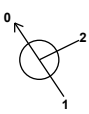
Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
20.007	18.148	98.1	450	Circular	74.917	71.565	2.902	73.653	71.380	1.823
25.000	21.768	145.1	150	Circular	73.624	72.590	0.884	73.640	72.440	1.050
26.000	14.809	148.1	150	Circular	73.656	72.600	0.906	73.656	72.500	1.006
26.001	6.315	126.3	150	Circular	73.656	72.500	1.006	73.640	72.450	1.040
25.001	19.515	150.0	150	Circular	73.640	72.450	1.040	73.653	72.320	1.183
20.008	26.529	100.5	450	Circular	73.653	70.864	2.339	72.118	70.600	1.068
1.016	57.770	296.3	300	Circular	72.118	68.750	3.068	72.000	68.555	3.145

Link	US Node	Dia (mm)	Width (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
20.007	EXTGSW03	1350		Manhole	Adoptable	EXTGSW04	1350	Manhole	Adoptable
25.000	SW51	1200		Manhole	Adoptable	SW52	1200	Manhole	Adoptable
26.000	SW49	1200		Manhole	Adoptable	SW50	1200	Manhole	Adoptable
26.001	SW50	1200		Manhole	Adoptable	SW52	1200	Manhole	Adoptable
25.001	SW52	1200		Manhole	Adoptable	EXTGSW04	1350	Manhole	Adoptable
20.008	EXTGSW04	1350		Manhole	Adoptable	EXTGSW05	1800	Manhole	Adoptable
1.016	EXTGSW05	1800		Manhole	Adoptable	EXTGSW06	1200	Manhole	Adoptable

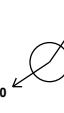
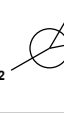
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
SW01	472709.042	169110.928	73.725	1.985	1350					
							0	1.000	71.740	375
SW02	472712.416	169062.496	73.601	2.031	1350					
							1	1.000	71.570	375
							0	1.001	71.570	375
SW03	472721.623	169032.000	73.350	1.890	1350					
							1	1.001	71.460	375
							0	1.002	71.460	375
Tank U2	472735.720	169035.660	73.258	2.358	1350					
							1	1.002	71.410	375
							0	1.003	70.900	375
U2 Dock	472720.186	169061.300	72.550	1.000	450	450				
							0	2.000	71.550	150
SW04	472729.059	169041.028	73.208	2.128	1200					
							1	2.000	71.330	150
							0	2.001	71.080	300
SW05	472743.296	169042.020	73.207	2.337	1350					
							1	2.001	70.950	300
							2	1.003	70.870	375
							0	1.004	70.870	375

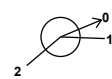
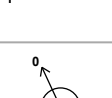
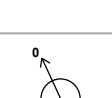
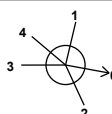
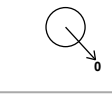
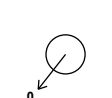
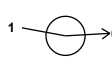
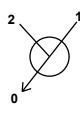
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
SW06/ FC	472742.864	169048.222	73.232	2.382	1350			1 1.004	70.850	375
SW07	472764.201	169049.696	73.237	3.037	1800			0 1.005 1 1.005	70.850 70.700	375 375
SW08	472783.734	169097.527	73.549	1.089	1200			0 1.006	70.200	750
SW09	472786.330	169060.618	73.249	0.999	1200			0 3.000 1 3.000	72.460 72.250	150 150
SW10	472775.117	169047.893	72.988	2.818	1800			0 3.001 1 3.001 2 1.006	72.250 72.130 70.170	150 150 750
SW11	472825.021	169152.939	73.863	2.053	1500			0 4.000	71.810	450
SW12	472779.814	169122.703	73.862	2.332	1500			1 4.000 0 4.001	71.680 71.530	450 600
SW13	472808.852	169077.826	73.882	2.462	1500			1 4.001 0 4.002	71.420 71.420	600 600
U1 Dock	472833.433	169037.140	72.650	1.000	450	450		0 5.000	71.650	225
SW14	472811.805	169015.762	73.009	1.589	1350			0 6.000	71.420	375
SW15	472820.324	169021.461	73.191	1.811	1350			1 6.000 0 6.001	71.380 71.380	375 375
SW16	472815.676	169028.411	73.194	1.844	1350			1 6.001 2 5.000 0 5.001	71.350 71.510 71.350	375 225 375
SW17	472801.900	169049.007	73.196	2.026	1350			1 5.001 0 5.002	71.170 71.170	375 375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
Tank U1	472800.686	169037.968	72.972	2.472	1500			1 5.002 70.910 375 2 4.002 71.200 600		
SW18/ FC	472796.831	169032.387	72.937	2.467	1500			1 4.003 70.470 225 0 4.004 70.470 225		
RG01	472784.331	169038.046	72.921	0.921	450			0 7.000 72.000 150		
SW19	472788.939	169027.133	72.834	2.804	1800			1 7.000 71.920 150 2 4.004 70.420 225 3 1.007 70.030 750 0 1.008 70.030 750		
SW20	472730.161	169017.080	73.475	1.725	1200			0 8.000 71.750 225		
SW21	472753.596	169032.754	73.475	1.855	1200			1 8.000 71.620 225 0 8.001 71.620 225		
SW22	472766.388	169013.639	73.475	1.965	1200			1 8.001 71.510 225 0 8.002 71.510 225		
SW23	472783.325	169017.574	73.068	1.438	1200			0 9.000 71.630 150		
SW24	472777.996	169025.540	73.068	1.588	1200			1 9.000 71.560 150 0 9.001 71.480 225		
Tank U3a	472773.364	169017.630	73.117	2.317	1200			1 9.001 71.430 225 2 8.002 71.470 225 0 8.003 70.800 225		
SW25/ FC	472783.477	169019.582	73.037	2.287	1350			1 8.003 70.750 225 0 8.004 70.750 225		
SW26	472795.663	169017.033	72.791	2.801	1800			1 8.004 70.690 225 2 1.008 69.990 750 0 1.009 69.990 750		
SW27	472764.795	168964.541	73.475	1.725	1200			0 10.000 71.750 225		

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)	
SW28	472788.579	168980.450	73.452	1.832	1200			1	10.000	71.620	225
								0	10.001	71.620	225
SW29	472775.797	168999.571	73.475	1.965	1200			1	10.001	71.510	225
								0	10.002	71.510	225
SW30	472785.841	169012.985	73.079	1.449	1200			0	11.000	71.630	150
SW31	472791.793	169004.085	73.066	1.596	1200			1	11.000	71.550	150
								0	11.001	71.470	225
Tank U3b	472781.566	169004.462	73.117	2.317	1200			1	11.001	71.420	225
								2	10.002	71.470	225
								0	10.003	70.800	225
SW32/ FC	472791.095	169008.430	73.020	2.260	1350			1	10.003	70.760	225
								0	10.004	70.760	225
RG03	472811.238	168996.727	72.709	0.899	450						
								0	12.000	71.810	150
RG02	472806.421	169011.042	72.958	0.908	450			0	13.000	72.050	150
SW33	472805.807	169008.455	72.810	2.860	1800			1	13.000	72.030	150
								2	12.000	71.720	150
								3	10.004	70.690	225
								4	1.009	69.950	750
								0	1.010	69.950	750
SW34	472828.055	169004.369	72.477	2.577	1800			1	1.010	69.900	750
								0	1.011	69.900	750
SW38	472862.760	168999.260	73.109	1.059	1200			0	14.000	72.050	150
SW39	472877.453	168996.109	73.643	1.053	1200			0	15.000	72.590	150
SW40	472872.011	168989.170	73.572	1.622	1200			1	15.000	71.950	150
								2	14.000	71.950	150
								0	14.001	71.950	150

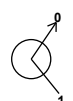
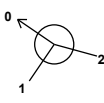
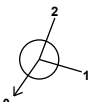
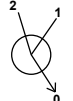
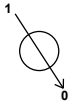
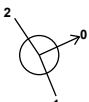
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
SW41	472854.297	168966.585	72.536	1.056	1200			1 14.001	71.480	150
							0	14.002	71.480	150
SW42	472846.747	168978.477	72.490	1.425	1200			0 16.000	71.065	225
SW43	472841.609	168971.925	72.628	1.688	1200			1 16.000	71.020	225
							2	14.002	71.380	150
							0	14.003	70.940	300
SW35	472791.007	168961.963	72.675	1.805	1200			0 17.000	70.870	300
SW36	472813.080	168990.109	72.683	2.013	1200			1 17.000	70.750	300
							0	17.001	70.670	375
SW37	472826.958	168979.225	72.683	2.063	1200			1 17.001	70.620	375
							0	17.002	70.620	375
Tank U4	472832.178	168983.451	72.498	2.598	1350			1 17.002	70.600	375
							2	14.003	70.890	300
							0	14.004	69.900	150
SW44/ FC	472838.306	168993.659	72.496	2.676	1500			1 14.004	69.820	150
							0	14.005	69.820	150
RG04	472841.114	169008.467	72.633	0.903	450			0 18.000	71.730	150
SW45	472848.775	169005.545	72.641	3.231	1800			1 18.000	71.670	150
							2	14.005	69.710	150
							3	1.011	69.850	750
							0	1.012	69.410	750
SW46	472868.220	169012.174	72.951	3.591	1800			1 1.012	69.360	750
							0	1.013	69.360	750
SW47	472887.371	169023.723	72.631	3.321	1800			1 1.013	69.310	750
							0	1.014	69.310	750
RG05	472899.027	169036.063	71.976	1.906	450			0 19.000	70.070	150

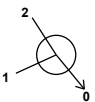
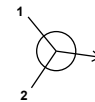
Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)	
SW48	472902.125	169033.255	71.892	2.642	1800			1	19.000	70.000	150
								2	1.014	69.270	750
								0	1.015	69.250	750
SW63	472925.004	169209.113	79.270	1.450	1200			0	20.000	77.820	150
SW64	472956.540	169203.686	78.811	1.211	1200			1	20.000	77.600	150
								0	20.001	77.600	150
SW65	472922.141	169192.457	79.073	1.453	1200			0	21.000	77.620	150
SW66	472953.678	169187.031	78.550	1.230	1200			1	21.000	77.400	150
								2	20.001	77.400	150
								0	20.002	77.320	225
SW67	472950.815	169170.377	78.229	1.309	1200			1	20.002	77.000	225
								0	20.003	76.920	300
SW68	472886.757	169181.400	78.981	2.421	1200			1	20.003	76.560	300
								0	20.004	76.560	300
EXTGSW01	472873.456	169149.174	77.079	1.309	1200			1	20.004	75.920	300
								0	20.005	75.770	300
SW53	472983.918	169148.764	75.975	1.505	1200			0	22.000	74.470	300
SW54	472967.371	169160.040	75.975	1.575	1200			1	22.000	74.400	300
								0	22.001	74.400	300
SW55	472958.643	169147.232	75.975	1.635	1200			1	22.001	74.340	300
								0	22.002	74.340	300
SW56	472943.562	169157.509	75.975	1.705	1200			1	22.002	74.270	300
								0	22.003	74.270	300
SW57	472937.790	169149.043	75.983	1.933	1500			1	22.003	74.200	300
								0	22.004	74.050	450

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)
U5 Dock	472921.195	169130.017	74.750	1.000	450	450				
							0	23.000	73.750	150
SW58	472906.638	169148.010	75.429	2.069	1200			1	23.000	73.510
							0	23.001	73.360	300
SW59	472912.120	169156.055	75.429	2.409	1500			1	23.001	73.320
							2	22.004	73.850	450
							0	22.005	73.020	600
SW60	472904.922	169160.961	75.647	2.647	1500			1	22.005	73.000
							0	22.006	73.000	600
Tank U5	472897.558	169150.343	75.475	2.505	1350			1	22.006	72.970
							0	22.007	72.970	600
SW61	472900.791	169130.616	75.374	1.354	1200			0	24.000	74.020
							1	24.000	73.950	150
SW62/ FC	472891.170	169133.422	75.543	2.609	1500			2	22.007	72.934
							0	22.008	72.940	150
EXTGSW02	472882.197	169120.518	76.177	3.517	1350			1	22.008	72.810
							2	20.005	74.540	300
							0	20.006	72.660	450
EXTGSW03	472895.921	169099.330	74.917	3.352	1350			1	20.006	72.565
							0	20.007	71.565	450
SW51	472875.934	169094.084	73.624	1.034	1200			0	25.000	72.590
							0	25.000	72.590	150
SW49	472898.672	169057.840	73.656	1.056	1200			0	26.000	72.600
							1	26.000	72.500	150
SW50	472890.439	169070.150	73.656	1.156	1200			0	26.001	72.500
							1	26.001	72.450	150
SW52	472888.036	169075.990	73.640	1.200	1200			2	25.000	72.440
							0	25.001	72.450	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Width (mm)	Connections	Link	IL (m)	Dia (mm)	
EXTGSW04	472905.787	169084.098	73.653	2.789	1350			1	25.001	72.320	150
								2	20.007	71.380	450
								0	20.008	70.864	450
EXTGSW05	472922.626	169063.598	72.118	3.368	1800			1	20.008	70.600	450
								2	1.015	69.128	750
								0	1.016	68.750	300
EXTGSW06	472979.849	169055.665	72.000	3.445	1200			1	1.016	68.555	300

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Normal	Starting Level (m)	
Rainfall Events	Singular	Skip Steady State	x	Check Discharge Rate(s)	x
Summer CV	1.000	Drain Down Time (mins)	1800	Check Discharge Volume	x
Winter CV	1.000	Additional Storage (m³/ha)	0.0		

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 %)
1	0	0	0
30	0	0	0
30	35	0	0
100	40	0	0

Node SW06/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	70.850	Product Number	CTL-SCU-0043-2500-1700-2500
Design Depth (m)	1.700	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	2.5	Min Node Diameter (mm)	1200

Node SW18/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	70.470	Product Number	CTL-SCU-0069-7000-2100-7000
Design Depth (m)	2.100	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	7.0	Min Node Diameter (mm)	1200

Node SW25/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	70.750	Product Number	CTL-SCU-0031-1500-2000-1500
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.5	Min Node Diameter (mm)	1200

Node SW32/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	70.760	Product Number	CTL-SCU-0031-1500-2000-1500
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	1.5	Min Node Diameter (mm)	1200

Node SW34 Online Orifice Control

Flap Valve	x	Invert Level (m)	69.900	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.060		

Node SW52 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.450	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW63 Online Orifice Control

Flap Valve	x	Invert Level (m)	77.820	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW64 Online Orifice Control

Flap Valve	x	Invert Level (m)	77.600	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.055		

Node SW65 Online Orifice Control

Flap Valve	x	Invert Level (m)	77.620	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW66 Online Orifice Control

Flap Valve	x	Invert Level (m)	77.320	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.075		

Node SW47 Online Orifice Control

Flap Valve	x	Design Depth (m)	3.200	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Design Flow (l/s)	9.0		
Invert Level (m)	69.310	Diameter (m)	0.050		

Node SW44/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	69.820	Product Number	CTL-SCU-0043-3000-2500-3000
Design Depth (m)	2.500	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	3.0	Min Node Diameter (mm)	1200

Node SW40 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.950	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW41 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.480	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node EXTGSW05 Online Head/Flow Control

Flap Valve	x	Replaces Downstream Link	✓	Invert Level (m)	68.750
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Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)	Head (m)	Flow (l/s)
0.100	18.200	0.700	18.200	1.300	49.300	1.800	49.300	2.400	49.300	3.000	49.300
0.200	18.200	0.800	49.300	1.400	49.300	1.900	49.300	2.500	49.300	3.100	49.300
0.300	18.200	0.900	49.300	1.500	49.300	2.000	49.300	2.600	49.300	3.200	49.300
0.400	18.200	1.000	49.300	1.600	49.300	2.100	49.300	2.700	49.300	3.300	68.300
0.500	18.200	1.100	49.300	1.650	49.300	2.200	49.300	2.800	49.300		
0.600	18.200	1.200	49.300	1.700	49.300	2.300	49.300	2.900	49.300		

Node SW62/ FC Online Hydro-Brake® Control

Flap Valve	x	Objective	(CU) Linear Discharge
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	72.940	Product Number	CTL-SCU-0045-3000-2000-3000
Design Depth (m)	2.000	Min Outlet Diameter (m)	0.075
Design Flow (l/s)	3.0	Min Node Diameter (mm)	1200

Node SW68 Online Orifice Control

Flap Valve	x	Invert Level (m)	76.560	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW08 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.460	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW09 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.250	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW61 Online Orifice Control

Flap Valve	x	Invert Level (m)	74.020	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node EXTGSW02 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.660	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.120		

Node EXTGSW04 Online Orifice Control

Flap Valve	x	Invert Level (m)	70.864	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.150		

Node EXTGSW03 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.565	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.140		

Node RG01 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.000	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.110		

Node RG02 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.050	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.090		

Node RG03 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.810	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.075		

Node RG04 Online Orifice Control

Flap Valve	x	Invert Level (m)	71.730	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.090		

Node RG05 Online Orifice Control

Flap Valve	x	Invert Level (m)	70.070	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.100		

Node SW49 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.600	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node SW51 Online Orifice Control

Flap Valve	x	Invert Level (m)	72.590	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.050		

Node EXTGSW01 Online Orifice Control

Flap Valve	x	Invert Level (m)	75.770	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.120		

Node Tank U1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.500
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	628.0	0.0	1.500	628.0	0.0	1.501	0.0	0.0

Node Tank U2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.900
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	320.0	0.0	1.500	320.0	0.0	1.501	0.0	0.0

Node Tank U3a Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	144.0	0.0	1.500	144.0	0.0	1.501	0.0	0.0

Node Tank U3b Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	70.800
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	144.0	0.0	1.500	144.0	0.0	1.501	0.0	0.0

Node Tank U4 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	69.900
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	262.5	0.0	1.500	262.5	0.0	1.501	0.0	0.0

Node Tank U5 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	72.970
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	1770

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	297.0	0.0	1.500	297.0	0.0	1.501	0.0	0.0

Node SW07 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.780	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	17.250	Inf Depth (m)	
Porosity	0.30	Length (m)	11.590		

Node SW08 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	73.090	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	62	Depth (m)	0.450
Safety Factor	2.0	Width (m)	32.000	Inf Depth (m)	
Porosity	0.30	Length (m)	5.000		

Node SW09 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.800	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	128	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	57.270		

Node SW10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.450	Slope (1:X)	100.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	16.660	Inf Depth (m)	
Porosity	0.30	Length (m)	6.000		

Node SW24 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.620	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.875		

Node SW31 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.610	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	16.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.310		

Node SW38 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.650	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	65	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	22.730		

Node SW39 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	73.190	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	16.360		

Node SW41 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.080	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	116	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	72.100		

Node SW43 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.170	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	90	Depth (m)	0.450
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	24.000		

Node SW63 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	78.550	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	37	Depth (m)	0.700
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	25.000		

Node SW64 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	78.170	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	138	Depth (m)	0.700
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	22.500		

Node SW65 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	78.300	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	158	Depth (m)	0.700
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	50.000		

Node SW66 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	77.900	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	256	Depth (m)	0.700
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	25.000		

Node SW67 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	77.400	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	416	Depth (m)	0.700
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.30	Length (m)	53.786		

Node SW49 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	73.200	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	64	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	22.720		

Node SW51 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	73.170	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	138	Depth (m)	0.450
Safety Factor	2.0	Width (m)	11.000	Inf Depth (m)	
Porosity	0.30	Length (m)	44.540		

Node SW52 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.880	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	105	Depth (m)	0.450
Safety Factor	2.0	Width (m)	6.500	Inf Depth (m)	
Porosity	0.30	Length (m)	18.460		

Node RG01 Lined Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.300	Pit Length (m)	9.700
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	6	Depth (m)	0.900
Safety Factor	2.0	Ring Diameter (m)	0.450	Inf Depth (m)	
Porosity	0.35	Pit Width (m)	1.400	Number Required	1

Node RG02 Lined Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.350	Pit Length (m)	19.770
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	7	Depth (m)	0.900
Safety Factor	2.0	Ring Diameter (m)	0.450	Inf Depth (m)	
Porosity	0.35	Pit Width (m)	1.200	Number Required	1

Node RG04 Lined Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.000	Pit Length (m)	17.600
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	16	Depth (m)	0.900
Safety Factor	2.0	Ring Diameter (m)	0.450	Inf Depth (m)	
Porosity	0.35	Pit Width (m)	3.130	Number Required	1

Node RG05 Lined Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	71.300	Pit Length (m)	23.410
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	20	Depth (m)	0.900
Safety Factor	2.0	Ring Diameter (m)	0.450	Inf Depth (m)	
Porosity	0.35	Pit Width (m)	2.840	Number Required	1

Node RG03 Lined Soakaway Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	72.100	Pit Length (m)	6.240
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	76	Depth (m)	0.900
Safety Factor	2.0	Ring Diameter (m)	0.450	Inf Depth (m)	
Porosity	0.35	Pit Width (m)	5.000	Number Required	1

Node SW62/ FC Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	75.090	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	19.500		

Node SW61 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	74.900	Slope (1:X)	150.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)	0	Depth (m)	0.450
Safety Factor	2.0	Width (m)	5.000	Inf Depth (m)	
Porosity	0.30	Length (m)	20.000		

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW01	10	71.829	0.089	15.5	0.1278	0.0000	OK
15 minute summer	SW02	11	71.704	0.134	30.5	0.1919	0.0000	OK
15 minute summer	SW03	11	71.596	0.136	30.2	0.1952	0.0000	OK
720 minute winter	Tank U2	615	71.128	0.228	5.1	69.6117	0.0000	OK
15 minute summer	U2 Dock	10	71.585	0.035	2.1	0.0071	0.0000	OK
15 minute summer	SW04	11	71.165	0.085	17.2	0.0959	0.0000	OK
720 minute winter	SW05	615	71.128	0.258	2.2	0.3691	0.0000	OK
720 minute winter	SW06/ FC	615	71.128	0.278	1.1	0.3977	0.0000	OK
600 minute winter	SW07	585	70.551	0.351	1.2	0.8943	0.0000	OK
15 minute summer	SW08	13	72.863	0.403	2.1	0.4555	0.0000	SURCHARGED
15 minute summer	SW09	13	72.837	0.587	6.2	0.8437	0.0000	SURCHARGED
600 minute winter	SW10	585	70.551	0.381	2.2	0.9706	0.0000	OK
15 minute summer	SW11	11	71.955	0.145	35.0	0.2563	0.0000	OK
15 minute summer	SW12	11	71.719	0.189	67.4	0.3341	0.0000	OK
15 minute summer	SW13	11	71.570	0.150	67.5	0.2648	0.0000	OK
15 minute summer	U1 Dock	10	71.702	0.052	5.0	0.0106	0.0000	OK
15 minute summer	SW14	10	71.529	0.109	19.2	0.1553	0.0000	OK
15 minute summer	SW15	10	71.488	0.108	19.0	0.1548	0.0000	OK
15 minute summer	SW16	11	71.449	0.099	23.7	0.1415	0.0000	OK
15 minute summer	SW17	11	71.245	0.075	23.8	0.1079	0.0000	OK
600 minute winter	Tank U1	570	70.729	0.229	13.7	137.1811	0.0000	SURCHARGED
600 minute winter	SW18/ FC	570	70.729	0.259	2.6	0.4577	0.0000	SURCHARGED
15 minute summer	RG01	10	72.083	0.083	3.9	0.0131	0.0000	OK
600 minute winter	SW19	585	70.551	0.521	4.6	1.3269	0.0000	OK
15 minute summer	SW20	10	71.805	0.055	4.7	0.0618	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW01	1.000	SW02	15.1	0.555	0.128	1.3438	
15 minute summer	SW02	1.001	SW03	30.2	0.846	0.258	1.1394	
15 minute summer	SW03	1.002	Tank U2	29.7	0.881	0.255	0.4931	
15 minute summer	Tank U2	1.003	SW05	-22.3	-0.898	-0.204	0.3161	
15 minute summer	U2 Dock	2.000	SW04	2.0	0.666	0.115	0.0678	
15 minute summer	SW04	2.001	SW05	17.1	1.031	0.161	0.3154	
15 minute summer	SW05	1.004	SW06/ FC	3.0	0.448	0.027	0.4098	
720 minute winter	SW06/ FC	Hydro-Brake®	SW07	1.1				
15 minute summer	SW07	1.006	SW10	2.9	0.308	0.004	0.1047	
15 minute winter	SW08	Orifice	SW09	1.4				
15 minute summer	SW09	Orifice	SW10	3.9				
15 minute summer	SW10	1.007	SW19	7.5	0.489	0.008	0.8216	
15 minute summer	SW11	4.000	SW12	34.0	0.849	0.216	2.1813	
15 minute summer	SW12	4.001	SW13	67.5	1.046	0.218	3.4996	
15 minute summer	SW13	4.002	Tank U1	66.3	1.244	0.131	2.1680	
15 minute summer	U1 Dock	5.000	SW16	4.9	0.722	0.112	0.1345	
15 minute summer	SW14	6.000	SW15	19.0	0.723	0.153	0.2700	
15 minute summer	SW15	6.001	SW16	18.8	0.761	0.158	0.2066	
15 minute summer	SW16	5.001	SW17	23.8	1.229	0.140	0.4823	
15 minute summer	SW17	5.002	Tank U1	24.0	1.600	0.078	0.1665	
480 minute summer	Tank U1	4.003	SW18/ FC	2.6	0.224	0.076	0.2696	
480 minute summer	SW18/ FC	Hydro-Brake®	SW19	2.6				
15 minute summer	RG01	Orifice	SW19	3.9				
15 minute summer	SW19	1.008	SW26	11.5	0.572	0.016	0.9001	
15 minute summer	SW20	8.000	SW21	4.6	0.466	0.131	0.2809	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW21	11	71.700	0.080	9.3	0.0901	0.0000	OK
15 minute summer	SW22	11	71.592	0.082	9.2	0.0926	0.0000	OK
15 minute summer	SW23	10	71.678	0.048	3.2	0.0546	0.0000	OK
15 minute summer	SW24	10	71.541	0.061	5.7	0.0693	0.0000	OK
480 minute summer	Tank U3a	392	70.942	0.142	3.9	19.6386	0.0000	OK
480 minute summer	SW25/ FC	392	70.942	0.192	0.5	0.2753	0.0000	OK
600 minute winter	SW26	585	70.551	0.561	4.5	1.4287	0.0000	OK
15 minute summer	SW27	10	71.805	0.055	4.7	0.0620	0.0000	OK
15 minute summer	SW28	11	71.700	0.080	9.3	0.0901	0.0000	OK
15 minute summer	SW29	11	71.591	0.081	9.2	0.0913	0.0000	OK
15 minute summer	SW30	10	71.678	0.048	3.2	0.0541	0.0000	OK
15 minute summer	SW31	10	71.536	0.066	6.3	0.0747	0.0000	OK
600 minute winter	Tank U3b	480	70.950	0.150	2.4	20.6872	0.0000	OK
600 minute winter	SW32/ FC	480	70.950	0.190	0.5	0.2718	0.0000	OK
15 minute summer	RG03	10	71.887	0.077	2.4	0.0123	0.0000	OK
15 minute summer	RG02	10	72.134	0.084	3.3	0.0134	0.0000	OK
600 minute winter	SW33	585	70.551	0.601	5.4	1.5305	0.0000	OK
600 minute winter	SW34	585	70.551	0.651	4.9	1.6577	0.0000	OK
15 minute summer	SW38	13	72.212	0.162	2.4	0.1829	0.0000	SURCHARGED
15 minute summer	SW39	10	72.609	0.019	1.7	0.0219	0.0000	OK
15 minute summer	SW40	13	72.214	0.264	3.8	0.2987	0.0000	SURCHARGED
15 minute summer	SW41	13	72.097	0.617	6.1	0.7645	0.0000	SURCHARGED
15 minute summer	SW42	10	71.137	0.072	7.7	0.0819	0.0000	OK
15 minute summer	SW43	11	71.033	0.093	12.5	0.1057	0.0000	OK
15 minute summer	SW35	11	70.953	0.083	10.6	0.0938	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW21	8.001	SW22	9.2	0.723	0.257	0.2944	
15 minute summer	SW22	8.002	Tank U3a	9.2	0.738	0.251	0.0999	
15 minute summer	SW23	9.000	SW24	3.1	0.660	0.207	0.0455	
15 minute summer	SW24	9.001	Tank U3a	5.6	0.674	0.148	0.0770	
15 minute summer	Tank U3a	8.003	SW25/ FC	1.6	0.362	0.044	0.1127	
480 minute summer	SW25/ FC	Hydro-Brake®	SW26	0.5				
15 minute summer	SW26	1.009	SW33	9.5	0.417	0.014	1.3219	
15 minute summer	SW27	10.000	SW28	4.6	0.465	0.132	0.2858	
15 minute summer	SW28	10.001	SW29	9.2	0.729	0.257	0.2915	
15 minute summer	SW29	10.002	Tank U3b	9.2	0.753	0.243	0.0920	
15 minute summer	SW30	11.000	SW31	3.1	0.667	0.204	0.0502	
15 minute summer	SW31	11.001	Tank U3b	6.2	0.667	0.171	0.0956	
15 minute summer	Tank U3b	10.003	SW32/ FC	1.6	0.345	0.049	0.1039	
600 minute winter	SW32/ FC	Hydro-Brake®	SW33	0.5				
15 minute summer	RG03	Orifice	SW33	2.3				
15 minute summer	RG02	Orifice	SW33	3.2				
15 minute summer	SW33	1.010	SW34	9.9	0.399	0.017	2.9667	
240 minute summer	SW34	Orifice	SW45	5.0				
15 minute summer	SW38	14.000	SW40	2.2	0.357	0.144	0.2410	
15 minute summer	SW39	15.000	SW40	1.7	0.580	0.035	0.0835	
15 minute summer	SW40	Orifice	SW41	2.2				
15 minute summer	SW41	Orifice	SW43	4.0				
15 minute summer	SW42	16.000	SW43	7.6	0.725	0.200	0.0877	
15 minute summer	SW43	14.003	Tank U4	12.6	0.719	0.197	0.2602	
15 minute summer	SW35	17.000	SW36	10.3	0.690	0.161	0.5354	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW36	11	70.788	0.118	20.6	0.1334	0.0000	OK
15 minute summer	SW37	11	70.737	0.117	20.6	0.1318	0.0000	OK
1440 minute winter	Tank U4	1410	70.201	0.301	2.9	75.4255	0.0000	SURCHARGED
1440 minute winter	SW44/ FC	1410	70.201	0.381	1.0	0.6727	0.0000	SURCHARGED
15 minute summer	RG04	11	71.885	0.155	5.8	0.0246	0.0000	SURCHARGED
960 minute winter	SW45	930	70.175	0.765	5.4	1.9470	0.0000	SURCHARGED
960 minute winter	SW46	930	70.176	0.816	5.6	2.0761	0.0000	SURCHARGED
960 minute winter	SW47	930	70.175	0.865	6.4	2.2015	0.0000	SURCHARGED
15 minute summer	RG05	10	70.194	0.124	5.8	0.0197	0.0000	OK
120 minute summer	SW48	78	69.381	0.131	8.5	0.3327	0.0000	OK
15 minute summer	SW63	13	78.185	0.365	2.8	0.4133	0.0000	SURCHARGED
15 minute summer	SW64	13	78.113	0.513	4.4	0.5806	0.0000	SURCHARGED
15 minute summer	SW65	14	78.364	0.744	9.2	1.7555	0.0000	SURCHARGED
15 minute summer	SW66	12	77.914	0.594	9.7	0.6965	0.0000	SURCHARGED
180 minute summer	SW67	120	77.569	0.649	11.5	7.1934	0.0000	SURCHARGED
180 minute summer	SW68	120	77.568	1.008	6.6	1.1398	0.0000	SURCHARGED
15 minute summer	EXTGSW01	11	75.891	0.121	7.5	0.1372	0.0000	OK
15 minute summer	SW53	10	74.558	0.088	11.6	0.0993	0.0000	OK
15 minute summer	SW54	11	74.495	0.095	13.9	0.1078	0.0000	OK
15 minute summer	SW55	11	74.434	0.094	13.8	0.1061	0.0000	OK
15 minute summer	SW56	11	74.354	0.084	13.8	0.0944	0.0000	OK
15 minute summer	SW57	11	74.151	0.101	29.3	0.1791	0.0000	OK
15 minute summer	U5 Dock	10	73.794	0.044	3.4	0.0090	0.0000	OK
15 minute summer	SW58	10	73.467	0.107	17.2	0.1212	0.0000	OK
15 minute summer	SW59	10	73.315	0.295	46.1	0.5208	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW36	17.001	SW37	20.6	0.701	0.194	0.5183	
15 minute summer	SW37	17.002	Tank U4	20.6	0.773	0.190	0.1796	
30 minute summer	Tank U4	14.004	SW44/ FC	2.9	0.383	0.202	0.1605	
1440 minute winter	SW44/ FC	Hydro-Brake®	SW45	1.1				
15 minute summer	RG04	Orifice	SW45	5.6				
15 minute summer	SW45	1.012	SW46	8.8	0.499	0.014	5.2497	
15 minute summer	SW46	1.013	SW47	6.7	0.385	0.012	6.5325	
960 minute winter	SW47	Orifice	SW48	4.8				
15 minute summer	RG05	Orifice	SW48	5.7				
15 minute summer	SW48	1.015	EXTGSW05	11.9	0.610	0.017	2.6942	
15 minute summer	SW63	Orifice	SW64	1.8				
15 minute summer	SW64	Orifice	SW66	2.9				
15 minute summer	SW65	Orifice	SW66	3.9				
15 minute summer	SW66	Orifice	SW67	8.8				
15 minute summer	SW67	20.003	SW68	17.8	0.619	0.216	4.5772	
180 minute summer	SW68	Orifice	EXTGSW01	5.2				
15 minute summer	EXTGSW01	Orifice	EXTGSW02	7.4				
15 minute summer	SW53	22.000	SW54	11.5	0.632	0.176	0.3640	
15 minute summer	SW54	22.001	SW55	13.8	0.725	0.200	0.2948	
15 minute summer	SW55	22.002	SW56	13.8	0.796	0.202	0.3176	
15 minute summer	SW56	22.003	SW57	13.7	0.903	0.150	0.1560	
15 minute summer	SW57	22.004	SW59	29.3	1.137	0.105	0.6874	
15 minute summer	U5 Dock	23.000	SW58	3.3	0.774	0.182	0.0986	
15 minute summer	SW58	23.001	SW59	17.0	0.795	0.240	0.2082	
15 minute summer	SW59	22.005	SW60	54.9	0.787	0.167	1.2094	

Results for 1 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	SW60	9	73.304	0.304	51.8	0.5363	0.0000	OK
720 minute winter	Tank U5	585	73.215	0.245	5.9	69.3451	0.0000	OK
15 minute summer	SW61	11	74.082	0.062	1.1	0.0700	0.0000	OK
720 minute winter	SW62/ FC	585	73.215	0.281	1.2	0.4957	0.0000	SURCHARGED
15 minute summer	EXTGSW02	11	72.866	0.206	11.7	0.2945	0.0000	OK
15 minute summer	EXTGSW03	11	71.748	0.183	14.0	0.2621	0.0000	OK
15 minute summer	SW51	13	73.142	0.552	4.7	0.6247	0.0000	SURCHARGED
15 minute summer	SW49	14	72.907	0.307	2.4	0.3474	0.0000	SURCHARGED
15 minute summer	SW50	14	72.884	0.384	1.8	0.4344	0.0000	SURCHARGED
15 minute summer	SW52	14	72.884	0.444	4.0	0.5046	0.0000	SURCHARGED
15 minute summer	EXTGSW04	12	71.112	0.248	19.7	0.3551	0.0000	OK
120 minute summer	EXTGSW05	76	69.387	0.637	25.4	1.6210	0.0000	SURCHARGED
15 minute summer	EXTGSW06	1	68.555	0.000	18.2	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW60	22.006	Tank U5	76.6	1.824	0.232	0.9175	
720 minute winter	Tank U5	22.007	SW62/ FC	1.2	0.083	0.004	2.1440	
15 minute summer	SW61	Orifice	SW62/ FC	1.0				
720 minute winter	SW62/ FC	Hydro-Brake®	EXTGSW02	1.2				
15 minute summer	EXTGSW02	Orifice	EXTGSW03	11.5				
15 minute summer	EXTGSW03	Orifice	EXTGSW04	13.8				
15 minute summer	SW51	Orifice	SW52	2.9				
15 minute summer	SW49	Orifice	SW50	1.5				
15 minute winter	SW50	26.001	SW52	1.3	0.116	0.085	0.1112	
15 minute summer	SW52	Orifice	EXTGSW04	3.3				
15 minute summer	EXTGSW04	Orifice	EXTGSW05	19.6				
15 minute summer	EXTGSW05	Head/Flow	EXTGSW06	18.2				146.3

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW01	11	72.190	0.450	80.3	0.6436	0.0000	SURCHARGED
15 minute summer	SW02	11	72.104	0.534	154.5	0.7636	0.0000	SURCHARGED
15 minute summer	SW03	11	71.861	0.401	155.4	0.5740	0.0000	SURCHARGED
720 minute winter	Tank U2	705	71.709	0.809	16.2	247.1136	0.0000	SURCHARGED
720 minute winter	U2 Dock	705	71.709	0.159	0.8	0.0323	0.0000	SURCHARGED
720 minute winter	SW04	705	71.709	0.629	6.3	0.7108	0.0000	SURCHARGED
720 minute winter	SW05	705	71.707	0.837	6.2	1.1980	0.0000	SURCHARGED
720 minute winter	SW06/ FC	705	71.708	0.858	3.8	1.2273	0.0000	SURCHARGED
240 minute summer	SW07	156	71.519	1.319	4.2	3.3563	0.0000	SURCHARGED
30 minute summer	SW08	26	73.154	0.694	7.2	2.6397	0.0000	SURCHARGED
60 minute winter	SW09	48	73.101	0.851	16.8	12.6934	0.0000	FLOOD RISK
240 minute summer	SW10	156	71.516	1.346	8.4	3.4268	0.0000	SURCHARGED
15 minute summer	SW11	10	72.234	0.424	181.5	0.7491	0.0000	OK
15 minute summer	SW12	11	72.047	0.517	358.1	0.9140	0.0000	OK
15 minute summer	SW13	11	71.819	0.399	353.0	0.7042	0.0000	OK
15 minute summer	U1 Dock	10	71.782	0.132	26.1	0.0268	0.0000	OK
15 minute summer	SW14	10	71.728	0.308	99.3	0.4412	0.0000	OK
15 minute summer	SW15	10	71.670	0.290	98.9	0.4150	0.0000	OK
15 minute summer	SW16	10	71.602	0.252	123.9	0.3609	0.0000	OK
720 minute winter	SW17	720	71.400	0.230	11.5	0.3297	0.0000	OK
720 minute winter	Tank U1	720	71.400	0.900	36.1	538.7800	0.0000	SURCHARGED
720 minute winter	SW18/ FC	720	71.400	0.930	2.6	1.6435	0.0000	SURCHARGED
15 minute summer	RG01	12	72.475	0.475	20.1	0.9270	0.0000	SURCHARGED
240 minute summer	SW19	156	71.518	1.488	9.9	3.7869	0.0000	SURCHARGED
15 minute summer	SW20	11	72.068	0.318	24.6	0.3593	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW01	1.000	SW02	77.9	0.770	0.661	5.3548	
15 minute summer	SW02	1.001	SW03	155.4	1.409	1.328	3.5136	
15 minute summer	SW03	1.002	Tank U2	155.7	1.465	1.335	1.4708	
15 minute summer	Tank U2	1.003	SW05	-88.5	-1.519	-0.808	1.0580	
15 minute summer	U2 Dock	2.000	SW04	10.8	1.031	0.610	0.2321	
15 minute summer	SW04	2.001	SW05	88.9	1.585	0.838	0.7982	
15 minute summer	SW05	1.004	SW06/ FC	7.4	0.620	0.065	0.6842	
240 minute summer	SW06/ FC	Hydro-Brake®	SW07	1.5				
120 minute winter	SW07	1.006	SW10	12.3	0.251	0.019	4.8695	
15 minute summer	SW08	Orifice	SW09	2.2				
60 minute winter	SW09	Orifice	SW10	4.7				
15 minute summer	SW10	1.007	SW19	20.1	0.521	0.022	9.3860	
15 minute summer	SW11	4.000	SW12	176.6	1.242	1.125	7.9699	
15 minute summer	SW12	4.001	SW13	353.0	1.543	1.137	12.2164	
15 minute summer	SW13	4.002	Tank U1	354.5	1.892	0.702	7.6249	
15 minute summer	U1 Dock	5.000	SW16	25.8	1.111	0.590	0.4589	
15 minute summer	SW14	6.000	SW15	98.9	1.049	0.794	0.9657	
15 minute summer	SW15	6.001	SW16	98.2	1.150	0.823	0.7120	
15 minute summer	SW16	5.001	SW17	122.9	1.808	0.722	1.6837	
15 minute summer	SW17	5.002	Tank U1	123.4	2.391	0.402	0.5733	
15 minute summer	Tank U1	4.003	SW18/ FC	5.8	0.471	0.169	0.2698	
15 minute summer	SW18/ FC	Hydro-Brake®	SW19	3.0				
15 minute summer	RG01	Orifice	SW19	16.4				
15 minute summer	SW19	1.008	SW26	22.6	0.598	0.032	5.1396	
15 minute summer	SW20	8.000	SW21	23.6	0.652	0.670	1.1213	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW21	11	71.998	0.378	47.1	0.4276	0.0000	SURCHARGED
15 minute summer	SW22	11	71.764	0.254	47.1	0.2878	0.0000	SURCHARGED
15 minute summer	SW23	10	71.786	0.156	16.6	0.1760	0.0000	SURCHARGED
15 minute summer	SW24	10	71.643	0.163	29.6	0.1843	0.0000	OK
600 minute winter	Tank U3a	600	71.394	0.594	6.4	81.8687	0.0000	SURCHARGED
600 minute winter	SW25/ FC	600	71.394	0.644	0.7	0.9209	0.0000	SURCHARGED
240 minute summer	SW26	156	71.518	1.528	10.4	3.8887	0.0000	SURCHARGED
15 minute summer	SW27	11	72.064	0.314	24.6	0.3553	0.0000	SURCHARGED
15 minute summer	SW28	11	71.994	0.374	47.0	0.4228	0.0000	SURCHARGED
15 minute summer	SW29	11	71.761	0.251	47.0	0.2835	0.0000	SURCHARGED
15 minute summer	SW30	11	71.782	0.152	16.6	0.1720	0.0000	SURCHARGED
15 minute summer	SW31	10	71.649	0.179	32.6	0.2025	0.0000	OK
600 minute summer	Tank U3b	615	71.417	0.617	10.1	85.0758	0.0000	SURCHARGED
600 minute summer	SW32/ FC	615	71.417	0.657	0.7	0.9399	0.0000	SURCHARGED
15 minute summer	RG03	13	72.216	0.406	12.5	1.3512	0.0000	SURCHARGED
15 minute summer	RG02	12	72.521	0.471	17.1	1.5125	0.0000	SURCHARGED
240 minute summer	SW33	156	71.518	1.568	11.1	3.9911	0.0000	SURCHARGED
240 minute summer	SW34	156	71.519	1.619	8.4	4.1191	0.0000	SURCHARGED
30 minute summer	SW38	25	72.789	0.739	14.8	5.6374	0.0000	SURCHARGED
30 minute summer	SW39	24	72.788	0.198	8.1	0.2236	0.0000	SURCHARGED
30 minute summer	SW40	25	72.787	0.837	7.8	0.9463	0.0000	SURCHARGED
60 minute winter	SW41	60	72.292	0.812	14.0	11.3176	0.0000	FLOOD RISK
15 minute summer	SW42	10	71.274	0.209	40.1	0.2365	0.0000	OK
15 minute summer	SW43	10	71.147	0.207	50.1	0.2338	0.0000	OK
15 minute summer	SW35	10	71.101	0.231	55.2	0.2607	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW21	8.001	SW22	47.1	1.184	1.315	0.9147	
15 minute summer	SW22	8.002	Tank U3a	47.0	1.203	1.287	0.2973	
15 minute summer	SW23	9.000	SW24	16.1	0.959	1.066	0.1553	
15 minute summer	SW24	9.001	Tank U3a	29.3	1.021	0.766	0.2632	
15 minute winter	Tank U3a	8.003	SW25/ FC	5.7	0.440	0.158	0.4096	
60 minute summer	SW25/ FC	Hydro-Brake®	SW26	0.7				
15 minute summer	SW26	1.009	SW33	19.9	0.452	0.029	5.7852	
15 minute summer	SW27	10.000	SW28	23.5	0.651	0.675	1.1380	
15 minute summer	SW28	10.001	SW29	47.0	1.182	1.314	0.9147	
15 minute summer	SW29	10.002	Tank U3b	46.9	1.202	1.246	0.2797	
15 minute summer	SW30	11.000	SW31	16.0	0.963	1.048	0.1734	
15 minute summer	SW31	11.001	Tank U3b	32.3	1.038	0.894	0.3180	
15 minute winter	Tank U3b	10.003	SW32/ FC	5.2	0.421	0.162	0.4105	
60 minute summer	SW32/ FC	Hydro-Brake®	SW33	0.7				
15 minute summer	RG03	Orifice	SW33	7.1				
15 minute summer	RG02	Orifice	SW33	11.0				
15 minute winter	SW33	1.010	SW34	18.1	0.469	0.031	9.9517	
60 minute summer	SW34	Orifice	SW45	6.2				
15 minute summer	SW38	14.000	SW40	-4.1	0.471	-0.274	0.2410	
15 minute summer	SW39	15.000	SW40	8.5	0.913	0.176	0.1552	
15 minute winter	SW40	Orifice	SW41	3.8				
60 minute winter	SW41	Orifice	SW43	4.6				
15 minute summer	SW42	16.000	SW43	39.7	1.120	1.044	0.2920	
15 minute summer	SW43	14.003	Tank U4	49.6	1.058	0.778	0.6983	
15 minute summer	SW35	17.000	SW36	54.0	0.903	0.843	2.1679	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW36	11	71.002	0.332	109.1	0.3753	0.0000	OK
15 minute summer	SW37	11	70.917	0.297	107.3	0.3354	0.0000	OK
1440 minute winter	Tank U4	1410	70.842	0.942	8.1	236.1564	0.0000	SURCHARGED
1440 minute winter	SW44/ FC	1410	70.841	1.021	0.9	1.8046	0.0000	SURCHARGED
15 minute summer	RG04	13	72.279	0.549	30.1	5.5013	0.0000	SURCHARGED
360 minute summer	SW45	216	71.017	1.607	10.0	4.0902	0.0000	SURCHARGED
360 minute summer	SW46	216	71.017	1.657	7.8	4.2175	0.0000	SURCHARGED
360 minute summer	SW47	216	71.017	1.707	7.8	4.3447	0.0000	SURCHARGED
30 minute summer	RG05	25	71.349	1.279	27.0	1.3550	0.0000	SURCHARGED
30 minute summer	SW48	24	71.302	2.052	45.5	5.2221	0.0000	SURCHARGED
30 minute summer	SW63	24	78.724	0.904	13.0	4.4125	0.0000	SURCHARGED
60 minute winter	SW64	60	78.454	0.854	9.7	8.0186	0.0000	SURCHARGED
60 minute winter	SW65	59	78.606	0.986	22.8	22.1566	0.0000	SURCHARGED
120 minute winter	SW66	114	78.226	0.906	12.3	10.1413	0.0000	SURCHARGED
240 minute winter	SW67	240	77.922	1.002	16.5	56.3601	0.0000	SURCHARGED
240 minute winter	SW68	240	77.919	1.359	6.0	1.5376	0.0000	SURCHARGED
15 minute summer	EXTGSW01	11	76.586	0.816	27.0	0.9231	0.0000	SURCHARGED
15 minute summer	SW53	11	74.753	0.283	60.2	0.3197	0.0000	OK
15 minute summer	SW54	11	74.691	0.291	71.4	0.3290	0.0000	OK
15 minute summer	SW55	11	74.607	0.267	70.3	0.3018	0.0000	OK
15 minute summer	SW56	11	74.492	0.222	70.6	0.2509	0.0000	OK
15 minute summer	SW57	11	74.306	0.256	151.8	0.4528	0.0000	OK
15 minute summer	U5 Dock	11	73.878	0.128	17.6	0.0259	0.0000	OK
480 minute winter	SW58	472	73.806	0.446	8.9	0.5047	0.0000	SURCHARGED
480 minute winter	SW59	480	73.804	0.784	24.5	1.3853	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW36	17.001	SW37	107.3	1.090	1.013	1.7344	
15 minute summer	SW37	17.002	Tank U4	107.8	1.273	0.993	0.5663	
15 minute summer	Tank U4	14.004	SW44/ FC	6.5	0.542	0.451	0.2096	
30 minute summer	SW44/ FC	Hydro-Brake®	SW45	1.3				
15 minute summer	RG04	Orifice	SW45	12.0				
15 minute winter	SW45	1.012	SW46	17.4	0.546	0.029	9.0418	
15 minute winter	SW46	1.013	SW47	9.4	0.467	0.016	9.8429	
360 minute summer	SW47	Orifice	SW48	6.4				
15 minute summer	RG05	Orifice	SW48	23.0				
15 minute summer	SW48	1.015	EXTGSW05	39.3	0.587	0.055	16.1172	
15 minute summer	SW63	Orifice	SW64	3.1				
15 minute winter	SW64	Orifice	SW66	3.2				
15 minute summer	SW65	Orifice	SW66	3.9				
15 minute winter	SW66	Orifice	SW67	9.1				
15 minute winter	SW67	20.003	SW68	25.9	0.834	0.314	4.5772	
240 minute winter	SW68	Orifice	EXTGSW01	6.0				
15 minute summer	EXTGSW01	Orifice	EXTGSW02	26.1				
15 minute summer	SW53	22.000	SW54	58.9	0.869	0.901	1.3880	
15 minute summer	SW54	22.001	SW55	70.3	1.039	1.022	1.0541	
15 minute summer	SW55	22.002	SW56	70.6	1.148	1.030	1.1139	
15 minute summer	SW56	22.003	SW57	70.7	1.354	0.771	0.5339	
15 minute summer	SW57	22.004	SW59	152.3	1.736	0.544	2.3350	
15 minute summer	U5 Dock	23.000	SW58	17.4	1.061	0.960	0.3885	
15 minute summer	SW58	23.001	SW59	88.9	1.319	1.254	0.6277	
15 minute summer	SW59	22.005	SW60	240.8	1.370	0.734	1.8073	

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SW60	705	73.804	0.804	17.0	1.4206	0.0000	SURCHARGED
600 minute winter	Tank U5	585	73.804	0.834	19.3	236.5758	0.0000	SURCHARGED
15 minute summer	SW61	12	74.613	0.593	5.5	0.6708	0.0000	SURCHARGED
600 minute winter	SW62/ FC	585	73.804	0.870	2.0	1.5378	0.0000	SURCHARGED
15 minute summer	EXTGSW02	12	74.795	2.135	45.2	3.0553	0.0000	SURCHARGED
15 minute summer	EXTGSW03	13	73.504	1.939	46.6	2.7747	0.0000	SURCHARGED
60 minute summer	SW51	47	73.354	0.764	16.3	9.2777	0.0000	FLOOD RISK
30 minute summer	SW49	24	73.308	0.708	11.2	3.6883	0.0000	SURCHARGED
120 minute summer	SW50	106	73.119	0.619	2.6	0.7001	0.0000	SURCHARGED
120 minute summer	SW52	106	73.118	0.678	7.8	7.1362	0.0000	SURCHARGED
15 minute summer	EXTGSW04	12	72.443	1.579	59.5	2.2592	0.0000	SURCHARGED
30 minute summer	EXTGSW05	24	71.307	2.557	87.4	6.5086	0.0000	SURCHARGED
15 minute summer	EXTGSW06	1	68.555	0.000	49.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW60	22.006	Tank U5	247.3	2.515	0.750	2.1829	
15 minute summer	Tank U5	22.007	SW62/ FC	-5.3	-0.206	-0.017	3.4034	
15 minute summer	SW61	Orifice	SW62/ FC	3.9				
600 minute winter	SW62/ FC	Hydro-Brake®	EXTGSW02	2.0				
15 minute summer	EXTGSW02	Orifice	EXTGSW03	34.4				
15 minute summer	EXTGSW03	Orifice	EXTGSW04	42.7				
15 minute winter	SW51	Orifice	SW52	3.4				
15 minute summer	SW49	Orifice	SW50	2.9				
15 minute summer	SW50	26.001	SW52	2.7	0.153	0.171	0.1112	
120 minute summer	SW52	Orifice	EXTGSW04	4.2				
15 minute summer	EXTGSW04	Orifice	EXTGSW05	57.6				
15 minute summer	EXTGSW05	Head/Flow	EXTGSW06	49.3				727.2

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW01	10	72.647	0.907	108.4	1.2975	0.0000	SURCHARGED
15 minute summer	SW02	10	72.478	0.908	214.6	1.3000	0.0000	SURCHARGED
720 minute summer	SW03	735	72.035	0.575	22.6	0.8225	0.0000	SURCHARGED
720 minute summer	Tank U2	735	72.035	1.135	35.2	346.6183	0.0000	SURCHARGED
720 minute summer	U2 Dock	720	72.033	0.483	1.6	0.0981	0.0000	SURCHARGED
720 minute summer	SW04	720	72.034	0.954	12.7	1.0792	0.0000	SURCHARGED
720 minute summer	SW05	750	72.034	1.164	12.9	1.6662	0.0000	SURCHARGED
720 minute summer	SW06/ FC	720	72.033	1.183	3.3	1.6934	0.0000	SURCHARGED
180 minute summer	SW07	124	72.152	1.952	6.2	4.9680	0.0000	SURCHARGED
60 minute summer	SW08	54	73.190	0.730	7.2	4.4427	0.0000	SURCHARGED
60 minute winter	SW09	50	73.170	0.920	21.8	18.7873	0.0000	FLOOD RISK
180 minute summer	SW10	124	72.152	1.982	12.3	5.0450	0.0000	SURCHARGED
15 minute summer	SW11	10	72.629	0.819	245.1	1.4472	0.0000	SURCHARGED
15 minute summer	SW12	10	72.255	0.725	487.2	1.2810	0.0000	SURCHARGED
15 minute summer	SW13	11	71.935	0.515	482.4	0.9100	0.0000	OK
15 minute summer	U1 Dock	10	71.815	0.165	35.2	0.0335	0.0000	OK
15 minute summer	SW14	10	71.837	0.417	134.1	0.5960	0.0000	SURCHARGED
15 minute summer	SW15	10	71.753	0.373	133.5	0.5342	0.0000	OK
960 minute winter	SW16	945	71.740	0.390	9.3	0.5578	0.0000	SURCHARGED
960 minute winter	SW17	945	71.740	0.570	9.3	0.8153	0.0000	SURCHARGED
960 minute winter	Tank U1	945	71.740	1.240	48.1	741.8369	0.0000	SURCHARGED
960 minute winter	SW18/ FC	945	71.740	1.270	2.8	2.2433	0.0000	SURCHARGED
15 minute summer	RG01	12	72.697	0.697	27.1	2.0388	0.0000	FLOOD RISK
180 minute summer	SW19	124	72.151	2.121	11.9	5.3982	0.0000	SURCHARGED
15 minute summer	SW20	11	72.425	0.675	33.2	0.7629	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW01	1.000	SW02	106.2	0.963	0.902	5.3548	
15 minute summer	SW02	1.001	SW03	212.9	1.931	1.820	3.5136	
15 minute summer	SW03	1.002	Tank U2	212.0	1.925	1.817	1.5546	
15 minute summer	Tank U2	1.003	SW05	-117.4	-1.636	-1.071	1.0911	
15 minute summer	U2 Dock	2.000	SW04	14.9	1.069	0.840	0.3327	
15 minute summer	SW04	2.001	SW05	120.0	1.706	1.132	1.0044	
15 minute summer	SW05	1.004	SW06/ FC	6.1	0.680	0.054	0.6857	
30 minute summer	SW06/ FC	Hydro-Brake®	SW07	1.5				
15 minute summer	SW07	1.006	SW10	18.6	0.539	0.029	4.8695	
15 minute winter	SW08	Orifice	SW09	2.2				
60 minute winter	SW09	Orifice	SW10	4.9				
15 minute summer	SW10	1.007	SW19	23.1	0.536	0.025	10.9766	
15 minute summer	SW11	4.000	SW12	242.1	1.528	1.542	8.6171	
15 minute summer	SW12	4.001	SW13	482.4	1.725	1.554	14.4082	
15 minute summer	SW13	4.002	Tank U1	480.8	1.996	0.952	9.8316	
15 minute summer	U1 Dock	5.000	SW16	34.8	1.158	0.797	0.6019	
15 minute summer	SW14	6.000	SW15	133.5	1.210	1.072	1.1298	
15 minute summer	SW15	6.001	SW16	132.9	1.252	1.114	0.8766	
15 minute summer	SW16	5.001	SW17	166.1	1.909	0.975	2.1380	
15 minute summer	SW17	5.002	Tank U1	166.1	2.544	0.541	0.7242	
15 minute summer	Tank U1	4.003	SW18/ FC	6.6	0.474	0.192	0.2698	
15 minute summer	SW18/ FC	Hydro-Brake®	SW19	3.3				
15 minute summer	RG01	Orifice	SW19	20.2				
15 minute winter	SW19	1.008	SW26	31.3	0.645	0.044	5.3404	
15 minute summer	SW20	8.000	SW21	32.0	0.804	0.910	1.1213	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW21	11	72.297	0.677	63.9	0.7652	0.0000	SURCHARGED
15 minute summer	SW22	11	71.868	0.358	63.9	0.4045	0.0000	SURCHARGED
15 minute summer	SW23	10	71.881	0.251	22.4	0.2835	0.0000	SURCHARGED
15 minute summer	SW24	10	71.689	0.209	40.2	0.2360	0.0000	OK
720 minute winter	Tank U3a	720	71.662	0.862	7.9	118.8430	0.0000	SURCHARGED
720 minute winter	SW25/ FC	720	71.662	0.912	0.7	1.3045	0.0000	SURCHARGED
180 minute summer	SW26	124	72.149	2.159	10.5	5.4936	0.0000	SURCHARGED
15 minute summer	SW27	11	72.420	0.670	33.2	0.7580	0.0000	SURCHARGED
15 minute summer	SW28	11	72.290	0.670	63.9	0.7583	0.0000	SURCHARGED
15 minute summer	SW29	11	71.861	0.351	63.9	0.3972	0.0000	SURCHARGED
15 minute summer	SW30	11	71.916	0.286	22.4	0.3234	0.0000	SURCHARGED
15 minute summer	SW31	10	71.709	0.239	43.9	0.2707	0.0000	SURCHARGED
720 minute winter	Tank U3b	720	71.685	0.885	8.2	122.1016	0.0000	SURCHARGED
720 minute winter	SW32/ FC	720	71.685	0.925	0.7	1.3239	0.0000	SURCHARGED
15 minute summer	RG03	13	72.321	0.511	16.9	2.5277	0.0000	SURCHARGED
15 minute summer	RG02	13	72.681	0.631	23.0	2.8898	0.0000	FLOOD RISK
180 minute summer	SW33	124	72.148	2.198	12.9	5.5946	0.0000	SURCHARGED
240 minute summer	SW34	156	72.148	2.248	8.7	5.7210	0.0000	SURCHARGED
60 minute summer	SW38	45	72.837	0.787	15.0	9.2455	0.0000	FLOOD RISK
15 minute summer	SW39	11	72.852	0.262	12.2	0.2969	0.0000	SURCHARGED
60 minute summer	SW40	44	72.835	0.885	7.8	1.0007	0.0000	SURCHARGED
120 minute winter	SW41	114	72.338	0.858	12.3	16.4592	0.0000	FLOOD RISK
15 minute summer	SW42	10	71.356	0.291	54.2	0.3294	0.0000	SURCHARGED
1440 minute winter	SW43	1410	71.194	0.254	4.7	0.2876	0.0000	OK
15 minute summer	SW35	10	71.329	0.459	74.5	0.5191	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW21	8.001	SW22	63.9	1.606	1.784	0.9147	
15 minute summer	SW22	8.002	Tank U3a	63.9	1.607	1.749	0.3119	
15 minute summer	SW23	9.000	SW24	21.9	1.245	1.446	0.1637	
15 minute summer	SW24	9.001	Tank U3a	39.7	1.122	1.038	0.3212	
15 minute summer	Tank U3a	8.003	SW25/ FC	5.2	0.432	0.144	0.4096	
30 minute summer	SW25/ FC	Hydro-Brake®	SW26	0.7				
15 minute summer	SW26	1.009	SW33	19.8	0.436	0.029	5.8470	
15 minute summer	SW27	10.000	SW28	32.0	0.804	0.917	1.1380	
15 minute summer	SW28	10.001	SW29	63.9	1.606	1.785	0.9147	
15 minute summer	SW29	10.002	Tank U3b	63.9	1.608	1.697	0.2936	
15 minute summer	SW30	11.000	SW31	21.8	1.238	1.422	0.1885	
15 minute summer	SW31	11.001	Tank U3b	43.4	1.137	1.200	0.3725	
15 minute winter	Tank U3b	10.003	SW32/ FC	4.4	0.425	0.137	0.4105	
30 minute summer	SW32/ FC	Hydro-Brake®	SW33	0.7				
15 minute summer	RG03	Orifice	SW33	8.1				
15 minute summer	RG02	Orifice	SW33	13.0				
15 minute summer	SW33	1.010	SW34	25.2	0.483	0.044	9.9555	
60 minute summer	SW34	Orifice	SW45	6.7				
15 minute summer	SW38	14.000	SW40	-7.1	0.493	-0.468	0.2410	
15 minute summer	SW39	15.000	SW40	11.4	0.873	0.237	0.1552	
15 minute summer	SW40	Orifice	SW41	3.9				
120 minute winter	SW41	Orifice	SW43	4.8				
15 minute summer	SW42	16.000	SW43	53.8	1.363	1.414	0.3158	
15 minute summer	SW43	14.003	Tank U4	65.7	1.154	1.031	0.8421	
15 minute summer	SW35	17.000	SW36	73.7	1.046	1.151	2.5188	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW36	1410	71.193	0.523	5.8	0.5920	0.0000	SURCHARGED
1440 minute winter	SW37	1440	71.195	0.575	5.8	0.6499	0.0000	SURCHARGED
1440 minute winter	Tank U4	1410	71.194	1.294	11.2	324.6287	0.0000	SURCHARGED
1440 minute winter	SW44/ FC	1410	71.194	1.374	1.1	2.4276	0.0000	SURCHARGED
30 minute summer	RG04	22	72.452	0.722	36.4	8.8785	0.0000	FLOOD RISK
120 minute summer	SW45	88	71.998	2.588	17.8	6.5871	0.0000	SURCHARGED
120 minute summer	SW46	88	71.998	2.638	12.7	6.7143	0.0000	SURCHARGED
120 minute summer	SW47	88	71.998	2.688	8.0	6.8416	0.0000	SURCHARGED
30 minute summer	RG05	27	71.804	1.734	36.4	12.0782	0.0000	FLOOD RISK
30 minute summer	SW48	23	71.885	2.635	58.7	6.7065	0.0000	FLOOD RISK
30 minute summer	SW63	27	78.785	0.965	17.6	6.7959	0.0000	SURCHARGED
120 minute winter	SW64	114	78.559	0.959	8.4	11.7019	0.0000	FLOOD RISK
60 minute winter	SW65	60	78.684	1.064	30.8	33.7486	0.0000	SURCHARGED
120 minute winter	SW66	116	78.344	1.024	14.3	14.6871	0.0000	FLOOD RISK
240 minute winter	SW67	244	78.045	1.125	19.9	76.3672	0.0000	FLOOD RISK
240 minute winter	SW68	244	78.042	1.482	6.3	1.6766	0.0000	SURCHARGED
15 minute summer	EXTGSW01	12	76.999	1.229	34.3	1.3903	0.0000	FLOOD RISK
15 minute summer	SW53	11	75.057	0.587	81.3	0.6641	0.0000	SURCHARGED
15 minute summer	SW54	11	74.923	0.523	96.6	0.5921	0.0000	SURCHARGED
15 minute summer	SW55	11	74.760	0.420	95.1	0.4749	0.0000	SURCHARGED
15 minute summer	SW56	11	74.578	0.308	95.4	0.3482	0.0000	SURCHARGED
15 minute summer	SW57	10	74.365	0.315	206.9	0.5569	0.0000	OK
15 minute summer	U5 Dock	11	74.231	0.481	23.7	0.0977	0.0000	SURCHARGED
720 minute summer	SW58	660	74.145	0.785	12.7	0.8883	0.0000	SURCHARGED
720 minute summer	SW59	660	74.144	1.124	34.5	1.9855	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW36	17.001	SW37	147.7	1.339	1.395	1.9441	
15 minute summer	SW37	17.002	Tank U4	147.1	1.440	1.355	0.6696	
15 minute winter	Tank U4	14.004	SW44/ FC	6.7	0.573	0.463	0.2096	
30 minute summer	SW44/ FC	Hydro-Brake®	SW45	1.4				
30 minute summer	RG04	Orifice	SW45	13.9				
15 minute winter	SW45	1.012	SW46	19.7	0.547	0.032	9.0418	
15 minute winter	SW46	1.013	SW47	9.4	0.498	0.016	9.8429	
120 minute summer	SW47	Orifice	SW48	7.8				
15 minute summer	RG05	Orifice	SW48	23.3				
15 minute winter	SW48	1.015	EXTGSW05	50.2	0.620	0.071	16.1172	
15 minute summer	SW63	Orifice	SW64	3.1				
15 minute winter	SW64	Orifice	SW66	3.2				
30 minute summer	SW65	Orifice	SW66	3.8				
15 minute summer	SW66	Orifice	SW67	9.2				
15 minute winter	SW67	20.003	SW68	32.2	0.871	0.390	4.5772	
240 minute winter	SW68	Orifice	EXTGSW01	6.3				
15 minute summer	EXTGSW01	Orifice	EXTGSW02	32.3				
15 minute summer	SW53	22.000	SW54	79.7	1.131	1.219	1.4101	
15 minute summer	SW54	22.001	SW55	95.1	1.351	1.383	1.0914	
15 minute summer	SW55	22.002	SW56	95.4	1.355	1.393	1.2852	
15 minute summer	SW56	22.003	SW57	95.6	1.417	1.043	0.6706	
15 minute summer	SW57	22.004	SW59	206.5	1.854	0.737	2.9612	
15 minute summer	U5 Dock	23.000	SW58	23.1	1.311	1.276	0.4074	
15 minute summer	SW58	23.001	SW59	119.1	1.694	1.680	0.6623	
15 minute summer	SW59	22.005	SW60	321.7	1.523	0.981	2.0828	

Results for 30 year +35% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
960 minute winter	SW60	960	74.150	1.150	20.3	2.0318	0.0000	SURCHARGED
720 minute winter	Tank U5	705	74.132	1.162	22.7	329.5355	0.0000	SURCHARGED
15 minute summer	SW61	12	74.910	0.890	7.5	1.0193	0.0000	SURCHARGED
720 minute winter	SW62/ FC	705	74.132	1.198	2.4	2.1170	0.0000	SURCHARGED
15 minute summer	EXTGSW02	12	76.167	3.507	58.2	5.0186	0.0000	FLOOD RISK
15 minute summer	EXTGSW03	13	74.473	2.908	56.3	4.1614	0.0000	SURCHARGED
60 minute winter	SW51	57	73.403	0.813	15.9	14.3985	0.0000	FLOOD RISK
30 minute summer	SW49	27	73.341	0.741	15.2	5.7321	0.0000	SURCHARGED
120 minute winter	SW50	118	73.176	0.676	2.5	0.7643	0.0000	SURCHARGED
120 minute winter	SW52	118	73.175	0.735	7.5	9.2348	0.0000	SURCHARGED
30 minute summer	EXTGSW04	21	73.188	2.324	67.0	3.3262	0.0000	SURCHARGED
30 minute summer	EXTGSW05	22	71.892	3.142	92.6	7.9955	0.0000	FLOOD RISK
15 minute summer	EXTGSW06	1	68.555	0.000	49.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW60	22.006	Tank U5	318.8	2.636	0.966	3.0848	
60 minute summer	Tank U5	22.007	SW62/ FC	-7.7	0.054	-0.025	5.0947	
15 minute summer	SW61	Orifice	SW62/ FC	4.9				
720 minute winter	SW62/ FC	Hydro-Brake®	EXTGSW02	2.4				
15 minute summer	EXTGSW02	Orifice	EXTGSW03	40.0				
15 minute summer	EXTGSW03	Orifice	EXTGSW04	49.0				
15 minute summer	SW51	Orifice	SW52	3.2				
15 minute winter	SW49	Orifice	SW50	2.9				
15 minute winter	SW50	26.001	SW52	2.6	0.147	0.164	0.1112	
120 minute winter	SW52	Orifice	EXTGSW04	4.4				
15 minute summer	EXTGSW04	Orifice	EXTGSW05	66.0				
15 minute summer	EXTGSW05	Head/Flow	EXTGSW06	49.3				849.5

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW01	10	73.355	1.615	145.4	2.3117	0.0000	SURCHARGED
15 minute summer	SW02	10	73.060	1.490	286.8	2.1315	0.0000	SURCHARGED
600 minute summer	SW03	585	72.564	1.104	33.1	1.5800	0.0000	SURCHARGED
600 minute summer	Tank U2	585	72.562	1.662	50.9	458.5306	0.0000	SURCHARGED
960 minute summer	U2 Dock	885	72.550	1.000	2.1	0.2030	10.2743	FLOOD
600 minute summer	SW04	585	72.562	1.482	18.5	1.6760	0.0000	SURCHARGED
600 minute summer	SW05	585	72.565	1.695	19.4	2.4252	0.0000	SURCHARGED
600 minute summer	SW06/ FC	585	72.564	1.714	3.0	2.4524	0.0000	SURCHARGED
120 minute summer	SW07	78	72.481	2.281	8.9	5.8051	0.0000	SURCHARGED
60 minute winter	SW08	61	73.262	0.802	7.1	7.9841	0.0000	FLOOD RISK
60 minute winter	SW09	48	73.249	0.999	28.9	27.2945	0.6855	FLOOD
120 minute summer	SW10	78	72.481	2.311	12.9	6.1227	0.0000	SURCHARGED
15 minute summer	SW11	10	73.505	1.695	328.8	2.9942	0.0000	SURCHARGED
15 minute summer	SW12	10	72.831	1.301	653.6	2.2981	0.0000	SURCHARGED
600 minute summer	SW13	540	72.661	1.241	75.8	2.1927	0.0000	SURCHARGED
960 minute winter	U1 Dock	780	72.650	1.000	4.8	0.2030	40.8262	FLOOD
600 minute summer	SW14	540	72.661	1.241	20.7	1.7762	0.0000	SURCHARGED
600 minute summer	SW15	540	72.659	1.279	20.7	1.8308	0.0000	SURCHARGED
600 minute summer	SW16	540	72.661	1.311	26.2	1.8766	0.0000	SURCHARGED
600 minute summer	SW17	540	72.659	1.489	26.0	2.1315	0.0000	SURCHARGED
600 minute summer	Tank U1	540	72.663	2.163	138.2	899.0204	0.0000	SURCHARGED
600 minute summer	SW18/ FC	540	72.661	2.191	4.3	3.8713	0.0000	FLOOD RISK
15 minute summer	RG01	11	72.921	0.921	36.3	3.1644	0.9675	FLOOD
120 minute summer	SW19	78	72.480	2.450	19.8	6.2355	0.0000	SURCHARGED
15 minute summer	SW20	11	73.000	1.250	44.5	1.4136	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW01	1.000	SW02	141.6	1.284	1.202	5.3548	
15 minute summer	SW02	1.001	SW03	283.4	2.570	2.422	3.5136	
15 minute summer	SW03	1.002	Tank U2	283.5	2.571	2.430	1.5901	
15 minute summer	Tank U2	1.003	SW05	-152.3	-1.731	-1.390	1.0911	
15 minute summer	U2 Dock	2.000	SW04	19.0	1.077	1.071	0.3896	
15 minute summer	SW04	2.001	SW05	157.3	2.235	1.484	1.0050	
15 minute winter	SW05	1.004	SW06/ FC	11.3	0.716	0.100	0.6857	
30 minute summer	SW06/ FC	Hydro-Brake®	SW07	1.7				
15 minute winter	SW07	1.006	SW10	18.6	0.569	0.029	4.8695	
15 minute summer	SW08	Orifice	SW09	2.2				
60 minute summer	SW09	Orifice	SW10	5.1				
15 minute winter	SW10	1.007	SW19	-32.4	0.543	-0.035	10.9766	
15 minute summer	SW11	4.000	SW12	324.8	2.050	2.068	8.6171	
15 minute summer	SW12	4.001	SW13	650.8	2.311	2.097	15.0562	
15 minute summer	SW13	4.002	Tank U1	647.3	2.308	1.281	10.9997	
15 minute summer	U1 Dock	5.000	SW16	45.9	1.157	1.052	0.7870	
15 minute summer	SW14	6.000	SW15	177.8	1.612	1.429	1.1304	
15 minute summer	SW15	6.001	SW16	176.1	1.597	1.476	0.9222	
15 minute summer	SW16	5.001	SW17	221.3	2.052	1.300	2.5201	
15 minute summer	SW17	5.002	Tank U1	222.4	2.683	0.725	0.9156	
15 minute summer	Tank U1	4.003	SW18/ FC	6.7	0.513	0.195	0.2698	
600 minute summer	SW18/ FC	Hydro-Brake®	SW19	4.1				
15 minute summer	RG01	Orifice	SW19	23.5				
15 minute summer	SW19	1.008	SW26	37.3	0.631	0.053	5.3404	
15 minute summer	SW20	8.000	SW21	42.3	1.065	1.205	1.1213	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SW21	11	72.775	1.155	84.8	1.3058	0.0000	SURCHARGED
1440 minute winter	SW22	1440	72.059	0.549	3.2	0.6205	0.0000	SURCHARGED
15 minute summer	SW23	11	72.113	0.483	30.0	0.5465	0.0000	SURCHARGED
1440 minute winter	SW24	1440	72.059	0.579	2.0	0.6544	0.0000	SURCHARGED
1440 minute winter	Tank U3a	1440	72.059	1.259	5.5	173.6003	0.0000	SURCHARGED
1440 minute winter	SW25/ FC	1440	72.059	1.309	0.6	1.8727	0.0000	SURCHARGED
120 minute summer	SW26	78	72.480	2.489	11.6	6.3358	0.0000	SURCHARGED
15 minute summer	SW27	11	72.992	1.242	44.5	1.4050	0.0000	SURCHARGED
15 minute summer	SW28	11	72.764	1.144	84.9	1.2936	0.0000	SURCHARGED
1440 minute winter	SW29	1440	72.075	0.565	3.2	0.6386	0.0000	SURCHARGED
15 minute summer	SW30	11	72.182	0.552	30.0	0.6238	0.0000	SURCHARGED
1440 minute winter	SW31	1440	72.075	0.605	2.2	0.6838	0.0000	SURCHARGED
1440 minute winter	Tank U3b	1440	72.075	1.275	5.7	175.8058	0.0000	SURCHARGED
1440 minute winter	SW32/ FC	1440	72.074	1.314	0.7	1.8810	0.0000	SURCHARGED
180 minute summer	RG03	116	72.523	0.713	7.4	4.7785	0.0000	FLOOD RISK
15 minute summer	RG02	13	72.913	0.863	30.9	4.8761	0.0000	FLOOD RISK
120 minute summer	SW33	78	72.479	2.529	20.0	6.4355	0.0000	SURCHARGED
120 minute summer	SW34	78	72.477	2.577	12.8	6.5585	6.3191	FLOOD
60 minute summer	SW38	49	72.913	0.863	21.8	14.9772	0.0000	FLOOD RISK
15 minute summer	SW39	11	72.965	0.375	16.4	0.4237	0.0000	SURCHARGED
60 minute summer	SW40	48	72.910	0.960	10.7	1.0857	0.0000	SURCHARGED
120 minute winter	SW41	118	72.396	0.916	15.1	24.1722	0.0000	FLOOD RISK
1440 minute winter	SW42	1380	72.334	1.269	2.7	1.4348	0.0000	FLOOD RISK
1440 minute winter	SW43	1380	72.333	1.393	5.9	4.5892	0.0000	FLOOD RISK
1440 minute winter	SW35	1350	72.336	1.466	3.7	1.6577	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW21	8.001	SW22	84.7	2.130	2.366	0.9147	
15 minute summer	SW22	8.002	Tank U3a	84.6	2.127	2.316	0.3164	
15 minute summer	SW23	9.000	SW24	29.2	1.657	1.926	0.1687	
15 minute summer	SW24	9.001	Tank U3a	52.8	1.339	1.381	0.3466	
15 minute winter	Tank U3a	8.003	SW25/ FC	6.0	0.470	0.168	0.4096	
15 minute winter	SW25/ FC	Hydro-Brake®	SW26	0.8				
15 minute summer	SW26	1.009	SW33	-27.3	0.464	-0.040	5.8470	
15 minute summer	SW27	10.000	SW28	42.4	1.065	1.215	1.1380	
15 minute summer	SW28	10.001	SW29	84.8	2.131	2.368	0.9147	
15 minute summer	SW29	10.002	Tank U3b	84.7	2.129	2.248	0.2977	
15 minute summer	SW30	11.000	SW31	29.2	1.656	1.904	0.1885	
15 minute summer	SW31	11.001	Tank U3b	58.0	1.462	1.604	0.3929	
15 minute winter	Tank U3b	10.003	SW32/ FC	5.8	0.449	0.180	0.4105	
30 minute summer	SW32/ FC	Hydro-Brake®	SW33	0.8				
15 minute summer	RG03	Orifice	SW33	9.2				
15 minute summer	RG02	Orifice	SW33	15.3				
15 minute winter	SW33	1.010	SW34	24.6	0.519	0.043	9.9555	
30 minute summer	SW34	Orifice	SW45	8.1				
15 minute summer	SW38	14.000	SW40	-10.9	-0.621	-0.722	0.2410	
15 minute summer	SW39	15.000	SW40	15.4	0.874	0.319	0.1552	
15 minute summer	SW40	Orifice	SW41	4.0				
120 minute winter	SW41	Orifice	SW43	4.9				
15 minute summer	SW42	16.000	SW43	71.9	1.808	1.888	0.3311	
15 minute summer	SW43	14.003	Tank U4	86.8	1.272	1.360	0.9553	
15 minute summer	SW35	17.000	SW36	98.6	1.400	1.541	2.5188	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
1440 minute winter	SW36	1350	72.337	1.667	7.4	1.8851	0.0000	SURCHARGED
1440 minute winter	SW37	1380	72.337	1.717	7.2	1.9421	0.0000	SURCHARGED
1440 minute winter	Tank U4	1350	72.333	2.433	13.5	377.6691	0.0000	FLOOD RISK
1440 minute winter	SW44/ FC	1350	72.331	2.511	2.1	4.4367	0.0000	FLOOD RISK
30 minute summer	RG04	20	72.633	0.903	49.1	12.4233	2.0486	FLOOD
120 minute summer	SW45	86	72.413	3.003	18.9	7.6425	0.0000	FLOOD RISK
120 minute summer	SW46	86	72.413	3.053	12.9	7.7698	0.0000	SURCHARGED
120 minute summer	SW47	86	72.413	3.103	8.4	7.8970	0.0000	FLOOD RISK
60 minute winter	RG05	40	71.976	1.906	37.2	16.1149	2.7936	FLOOD
30 minute summer	SW48	19	71.892	2.642	66.2	6.7239	16.0489	FLOOD
60 minute summer	SW63	50	78.888	1.068	17.8	10.7520	0.0000	SURCHARGED
120 minute winter	SW64	116	78.704	1.104	10.1	16.7464	0.0000	FLOOD RISK
120 minute winter	SW65	118	78.799	1.179	25.2	51.2339	0.0000	FLOOD RISK
180 minute winter	SW66	176	78.518	1.198	13.7	21.4251	0.0000	FLOOD RISK
240 minute winter	SW67	172	78.229	1.309	23.9	85.5660	11.6157	FLOOD
240 minute summer	SW68	172	78.243	1.683	7.4	1.9033	0.0000	SURCHARGED
15 minute summer	EXTGSW01	9	77.079	1.309	43.9	1.4805	2.6391	FLOOD
15 minute summer	SW53	11	75.573	1.103	109.0	1.2479	0.0000	SURCHARGED
15 minute summer	SW54	11	75.332	0.932	128.9	1.0536	0.0000	SURCHARGED
15 minute summer	SW55	11	75.036	0.696	127.5	0.7874	0.0000	SURCHARGED
720 minute winter	SW56	705	74.753	0.483	8.9	0.5462	0.0000	SURCHARGED
720 minute winter	SW57	705	74.753	0.703	19.3	1.2425	0.0000	SURCHARGED
720 minute winter	U5 Dock	690	74.750	1.000	2.1	0.2030	2.1047	FLOOD
720 minute winter	SW58	690	74.753	1.393	10.9	1.5756	0.0000	SURCHARGED
720 minute winter	SW59	690	74.754	1.734	30.0	3.0632	0.0000	SURCHARGED

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW36	17.001	SW37	197.8	1.793	1.868	1.9453	
15 minute summer	SW37	17.002	Tank U4	197.3	1.798	1.818	0.7092	
15 minute winter	Tank U4	14.004	SW44/ FC	4.9	0.601	0.340	0.2096	
1440 minute winter	SW44/ FC	Hydro-Brake®	SW45	1.8				
15 minute summer	RG04	Orifice	SW45	15.7				
30 minute winter	SW45	1.012	SW46	21.0	0.531	0.035	9.0418	
15 minute winter	SW46	1.013	SW47	10.0	0.531	0.017	9.8429	
120 minute summer	SW47	Orifice	SW48	8.5				
15 minute winter	RG05	Orifice	SW48	23.6				
15 minute winter	SW48	1.015	EXTGSW05	-45.9	0.594	-0.065	16.1172	
15 minute summer	SW63	Orifice	SW64	3.1				
15 minute winter	SW64	Orifice	SW66	3.2				
30 minute summer	SW65	Orifice	SW66	3.8				
15 minute winter	SW66	Orifice	SW67	9.2				
15 minute winter	SW67	20.003	SW68	29.9	0.901	0.363	4.5772	
240 minute summer	SW68	Orifice	EXTGSW01	6.7				
15 minute summer	EXTGSW01	Orifice	EXTGSW02	33.6				
15 minute summer	SW53	22.000	SW54	106.2	1.508	1.625	1.4101	
15 minute summer	SW54	22.001	SW55	127.5	1.811	1.853	1.0914	
15 minute summer	SW55	22.002	SW56	128.0	1.817	1.869	1.2852	
15 minute summer	SW56	22.003	SW57	128.3	1.823	1.399	0.7028	
15 minute summer	SW57	22.004	SW59	276.7	1.938	0.988	3.8175	
15 minute summer	U5 Dock	23.000	SW58	30.6	1.737	1.691	0.4074	
15 minute summer	SW58	23.001	SW59	159.0	2.258	2.242	0.6823	
15 minute summer	SW59	22.005	SW60	431.5	1.709	1.316	2.4537	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.79%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
720 minute winter	SW60	690	74.751	1.751	29.3	3.0937	0.0000	SURCHARGED
720 minute winter	Tank U5	705	74.750	1.780	29.9	425.9131	0.0000	SURCHARGED
15 minute summer	SW61	13	74.972	0.952	10.0	1.6688	0.0000	SURCHARGED
600 minute winter	SW62/ FC	585	74.748	1.814	4.1	3.2046	0.0000	SURCHARGED
15 minute summer	EXTGSW02	11	76.177	3.517	68.3	5.0328	4.4669	FLOOD
30 minute summer	EXTGSW03	19	74.917	3.352	61.5	4.7967	0.6982	FLOOD
60 minute winter	SW51	60	73.467	0.877	21.7	22.8442	0.0000	FLOOD RISK
60 minute summer	SW49	53	73.389	0.789	15.3	9.3914	0.0000	FLOOD RISK
60 minute summer	SW50	62	73.267	0.767	2.6	0.8675	0.0000	SURCHARGED
60 minute summer	SW52	62	73.266	0.826	15.0	12.6176	0.0000	SURCHARGED
30 minute summer	EXTGSW04	19	73.653	2.789	75.6	3.9911	0.3877	FLOOD
15 minute winter	EXTGSW05	12	71.950	3.200	84.4	8.1435	0.0000	FLOOD RISK
15 minute summer	EXTGSW06	1	68.555	0.000	49.3	0.0000	0.0000	OK

Link Event (Outflow)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SW60	22.006	Tank U5	427.0	2.734	1.294	3.6398	
60 minute summer	Tank U5	22.007	SW62/ FC	-11.6	-0.097	-0.038	5.0947	
15 minute summer	SW61	Orifice	SW62/ FC	5.0				
600 minute winter	SW62/ FC	Hydro-Brake®	EXTGSW02	2.9				
15 minute summer	EXTGSW02	Orifice	EXTGSW03	40.3				
15 minute summer	EXTGSW03	Orifice	EXTGSW04	50.0				
15 minute winter	SW51	Orifice	SW52	3.4				
15 minute winter	SW49	Orifice	SW50	2.9				
15 minute summer	SW50	26.001	SW52	2.5	0.144	0.161	0.1112	
60 minute summer	SW52	Orifice	EXTGSW04	4.6				
15 minute summer	EXTGSW04	Orifice	EXTGSW05	68.3				
15 minute winter	EXTGSW05	Head/Flow	EXTGSW06	50.4				966.2

APPENDIX E – MANAGEMENT & MAINTENANCE PLAN

SHINFIELD PARK, READING

TECHNICAL NOTE

DRAINAGE MAINTENANCE PLAN

DOCUMENT CONTROL SHEET

Issued by: Burrows Graham Limited
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Client: Wrenbridge (FRELD Reading) LLP

Project: Shinfield Park, Reading

Document No: 40237-BGL-XX-XX-TN-X-0001-V1

Title: Technical Note – Drainage Management & Maintenance Plan

Status: Draft

Date: 07/02/2025

Prepared By: PG

Checked By: RM

Document Revision Record

Version Number	Date	Revision Details
1	07/02/2025	First Issue

Burrows Graham Limited has prepared this report in accordance with the instructions of the above-named Client for their sole and specific use. Any third parties who may use the information contained herein do so at their own risk.

1 INTRODUCTION

This document has been prepared to provide a maintenance methodology to the surface water drainage elements proposed for this development. If any discrepancies from manufactures guidance are encountered, the proprietary system guidance should be adopted, refer to enclosed Appendices.

This drainage system's management and maintenance will be the responsibility of Wrenbridge (FRELD Reading) LLP who will appoint a suitable management company, or pass this document to future occupiers & tenants, with this document used as a reference point for how the drainage maintenance will be implemented. This document will be included in the final O&M File to be compiled on completion of the development and will include details of the As Built drainage, and detailed maintenance document for installed proprietary drainage systems.

The surface water drainage works are composed of the following:

- Linear drainage channels, connecting pipe network, manholes & inspection chambers.
- Permeable paving
- Geocellular attenuation tanks.
- Oil separators

Refer to drawing 40237-BGL-XX-X-DR-C-0220-222 for the Proposed Drainage Layout.

Any man-entry into the system and silt removal should be carried out by trained personnel with adequate personal protective equipment. Approved safety procedures must be followed in accordance with the Health and Safety Act.

Long-term management practices include monthly sweeping of external paved areas. The sweeping program will remove sand and contaminants directly from paved surfaces before they become mobilised during storm events and transported to the drainage system.

During the winter months, drainage features such as gullies and channels should be cleared of ice, snow, debris or litter.

Sediment/material removal should be undertaken in consultation with the environmental regulator to confirm appropriate protocols; especially where run-off is taken from potentially contaminated areas such as the filter drains and the upstream/downstream chambers.

2 MAINTENANCE STRATEGY

2.1 INSPECTION, MANHOLE AND CATCHPIT CHAMBERS

Access points have been located at the head of each run, at a change in direction and at a change of pipe size in accordance with Building Regulations Part H.

The appropriate health and safety equipment must be used when accessing manholes. Confined space certificates must be held by any personnel entering a manhole and the appropriate permits should be obtained from the Maintenance Manager prior to any access.

2.2 PIPES

Pipes are proprietary products, and the materials can vary across the site and as such where used the manufacturer's recommendations should be followed. Regardless of the product used, the pipes will be fully compliant with the BGL drainage specification.

Pipes are intended to be the main conveyance across the development and where oversized they form the attenuation volume required by the limitation of the discharge rate. They are intended to be dry except for during rainfall events. These have been designed to be self-cleaning where possible for smaller diameter pipes, and for larger diameters the risk is reduced due to the overall pipe size.

Access for maintenance is provided through access chambers and manholes.

Regular inspection and maintenance are important to identify areas which may have been obstructed / clogged and may not be drainage correctly thus exposing the development to a greater level of flood risk.

2.3 CHANNELS & GULLIES

Channels and gullies should be inspected and cleaned in accordance with the manufacturer's details. Channel units can be cleaned through the use of a high-pressure hose; this can be fed into the channel system through access units strategically placed along the channel run. The throat section of channel units should be kept clear at all times to ensure uninterrupted flow of surface water into the drainage channel and any debris within the throat should be removed.

Locking bolts should be replaced and sufficiently tightened, taking care that the bolt heads do not stand above the top surface of the cover or grate. If covers are allowed to move within their frame, this may cause damage to the frame or seating.

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove manhole and chamber covers to sewers and flow control on network– inspect to ensure water is flowing freely and that the water flow route is unobstructed. Remove debris and silt as required.	Half Yearly Undertake one of these inspections after leaf fall in autumn
Occasional Maintenance	None required	
Remedial Actions	Re-line or replace pipework if unable to clear blockages by jetting.	As required
Monitoring	Inspect chambers for build-up of silt and debris	Half yearly

Table 1 – Operation & maintenance requirements for pipe network, manholes & inspection chambers, drainage channels & gullies.

2.4 ATTENUATION TANKS

Geocellular tanks are modular storage systems made with plastic units. These units can be assembled to achieved re required volume and usually on multiple layers. Generally, the units have 95% of voids content and are used to create an efficient below ground structure to store surface water.

The geocellular units and geotextile are proprietary products and therefore manufacturer's recommendations should also be taken into consideration.

Access for maintenance should be provided by an access shaft located on the tank and from the manhole chambers downstream of the tank.

Regular inspection and maintenance are important for the effective operation of attenuation tanks as designed. As the feature is buried, a regular inspection regime is very important to ensure the correction functionality of the surface water drainage network.

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months, then annually.
	Remove debris form the catchment surface (where it may cause risks to performance).	Monthly.
	For systems where rainfall infiltrates into the tank from above, check surface of filter for blockages by sediment, algae or other matter; remove and replace surface infiltration medium as required.	Annually.
	Remove sediments from pre-treatment structures and/or internal forebays.	Annually, or as required.
Remedial Actions	Repair/rehabilitate inlets, outlets, overflows and vents.	As required.
Monitoring	Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed.	Annually
	Survey inside of tank for sediment build-up and remove if necessary.	Every 5 years or as required.

Table 2 – Operation & maintenance requirements for attenuation storage tanks - Based on CIRIA SuDS Manual 2015

2.5 POROUS PAVED AREA AND GRANULAR FILTER STRIPS

Permeable surfacing enables any water landing on the surface to infiltrate directly to ground at source, thus acting close to a permeable surface.

Regular inspection and maintenance are important for the effective operation of the permeable surfacing to allow it to work efficiently through its design life.

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Brushing and vacuuming (standard cosmetic sweep over whole surface)	Once a year, after autumn leaf fall, or reduced frequency as required, based on site-specific observations of clogging or manufacturer's recommendations – pay particular attention to areas where water runs onto pervious surfaces from adjacent impermeable areas as this is most likely to collect the most sediment.
Occasional Maintenance	Stabilise and mow contributing and adjacent areas.	As required
	Removal of weeds or management using glyphosate applied directly into the weeds by an applicator rather than spraying	As required – once per year on less frequently used pavements.
Remedial Actions	Remediate any landscaping which, through vegetation maintenance or soil slip, has been raised to within 50mm of the level of the surface.	As required
	Remedial works to any depressions, rutting and cracked considered detrimental to the structural performance or a hazard to users, and replace lost jointing material	As required
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required (if infiltration performance is reduced due to significant clogging)
Monitoring	Inspect for evidence of poor operation and/or weed growth. -if required, take remedial action	Three-monthly, 48 hours after large storms in the first six months
	Inspect silt accumulation rates and establish appropriate brushing frequencies.	Annually
	Monitor inspection chambers	Annually

Table 3 – Operation & Maintenance requirements for Porous Paved Area – CIRIA SuDS Manual 2015

2.6 PROPRIETARY SURFACE WATER TREATMENT SYSTEMS

These are manufactured products to provide a treatment to the surface water by removing specific pollutant, such as petrol interceptors.

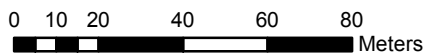
Table 4 sets out the recommended maintenance actions and frequency. Manufacture guidance/recommendations should always be used when available.

Maintenance schedule	Required action	Typical frequency
Regular Maintenance	Remove litter and debris and inspect for sediment, oil and grease accumulation.	Monthly for 3 months, then annually.
	Change the filter media.	As recommended by manufacturer.
	Remove sediment, oil grease and floatables.	As necessary – indicated by system inspections or immediately following significant spill.
Remedial Actions	Replace malfunctioning parts or structures.	As required.
Monitoring	Inspect for evidence of poor operation.	Biannually
	Inspect filter media and establish appropriate replacement frequencies.	Biannually
	Inspect sediment accumulation rates and establish removal frequencies.	Monthly during first half year of operation, then every six months.

Table 4 – Operation & maintenance requirements for proprietary surface water treatment systems - CIRIA SuDS Manual 2015

APPENDIX F – THAMES WATER SEWER MAPS

CDWS/CDWS Standard/2024_5002401



Scale:	1:1789
Width:	500m
Printed By:	Skrishna1
Print Date:	19/06/2024
Map Centre:	472750,169250
Grid Reference:	SU7269SE

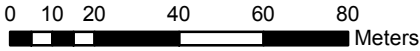
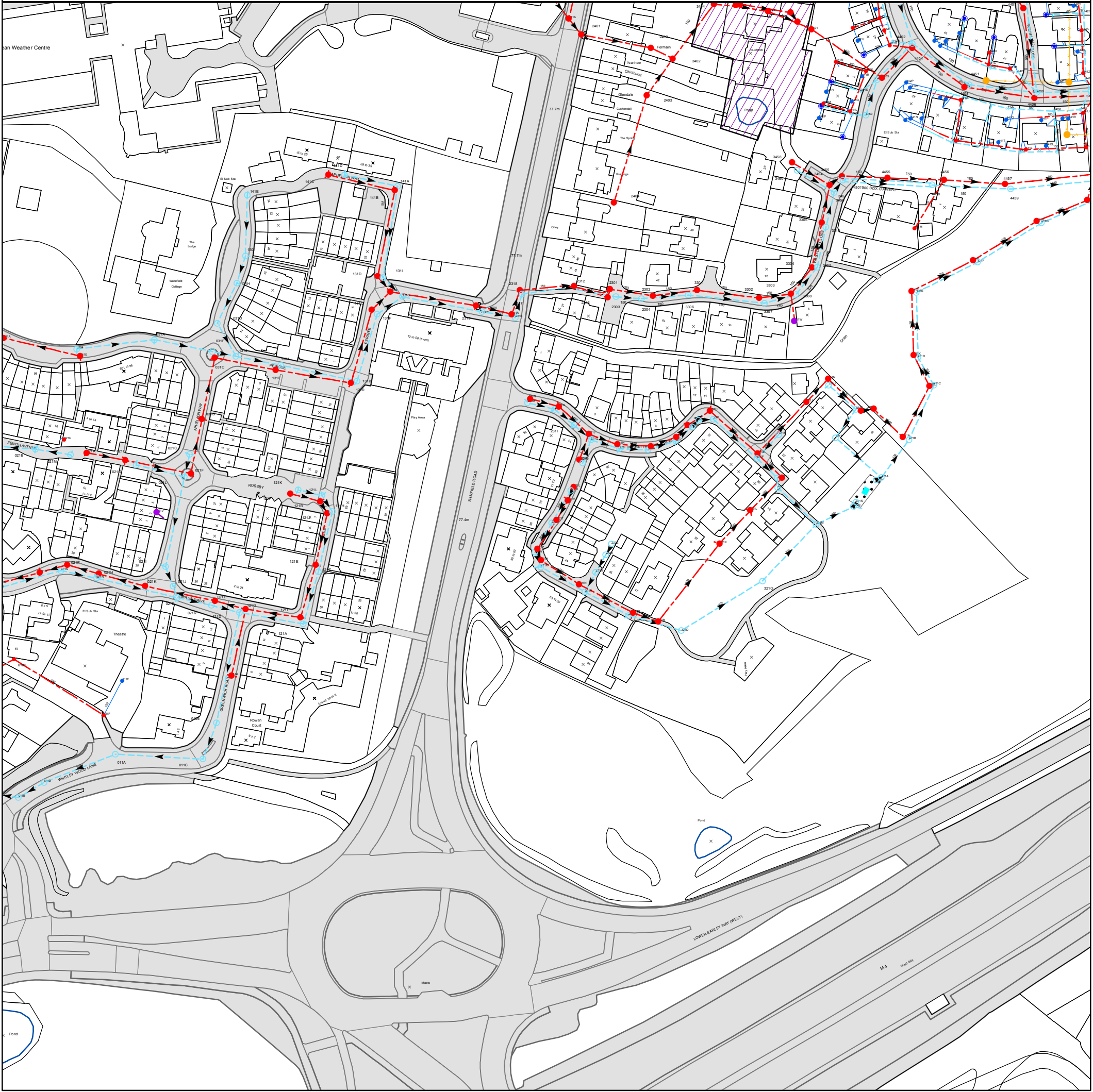
Comments:

CDWS/CDWS Standard/2024_5002401

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
931F	80.1	78.58
5252	56.61	55.08
5202	55.81	53.91
5251	56.25	54.24
5404	51.15	49
6402	51.34	49.34
6302	54.23	52.8
5101	55.15	53.12
6450		
5303		
5103	56.88	
5352	53.2	49.57
302B	52.87	48.67
5405	51.2	49.08
6350	54.11	51.97
5451	50.44	49.01
5102	55.54	53.57
5104	56.28	54.32
511C		
921F	79.63	76.56
301B	53.48	49.67
941C	79.65	78.27
821B	79	75.99
9204	79.86	77.45
8201	78.97	72.38
931E	79.98	77.46
931G	80.11	78.06
7301	63.93	
831B	79.33	77.04
6356		
941B	79.3	77.87
8301	75.68	69.53
931O	79.84	77.68
901B	74.03	72.54
921I	79.18	76.35
831D	79.21	77.55
831J	79.61	77.12
921C	79.31	75.7
931D	80.11	77.93
931B	80.01	77.7
921D	79.81	76.77
931U	80.04	78.09
831I	79.6	77.3
8202	79.82	72.72
921E	79.91	78.21
931M	80.03	78.11
921K	79.8	75.35
921A	79.93	77.56
8208		75.02
821D	79.5	74.2
821G	79.64	76.12
931S	80.11	78.04
921B	79.36	76.44
821A	79.55	76.9
6451		
9104	77.97	74.08
6401	51.22	49.56
921H	79.75	76.65
541B		
531A		
821I		
641B		
631B		
831K		

REFERENCE	COVER LEVEL	INVERT LEVEL
5001	55.43	53.7
451A		
5203	54.04	52.57
5350	53.77	51.58
451B	51.19	48.59
6403	51.41	49.77
6404	51.13	49.5
5401	50.44	47.97
5402	51	48.8
5201	56.57	54.86
5452	50.8	48.5
5403	50.83	49.26
5250	54.54	52.85
302A	53.99	51.83
5351	53.61	49.9
5150	55.61	54.17
5002	55.19	53.22
6351	54.22	52.32
511D		
5151	56.93	55.45
5050	55.34	
831F	79.66	76.28
931T	80.05	76.9
821C	80.19	74.06
901A	74.9	73.52
921J	79.61	75.55
931Q	80.12	77.98
831E	79.34	76.79
931L	80.01	77.08
821H	79.7	77.01
911B	77.91	74.39
8304	79.47	77.4
021G	79.18	75.73
831C	79.31	77.48
931R	79.98	77.78
6354		
931P	80	78.25
831A	79.23	76.93
831H	79.66	76.5
821F	79.58	75.16
941D	79.67	78.39
931J	79.93	78.46
821E	79.59	77.04
7302	69.43	65.18
901C	71.09	69.68
931H	80.06	77.87
831G	79.5	76.65
931K	79.32	77.5
901E	69.9	68.15
921G	79.93	76.8
931I	80.02	77.64
931C	79.89	77.23
941A	79.12	77.49
931N	80.12	77.8
6353		
8204	79.47	73.19
511A		
511B		
541C		
541A		
641A		
631C		
631A		
741A		



The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified before any works are undertaken. Crown copyright Reserved

Scale: 1:1789
Width: 500m
Printed By: Skrishna1
Print Date: 19/06/2024
Map Centre: 473250,169250
Grid Reference: SU7369SW

Comments:

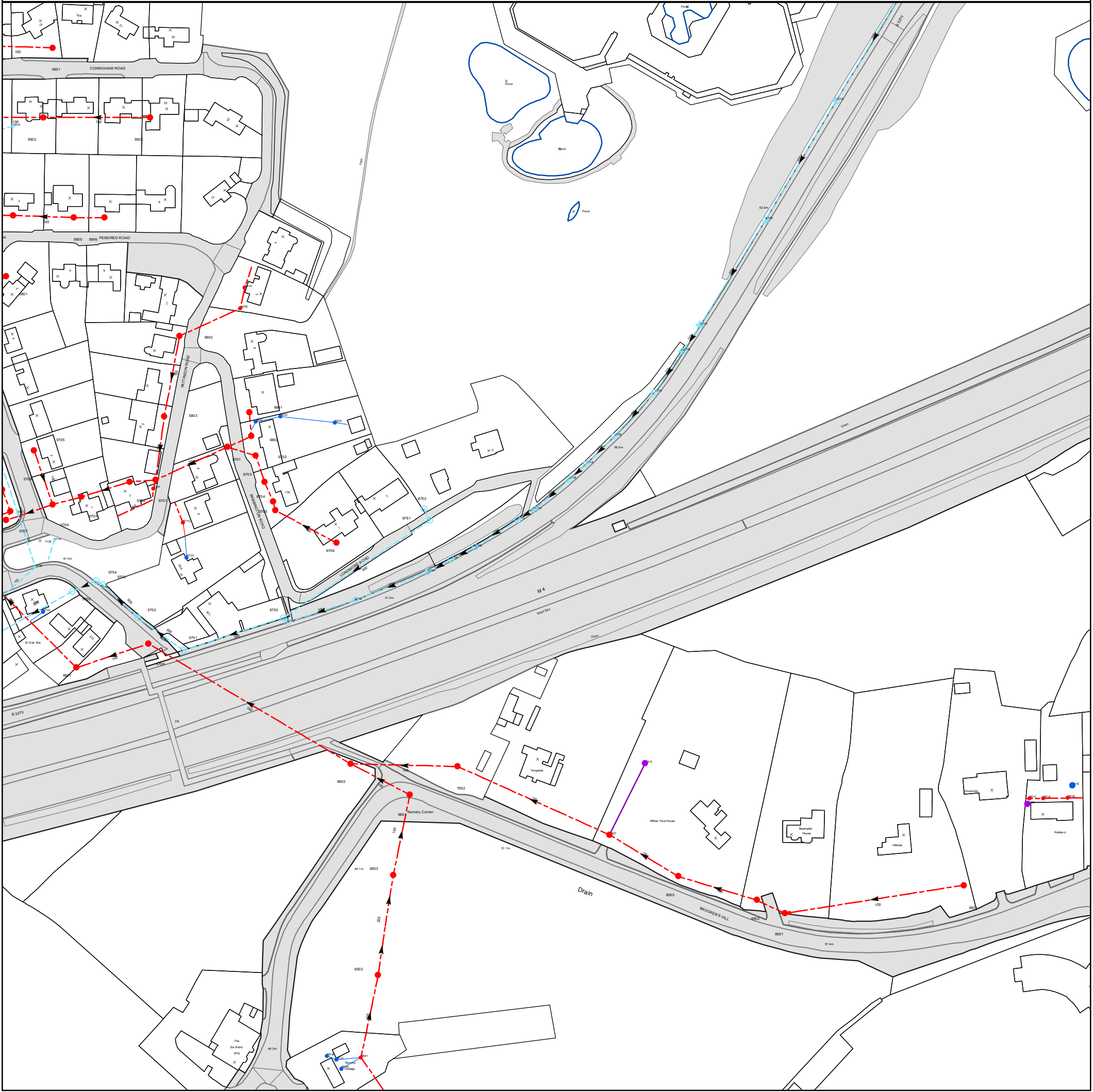
CDWS/CDWS Standard/2024_5002401

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
121L	78.74	77.09
2303	74.07	72.59
3306	71.58	70.26
2304	73.44	71.78
2402		
3402		
3454	67.6	64.57
3455	67.24	64.3
3308	67.55	66.23
3302	68.82	67.41
3303	67.64	66.09
4459	60.17	59.21
3309	67.63	66.09
021D	78.32	75.96
2301	74.25	72.84
3310	67.84	65.19
021S	79.33	76.27
0304	80.23	
221I	74.02	72.57
222A	73.09	71.7
231K	76.14	74.73
231M	76.74	74.95
3403		
121E	78.66	77.08
011C	77.4	75.53
031A	80.18	78.48
141A	79.12	77.77
021I	78.99	77.32
131J	79.92	77.95
141E	80.16	78.65
421D	64.7	60.8
331T	64.62	63.23
121G	78.62	
131G	79.11	76.86
2320	78.12	76.11
031C	80.26	77.58
1304	79.73	77.81
121H	78.5	76.92
021B	79.87	78.46
121K	79.27	
121D	78.6	
021O	79.83	78.44
231B		
021H	79.17	76.19
121I	78.68	76.85
1310	79.3	77.14
131I	79.35	77.55
021K	79.01	76.35
021T	78.65	76.6
021F	80	77.94
131H	80.06	78.17
131B	79.27	77.67
011D	77.42	74.6
021N	79.2	76.22
111A	78.39	76.9
131E	79.73	77.38
2319	77.79	75.95
331G	71.35	70.07
221J	72.87	71.02
231I	75.37	73.65
221M		73.1
221O	75.21	73.71
231J	75.05	72.88
221S	75.394	73.815
221U	75.39	74.15
231N	76.7	74.95
221X	75.022	73.597
222B	72.98	71.11
321C	72.24	71.04
321D	72.24	69.6
321E	68.996	65.233
321G	69.45	67.74
321I	67.968	65.761
331K	68.11	66.5
321L	69.35	66.59
331M	64.53	63.04
421B	63.64	61.02
331N	65.59	64.25
431C	62.05	60.28
421A	64.54	61.17
3458	68.8	67.45

REFERENCE	COVER LEVEL	INVERT LEVEL
2404		
2401	77.94	76.08
3301	71.42	70.02
3404	75.15	73.36
2302	73.13	71.68
3305	67.87	64.89
3456	67.72	64.92
3457	67.28	62.35
3304	67.62	65.59
3307	68.69	67.58
4457	60.17	58.16
4455	65.5	63.66
4458	63.68	61.6
4456	63.5	61.46
2403		
021P	79.32	76.07
2318	77.95	75.25
331H	70.93	68.9
331L	70.71	69.28
222D	73.65	71.99
231L	76.02	74.32
331E	71.73	70.01
222E	73.45	72.1
131A	79.24	76.78
031F	80	76.92
121F	79.31	77.38
141C	79.79	78
031D	79.87	78.03
131D	79.32	77.11
2317	78.04	75.54
321T		
331U	65.55	64.18
131F	79.11	77.24
121J	78.55	77.24
031B	79.96	77.77
1301	80.18	78.36
141B	79.14	77.35
121B	78.71	77.27
131C	79.19	76.87
021A	80.12	78.32
141D	79.65	78.8
021J	78.89	76.9
021M	79.98	78.65
021R	78.66	76
931A	80	78.28
021Q	79.93	78.15
121C	78.63	76.62
011B	77.05	74.47
231A		
031E	80.26	78.51
021L	79.98	78.17
0106	77.97	75.45
021C	79.79	78.37
121A	78.66	76.38
011A	77.8	75.07
021E	78.82	76.04
331F	71.65	70.48
221H	74.1	72.18
221K	72.78	70.75
221L	75.37	73.67
221N	74.27	72.2
221P	74.1	71.24
221R	73.89	71.65
221T	75.45	73.52
221V	75.307	73.559
221W	75.23	73.64
221Z	75.25	73.34
321B	71.93	70.352
331I	72.1	70.36
331J	66.35	64.907
321F	68.89	66.18
321H	68.18	66.08
321J	68	65.31
321K	70.27	68.53
431A	63.92	62.26
431B	64.24	62.95
321M	67.58	63.68
321N	66	62.65
431L	62.15	60.07
3460	68.8	67.45
2305	74.63	73.6

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Scale: 1:1789
Width: 500m
Printed By: Krishna1
Print Date: 19/06/2024
Map Centre: 472750,168750
Grid Reference: SU7268NE

Comments:

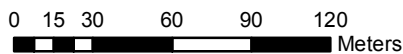
CDWS/CDWS Standard/2024_5002401

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
2312	76	74.78
341F		
341H		
0105		
221Q	74.755	72.777
431D	63.07	60.01
431F	61.84	59.63
431H	60.74	58.14
431J	63.44	59.73
4406	62.31	60.11
4404	66.38	63.84
4408	63.93	61.93
4407	62.69	60.49
4453	66.81	65.12
3401	71.28	69.72
441C		61.7
441E		64.2
441G		
441I		65.55
341J		68.6
341M		65.9
341O		68
341Q		
441J		57.6
441L		59.2
441N		63.4
441P		
441R		
441T		
441V		61.8
441X		
441Z		58.5
442B		
442D		58.6
442F		58.5
442H		62.1
442J		58.2
442L		60
442N		59.6
442P		64.3
442R		65.1
341T		66
442T		
431M		
341L		65.7
241A		
011E		

REFERENCE	COVER LEVEL	INVERT LEVEL
341E		
341G		
221Y	75.11	73.29
441A	58.81	57.45
321S	66.53	61.03
431E	63.39	59.88
431G	60.5	58.2
431I	61.83	59.49
431K	63.11	59.85
4451	63.79	62.18
4452	66.5	64.35
4450	61.17	59.43
3450	66.86	65.41
4405	66.84	64.67
441B		61.4
441D		
441F		
441H		64.7
341I		67.5
341K		
341N		65.9
341P		66.1
341R		
441K		58.1
441M		60.9
441O		60
441Q		
441S		
441U		
441W		64
441Y		
442A		59.05
442C		
442E		59.5
442G		64.6
442I		61.8
442K		58.9
442M		59.2
442O		61.4
442Q		64.3
341S		65.8
442S		
331W		
021V		
021U		
011F		

CDWS/CDWS Standard/2024_5002401



Scale: 1:2866
Width: 800m
Printed By: Skrishna1
Print Date: 20/06/2024
Map Centre: 472812,169007
Grid Reference: SU7269SE

Comments:

CDWS/CDWS Standard/2024_5002401

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
121L	78.74	77.09
4201	52.66	50.02
4904	50.84	49.21
4902	50.18	48.58
5001	55.43	53.7
4355		
4354		
4803	49	47.28
6602	49.17	47.39
0601	65.13	63.68
1702	65.62	63.94
4353		
5751	48.5	46.93
5203	54.04	52.57
5350	53.77	51.58
6601	49.79	47.82
7602	49.99	48.72
6702	49.88	48.63
6703	49.76	48.73
4050	54.65	
5706	47.95	46.28
5707	48.02	46.16
5101	55.15	53.12
6706	49.75	49.36
5803	49.36	48.52
5201	56.57	54.86
5103	56.88	
5352	53.2	49.57
302B	52.87	48.67
5903	52.41	51.41
302A	53.99	51.83
6350	54.11	51.97
4907	52.08	51.05
4903	51.11	49.6
5902	51.58	50.27
5704	48.14	46.95
5102	55.54	53.57
5750	47.74	45.89
5601	47.54	45.74
4906	51.91	50.82
4151	54.41	51.92
4150	54.45	51.96
4301	49.89	47.54
5906	50.42	49.68
1602	64.46	62.63
6351	54.22	52.32
511D		
481D		
021D	78.32	75.96
301B	53.48	49.67
051B	54.79	52.22
831F	79.66	76.28
1601	64.76	62.13
821B	79	75.99
771D	53.53	52.13
931T	80.05	76.9
121E	78.66	77.08
131A	79.24	76.78
011C	77.4	75.53
901A	74.9	73.52
031A	80.18	78.48
121F	79.31	77.38
921J	79.61	75.55
931Q	80.12	77.98
831E	79.34	76.79
021I	78.99	77.32
6356		
821H	79.7	77.01
131D	79.32	77.11
8301	75.68	69.53
121G	78.62	
131G	79.11	76.86
781A	58.04	56.82
901B	74.03	72.54
121J	78.55	77.24
031B	79.96	77.77
031C	80.26	77.58
1301	80.18	78.36
6354		
121H	78.5	76.92
021B	79.87	78.46

REFERENCE	COVER LEVEL	INVERT LEVEL
931F	80.1	78.58
4153	53.11	51.61
4152	53.2	51.5
5702	48.83	47.54
5252	56.61	55.08
4356		
4701	47.29	45.05
4253		
4251	52.64	50.29
001B	54.63	52.45
1701	67.07	65.67
5802	50.57	49.27
5202	55.81	53.91
5251	56.25	54.24
4101	53.05	51.37
6752	50.52	48.93
6802	50.04	48.69
6302	54.23	52.8
051A	54.74	52.18
5708	47.91	46.42
5801	49.36	48.01
5904	50.09	48.78
5705	48.46	47.32
5701	48.99	47.74
5303		
5752	47.74	46.58
5754	47.89	46.3
4352	49.91	48.14
5709	47.68	45.91
5250	54.54	52.85
6701	49.78	48.49
001A	54.66	52.48
4750	45.79	45.71
5351	53.61	49.9
5150	55.61	54.17
5901	52.52	51.62
5002	55.19	53.22
5905	50.3	49.39
5703	48.39	47.12
4802	48.46	46.9
4901	50.07	48.22
4351	49.83	47.93
5753	47.73	46.36
5104	56.28	54.32
6704	49.6	48.88
511C		
431A		
921F	79.63	76.56
5151	56.93	55.45
5050	55.34	
6705	49.62	48.95
6751	50.83	49
021P	79.32	76.07
021S	79.33	76.27
771C	54.06	52.57
0304	80.23	
9204	79.86	77.45
821C	80.19	74.06
8201	78.97	72.38
031F	80	76.92
771F	52.21	50.86
931E	79.98	77.46
931G	80.11	78.06
7301	63.93	
831B	79.33	77.04
931L	80.01	77.08
031D	79.87	78.03
131J	79.92	77.95
911B	77.91	74.39
8304	79.47	77.4
131F	79.11	77.24
931O	79.84	77.68
021G	79.18	75.73
831C	79.31	77.48
921I	79.18	76.35
931R	79.98	77.78
891B	62.89	61.56
831D	79.21	77.55
1304	79.73	77.81
121B	78.71	77.27
131C	79.19	76.87

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CDWS/CDWS Standard/2024_5002401

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

REFERENCE	COVER LEVEL	INVERT LEVEL
831J	79.61	77.12
771B	54.89	53.65
781B	56.48	55.23
671C	49	48.22
931D	80.11	77.93
021A	80.12	78.32
831H	79.66	76.5
021J	78.89	76.9
821F	79.58	75.16
021H	79.17	76.19
021R	78.66	76
931A	80	78.28
1310	79.3	77.14
6750	49.69	47.89
891A	66.2	64.72
131I	79.35	77.55
121C	78.63	76.62
8202	79.82	72.72
011B	77.05	74.47
021T	78.65	76.6
921E	79.91	78.21
901C	71.09	69.68
131H	80.06	78.17
931M	80.03	78.11
921K	79.8	75.35
881A	59.74	58.64
011D	77.42	74.6
021C	79.79	78.37
021N	79.2	76.22
121A	78.66	76.38
8208		75.02
821D	79.5	74.2
821G	79.64	76.12
111A	78.39	76.9
771A	55.53	54.24
931C	79.89	77.23
921B	79.36	76.44
821A	79.55	76.9
0105		
6801	50.3	49.07
4850	47.98	46.46
4751	46.95	46.24
8204	79.47	73.19
4905	51.29	50.19
7601	52.03	50.67
511A		
471B		
511B		
471C		
571C		
491A		
491B		
541C		
171C		
171E		
481F		
481C		
021V		
481J		
021U		
681B		
681D		
571F		
471E		
571H		
631B		
831K		
421C		
961E		
961B		
961C		
011E		

REFERENCE	COVER LEVEL	INVERT LEVEL
931P	80	78.25
921C	79.31	75.7
831A	79.23	76.93
771E	52.74	51.39
121K	79.27	
121D	78.6	
021O	79.83	78.44
931B	80.01	77.7
021M	79.98	78.65
921D	79.81	76.77
121I	78.68	76.85
931U	80.04	78.09
021Q	79.93	78.15
881B	58.99	57.83
931J	79.93	78.46
831I	79.6	77.3
821E	79.59	77.04
021K	79.01	76.35
7302	69.43	65.18
671B	50.59	49
021F	80	77.94
031E	80.26	78.51
021L	79.98	78.17
931H	80.06	77.87
131B	79.27	77.67
0106	77.97	75.45
831G	79.5	76.65
921A	79.93	77.56
671A	51.66	50.31
931K	79.32	77.5
901E	69.9	68.15
921G	79.93	76.8
931I	80.02	77.64
011A	77.8	75.07
931S	80.11	78.04
131E	79.73	77.38
021E	78.82	76.04
931N	80.12	77.8
6353		
4851	47.2	46.02
4801	47.57	46.26
9104	77.97	74.08
571A		
171A		
761A		
471A		
921H	79.75	76.65
481B		
571B		
481A		
591A		
571D		
531A		
171D		
171F		
481E		
821I		
481I		
4804	49.52	47.68
681A		
681C		
681E		
471F		
571G		
631C		
631A		
421B		
421A		
961A		
961D		
011F		



Con29DW Commercial Drainage and Water Search - Sewer Key

Public Sewer Types (Operated and maintained by Thames Water)

	Foul Sewer: A sewer designed to convey waste water from domestic and industrial sources to a treatment works.		
	Surface Water Sewer: A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.		
	Combined Sewer: A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.		
	Storm Sewer		Sludge Sewer
	Foul Trunk Sewer		Surface Trunk Sewer
	Combined Trunk Sewer		Foul Rising Main
	Surface Water Rising Main		Combined Rising Main
	Vacuum		Thames Water Proposed
	Vent Pipe		Gallery

Other Sewer Types (Not operated and maintained by Thames Water)

	Sewer		Culverted Watercourse
	Proposed		Decommissioned Sewer
	Content of this drainage network is currently unknown		Ownership of this drainage network is currently unknown

Notes:

- 1) All levels associated with the plans are to Ordnance Datum Newlyn.
- 2) All measurements on the plan are metric.
- 3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
- 4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.

Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

	Air Valve		Meter
	Dam Chase		Vent
	Fitting		

Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

	Ancillary		Drop Pipe
	Control Valve		Weir

End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

	Inlet		Outfall
	Undefined End		

Other Symbols

Symbols used on maps which do not fall under other general categories.

	Change of Characteristic Indicator		Public / Private Pumping Station
	Invert Level		Summit

Areas

Lines denoting areas of underground surveys, etc.

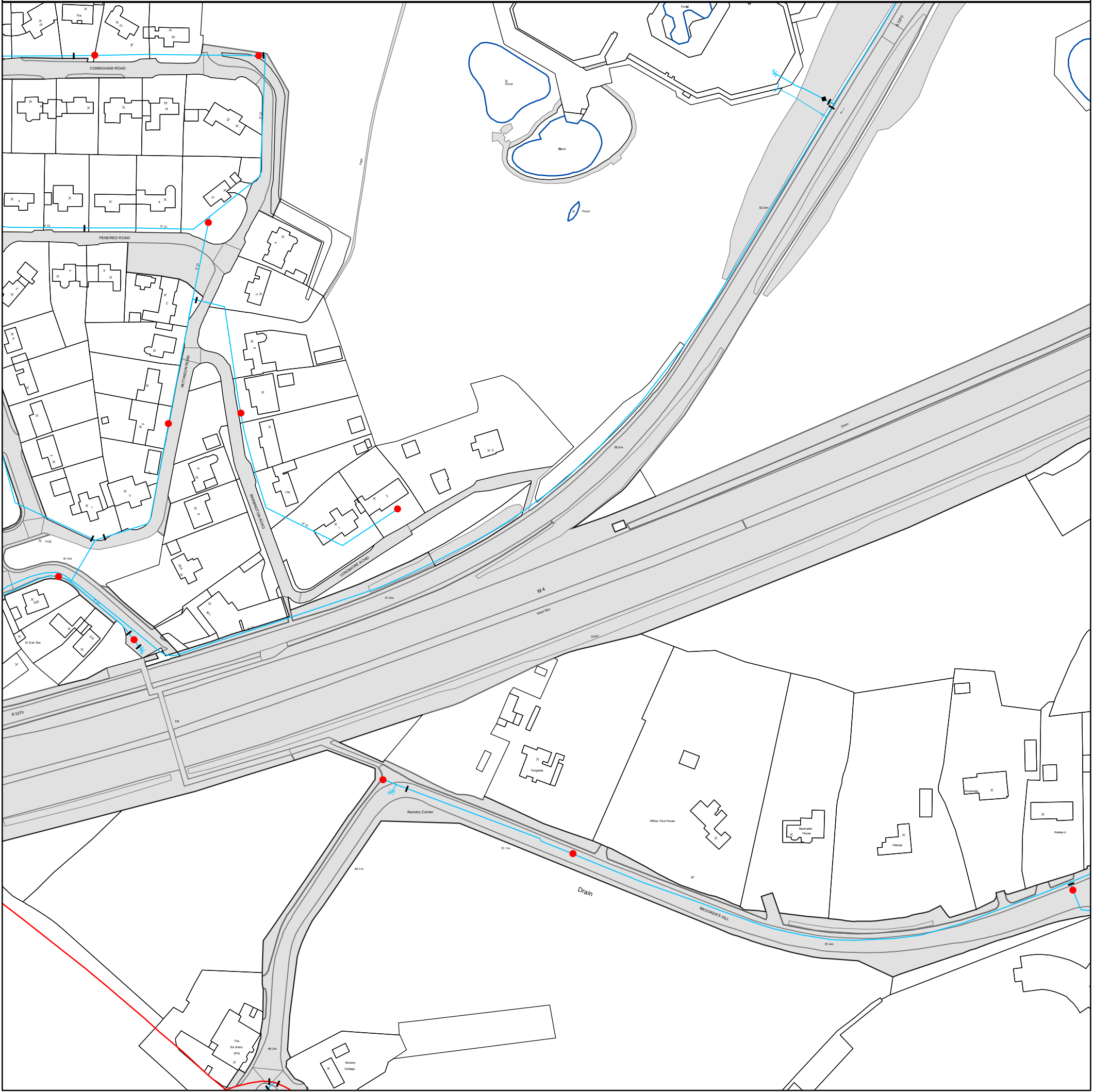
	Agreement
	Chamber
	Operational Site

Ducts or Crossings

	Casement	Ducts may contain high voltage cables. Please check with Thames Water.
	Conduit Bridge	
	Subway	
	Tunnel	

5) 'na' or '0' on a manhole indicates that data is unavailable.

6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement. If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.



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Scale: 1:1789
Width: 500m
Printed By: Krishna1
Print Date: 19/06/2024
Map Centre: 472750,168750
Grid Reference: SU7268NE

Comments:



0 10 20 40 60 80
Meters

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Scale: 1:1789
Width: 500m
Printed By: Skrishna1
Print Date: 19/06/2024
Map Centre: 473250,169250
Grid Reference: SU7369SW

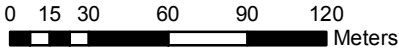
Comments:



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Scale: 1:1789
Width: 500m
Printed By: Krishna1
Print Date: 19/06/2024
Map Centre: 472750,169250
Grid Reference: SU7269SE

Comments:



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Scale: 1:2866
Width: 800m
Printed By: Krishna1
Print Date: 20/06/2024
Map Centre: 472812,169007
Grid Reference: SU7269SE

Comments:



Con29DW Commercial Drainage and Water Search - Water Key

Water Pipes (Operated & Maintained by Thames Water)

-

PIPE DIAMETER	DEPTH BELOW GROUND
Up to 300mm (12")	900mm (3')
300mm - 600mm (12" - 24")	1100mm (3' 8")
600mm and bigger (24" plus)	1200mm (4')

Valves

- General Purpose Valve
- Air Valve
- Pressure Control Valve
- Customer Valve

Hydrants

- Single Hydrant

Meters

- Meter

End Items

Symbol indicating what happens at the end of a water main.

- Blank Flange
- Capped End
- Emptying Pit
- Undefined End
- Manifold
- Customer Supply
- Fire Supply

Operational Sites

- Booster Station
- Other
- Other (Proposed)
- Pumping Station
- Service Reservoir
- Shaft Inspection
- Treatment Works
- Unknown
- Water Tower

Other Symbols

- Data Logger
- Caseament:** Ducts may contain high voltage cables. Please check with Thames Water.

Other Water Pipes (Not Operated or Maintained by Thames Water)

- Other Water Company Main:** Occasionally other water company water pipes may overlap the border of our clean water coverage area. These mains are denoted in purple and in most cases have the owner of the pipe displayed along them.
- Private Main:** Indicates that the water main in question is not owned by Thames Water. These mains normally have text associated with them indicating the diameter and owner of the pipe.

For your guidance:

- **Thames Water Property Searches Complaints Procedure:**

- Thames Water Property Searches offers a robust complaints procedure. Complaints can be made by telephone, in writing, by email (onlinecustomers@thameswater.co.uk) or through our website (www.thameswater-propertysearches.co.uk)
- A complaint should be acknowledged within 5 working days from receipt.

As a minimum standard Thames Water Property Searches will:

- endeavour to resolve any contact or complaint at the time of receipt. If this isn't possible, we will advise of timescales;
- investigate and research the matter in detail to identify the issue raised (in some cases third party consultation will be required);
- provide a response to the customer within 10 working days of receipt of the complaint;
- provide compensation if no response or acknowledgment that we are investigating the case is given within 10 working days of receipt of the complaint;
- keep you informed of the progress and, depending on the scale of investigation required, update with new timescales as necessary;
- provide an amended search, free of charge, if required;
- provide a refund if we find your complaint to be justified; take the necessary action within our power to put things right.

If you want us to liaise with a third party on your behalf, just let us know.

If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager, for resolution, who will respond again within 5 working days.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

Question 1.1

For your guidance:

- The Water Industry Act 1991 defines Public Sewers as those which Thames Water have responsibility for. Other assets and rivers, watercourses, ponds, culverts, or highway drains may be shown for information purposes only.
- The company is not generally responsible for SuDS (sustainable urban drainage system), rivers, watercourses, ponds, culverts, or highway drains. If any of these are shown on the copy extract, they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the housing developer.
- Assets other than public sewers may be shown on the copy extract, for information.

Question 1.2

For your guidance:

- The "water mains" in this context are those, which are vested in and maintainable by the water company under statute.
- Assets other than public water mains may be shown on the plan, for information only.
- Water companies are not responsible for private supply pipes connecting the property to the public water main and do not hold details of these. These may pass through land outside of the control of the seller or may be shared with adjacent properties. The buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair, or renewal.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the length and route of any private water supply pipe connecting the property to the public water network.

Question 2.1

For your guidance:

- Water companies are not responsible for any private drains that connect the property to the public sewerage system and do not hold details of these. The property owner will normally have sole responsibility for private drains serving the property. These may pass through land outside the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair, or renewal.
- If foul water does not drain to the public sewerage system, the property may have private facilities in the form of a cesspit, septic tank, or other type of treatment plant.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property, and it should be possible to estimate the length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.2

For your guidance:

- Sewerage Undertakers are not responsible for any private drains that connect the property to the public sewerage system, and do not hold details of these.
- The property owner will normally have sole responsibility for private drains serving the property. These private drains may pass through land outside of the control of the seller and the buyer may wish to investigate whether separate rights or easements are needed for their inspection, repair, or renewal.
- In some cases, 'Sewerage Undertakers' records do not distinguish between foul and surface water connections to the public sewerage system.
- At the time of privatisation in 1989, Sewerage Undertakers were sold with poorly kept records of sewerage infrastructure. The records did not always show which properties were connected for surface water drainage purposes. Accordingly, billing records have been used to provide an answer for this element of the drainage and water search.
- Due to the potential inadequacy of 'Sewerage Undertakers' infrastructure records with respect to surface water drainage, it is the customer's responsibility to inform the Sewerage Undertaker that they do not receive the surface water drainage service. If on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property, then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit www.open-water.org.uk.
- If surface water from the property does not drain to the public sewerage system, the property may have private facilities in the form of a soakaway, private connection to a watercourse or there may be a sustainable urban drainage system (SuDS). Sustainable drainage systems are a collection of water management practices that aim to align modern drainage systems with natural water processes and are part of a larger green infrastructure strategy.
- An extract from the public sewer map is enclosed. This will show known public sewers in the vicinity of the property, and it should be possible to estimate the length and route of any private drains and/or sewers connecting the property to the public sewerage system.

Question 2.3

For your guidance:

- If surface water from the property drains to a public sewer, then a surface water drainage charge is payable.
- Where a surface water drainage charge is currently included in the property's water and sewerage bill but, on inspection, the buyer finds that surface water from the property does not drain to a public sewer, then the property may be eligible for a rebate of the surface water drainage charge. If you wish to know who bills the sewerage services for this property, then you will need to contact the current owner. For a list of all potential retailers of sewerage services for the property please visit www.open-water.org.uk.

Question 2.4

For your guidance:

- Thames Water has a statutory right of access to carry out work on its assets. Employees of Thames Water or its contractors may, therefore, need to enter the property to carry out work.
- Please note if the property was constructed after 1st July 2011 any sewers and/or lateral drain within the boundary of the property are the responsibility of the householder.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public sewer running within the boundary of the property may restrict further development. The Company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the housing developer.

Question 2.4.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The approximate boundary of the property has been determined by reference to the Ordnance Survey Record or the map supplied.
- The presence of a public pumping station within the boundary of the property may restrict further development. The company has a statutory right of access to carry out work on its assets, subject to notice. This may result in employees of the company, or its contractors, needing to enter the property to carry out work.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the housing developer.

Question 2.5

For your guidance:

- From the 1st October 2011 there may be additional lateral drains and/or public sewers which are not recorded on the public sewer map but are also within 30.48 metres (100 feet) of a building within the property.
- The presence of a public foul sewer within 30.48 metres (100 feet) of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public foul sewer.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the housing developer.

Question 2.5.1

For your guidance:

- Private pumping stations installed before 1st July 2011 will be transferred into the ownership of the sewerage undertaker.
- From the 1st October 2016 private pumping stations which serve more than one property have been transferred into public ownership but may not be recorded on the public sewer map.
- The presence of a public pumping station within 50 metres of the building(s) within the property can result in the local authority requiring a property to be connected to the public sewer.
- The measurement is estimated from the Ordnance Survey record, between the building(s) within the boundary of the property and the nearest public sewer.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the housing developer.

Question 2.6

For your guidance:

- Any sewers and/or lateral drains within the boundary of the property are not the subject of an adoption agreement and remain the responsibility of the householder. Adoptable sewers are normally those situated in the public highway.
- This enquiry is of interest to purchasers who will want to know whether or not the property will be linked to a public sewer.
- Where the property is part of a very recent or ongoing development and the sewers are not the subject of an adoption application, buyers should consult with the developer to ascertain the extent of private drains and sewers for which they will hold maintenance and renewal liabilities.
- Final adoption is subject to the developer complying with the terms of the adoption agreement under Section 104 of the Water Industry Act 1991 and meeting the requirements of 'Sewers for Adoption' 7th Edition.
- For further information on any buildover and/or adoption agreements please contact our developer services team by sending an email to developer.services@thameswater.co.uk or 0800 009 3921.

Question 2.7

For your guidance:

- From the 1st October 2011 most private sewers, disposal mains and lateral drains were transferred into public ownership and the sewerage undertaker may not have been approved or consulted about any plans to erect a building or extension on the property over or in the vicinity of these.
- Buildings or extensions erected over a sewer in contravention of building controls may have to be removed or altered.
- For further information on any buildover and/or adoption agreements please contact our developer services team by sending an email to developer.services@thameswater.co.uk or 0800 009 3921.

Question 2.8

For your guidance:

- For reporting purposes buildings are restricted to those normally occupied and used for residential, public, commercial, business, or industrial purposes.
- A sewer is “overloaded” when the flow from a storm is unable to pass through it due to a permanent problem (e.g. flat gradient, small diameter). Flooding because of temporary problems such as blockages, siltation, collapses and equipment or operational failures are excluded.
- “Internal flooding” from public sewers is defined as flooding, which enters a building or passes below a suspended floor. For reporting purposes, buildings are restricted to those normally occupied and used for residential, public, commercial, business, or industrial purposes.
- “At Risk” properties are those that the water company is required to include in the Regulatory Register that is presented annually to the Director General of Water Services. These are defined as properties that have suffered, or are likely to suffer, internal flooding from public foul, combined or surface water sewers due to overloading of the sewerage system more frequently than the relevant reference period (either once or twice in ten years) as determined by the Company’s reporting procedure.
- Flooding as a result of storm events proven to be exceptional and beyond the reference period of one in ten years are not included on the At-Risk Register.
- Properties may be at risk of flooding but not included on the Register where flooding incidents have not been reported to the Company.
- Public Sewers are defined as those for which the Company holds statutory responsibility under the Water Industry Act 1991.
- It should be noted that flooding can occur from private sewers and drains which are not the responsibility of the Company. This report excludes flooding from private sewers and drains and the Company makes no comment upon this matter.
- For further information please contact Thames Water Utilities Ltd on Tel: 0800 316 9800 or website www.thameswater.co.uk

Question 2.9

For your guidance:

- The nearest sewage treatment works will not always be the sewage treatment works serving the catchment within which the property is situated.
- The sewerage undertaker’s records were inspected to determine the nearest sewage treatment works.
- It should be noted that there may be a private sewage treatment works closer than the one detailed above that has not been identified.
- As a responsible utility operator, Thames Water Utilities Ltd seeks to manage the impact of odour from operational sewage works on the surrounding area. This is done in accordance with the Code of Practice on Odour Nuisance from Sewage Treatment Works issued via the Department of Environment, Food and Rural Affairs (DEFRA). This Code recognises that odour from sewage treatment works can have a detrimental impact on the quality of the local environment for those living close to works. However, DEFRA also recognises that sewage treatment works provide important services to communities and are essential for maintaining standards in water quality and protecting aquatic-based environments. For more information visit www.thameswater.co.uk

Question 3.1

For your guidance:

- The Company does not keep details of private supplies. The situation should be checked with the current owner of the property.

Question 3.2

For your guidance:

- The boundary of the property has been determined by reference to the plan supplied. Where a plan was not supplied, the Ordnance Survey Record was used. If the Water undertaker mentioned in Question 4.1.2 is not Thames Water Utilities Ltd the boundary of the property has been determined by Ordnance Survey data.
- The presence of a public water main within the boundary of the property may restrict further development within it. Water companies have a statutory right of access to carry out work on their assets, subject to notice. This may result in employees of the Company, or its contractors, needing to enter the property to carry out work.

Question 3.3

For your guidance:

- This enquiry is of interest to purchasers who will want to know whether the property will be linked to the mains water supply.

Question 3.4

For your guidance:

- "Low water pressure" means water pressure below the regulatory reference level, which is the minimum pressure when demand on the system is not abnormal.
- Water Companies are required to include in the Regulatory Register that is presented annually to Ofwat, properties receiving pressure below the reference level, provided that allowable exclusions do not apply (i.e. events which can cause pressure to temporarily fall below the reference level) and a solution has not yet been implemented.
- The reference level of service is a flow of 9 litres/minute at a pressure of 10metres / head on the customer's side of the outside stop valve (osv). The reference level of service must be applied on the customer's side of a meter or any other company fittings that are on the customer's side of the main stop tap. The reference level applies to a single property. Where more than one property is served by a common service pipe (shared supply), the flow assumed in the reference level must be appropriately increased to take account of the total number of properties served.
 - For two properties, a flow of 13.5 litres/min at a pressure of 10m head on the customers' side of the OSV is appropriate.
 - For three or more properties the appropriate flow should be calculated from the standard loadings provided in Service Pipe Manual 1993.
- **Allowable exclusions** The Company is required to include in the Regulatory Register properties receiving pressure below the reference level, provided that allowable exclusions listed below do not apply.
- **Abnormal demand:** This exclusion is intended to cover abnormal peaks in demand and not the daily, weekly or monthly peaks in demand, which are normally expected. Companies should exclude from the reported figures properties which are affected by low pressure only on those days with the highest peak demands. During the report year companies may exclude, for each property, up to five days of low pressure caused by peak demand.
- **Planned maintenance:** Companies should not report low pressures caused by planned maintenance. It is not intended that companies identify the number of properties affected in each instance. However, companies must maintain sufficiently accurate records to verify that low-pressure incidents that are excluded because of planned maintenance are actually caused by maintenance.
- **One-off incidents:** This exclusion covers a number of causes of low pressure; mains bursts; failures of company equipment (such as pressure reducing valves or booster pumps); firefighting; and action by a third party. However, if problems of this type affect a property frequently, they cannot be classed as one-off events and further investigation will be required before they can be excluded.
- **Low-pressure incidents of short duration:** Properties affected by low pressure, which only occur for a short period, and for which there is evidence that incidents of a longer duration would not occur during the year, may be excluded from the reported figures.
- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water pressure.

Question 3.5

For your guidance:

- Water hardness can be expressed in various indices for example the hardness settings for dishwashers are commonly expressed in Clark's degrees however, check with the manufacturer as there are also other units. The following table shows the normal ranges of hardness.

Thames Water Hardness Category	Calcium (mg/l)	Calcium Carbonate (mg/l)	English Clarke degrees	French degrees	General/ German degrees
Soft	0 to 40	0 to 100	0 to 7	0 to 10	0 to 5.6
Medium	41 to 80	101 to 200	8 to 14	11 to 20	5.7 to 11.2
Hard	Over 80	Over 200	Over 14	Over 20	over 11.2

- Please contact your water undertaker mentioned in Question 4.1.2 if you require further information on water hardness.

Question 3.6

For your guidance:

- The Water Industry Act 1991 Section 150, The Water Resale Order 2001 provides protection for people who buy their water or sewerage services from a person or company instead of directly from a water or sewerage company. Details are available from the Office of Water Services (OFWAT) website is www.ofwat.gov.uk.
- The Company may install a meter at the premises where a buyer makes a change of use of the property or where the buyer uses water for:
 - Watering the garden other than by hand (this includes the use of sprinklers).
 - Automatically replenishing a pond or swimming pool with a capacity greater than 10,000 litres.
 - A bath with a capacity more than 230 litres.
 - A reverse osmosis unit Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the sewerage and water services for this property. For a list of all potential retailers of sewerage and water services for the property please visit www.open-water.org.uk.

Question 3.7

For your guidance:

- Where a meter does not serve the property and the customer wishes to consider this method of charging, they should contact the current owner if they wish to know who bills the water services for this property. For a list of all potential retailers of water services for the property please visit www.open-water.org.uk.

Question 5.1

For your guidance:

- If a Trade effluent consent applies to the premises which are the subject of this search, it is for the applicant to satisfy itself as to the suitability of the consent for its client's requirements. The occupier of any trade premises in the area of a sewerage undertaker may discharge any trade effluent proceeding from those premises into the undertaker's public sewers if he does so with the undertaker's consent. If, in the case of any trade premises, any trade effluent is discharged without such consent or other authorisation, the occupier of the premises shall be guilty of an offence.
- Please note any existing consent is dependent on the business being carried out at the property and will not transfer automatically upon change of ownership.
- For further information regarding Trade Effluent consents please contact: Trade Effluent Control, Crossness STW, Belvedere Road, Abbey Wood London SE2 9AQ.

Question 6.1

For your guidance:

- This question relates only to private agreements between the water company acting in a private capacity and a landowner. Such contracts may often be part of a conveyance or land transfer, or a deed of grant of easement.
- If there is no formal easement, then a sewer or water main may have been constructed following the service of notice under the provisions of the Public Health Act 1936, Water Act 1945, Water Act 1989 or Water Industry Act 1991 as applicable. The company does not hold copies of these notices. However, in the absence of evidence to the contrary there is a legal presumption that all matters were properly dealt with. All rights and obligations relating to sewers and water mains are now covered by the Water Industry Act 1991. Where rights exist at the boundary of the property, but we are not sure of the exact correlation, we will answer "Yes" to this question. A documentary right can exist even if the physical asset itself has not yet been laid, or has been moved, or removed. Likewise, the position of the right and of the asset may differ.
- You may also find that an asset is protected both with contractual rights and statutory rights. Please consult your solicitor as to why this may happen, and its effects.
- We refer to "defined" assets for the following reasons: Often a contract may give the water company an expressed right to install and maintain assets within an area but without stating the exact position or route of such assets. Also, the law may imply rights where none have been mentioned specifically in a related contract, such as a conveyance. Finally, rights may come into being through long use. In any of these cases the rights are undefined, and although the water company may need to rely on them from time to time, as we cannot map the rights accurately, we will answer "no" to this question.
- Information obtainable from physical inspection (including Trial Bore Holes) overrides information contained in the report.
- Any error in answering this question is not to be regarded as a waiver of the water company's rights or title, or an agreement or representation that the water company is prepared to vary or discharge any of its rights or title.

The Customer and the Client are asked to note these terms and conditions, which govern the basis on which the CON29DW Commercial Drainage & Water Enquiry is supplied.

Definitions

"Apparatus" means the public assets shown on the Company's map keys relevant to the Report.

"Client" means the person, company or body who is the intended recipient of the Report with an actual or potential interest in the Property.

"Company" means the company who produces the Report, being Thames Water Utilities Limited, a company registered in England and Wales with company number 02366661 and whose registered office is at Clearwater Court, Vastern Road, Reading, Berkshire, RG1 8DB.

"Customer" means the person, company, firm or other legal body placing the Order, either on their own behalf as Client, or, as an agent for a Client.

"Order" means any request completed by the Customer requesting the Report from the Company.

"Property" means the address or location supplied by the Customer in the Order.

"Report" means the drainage and/or water report prepared by the Company in respect of the Property, including any maps provided as part of such reports.

1. Agreement

1.1 The Company agrees to supply the Report to the Customer and the Client subject to these terms and conditions in this Agreement. The scope and limitations of the Report are described in clause 2 of this Agreement. Where the Customer is acting as an agent for the Client then the Customer shall be responsible for bringing these terms and conditions to the attention of the Client.

1.2 The Customer and the Client agree that the placing of an Order for a Report and the subsequent provision of a copy of the Report to the Client indicates their acceptance of these terms and conditions.

2. The Report

Whilst the Company will use reasonable care and skill in producing the Report, it is provided to the Customer and the Client on the basis that they acknowledge and agree to the following:-

2.1 The information contained in the Report can change on a regular basis so the Company cannot be responsible to the Customer or the Client for any change in the information contained in the Report after the date on which the Report was produced.

2.2 The Report does not give details about the actual state or condition of the Property nor should it be used or taken to indicate or exclude actual suitability or unsuitability of the Property for any particular purpose, or relied upon for determining saleability or value, or used as substitute for any physical investigation or inspection. Further advice and information from appropriate experts and professionals should always be obtained.

2.3 The information contained in the Report is based upon the accuracy, completeness and legibility of the address and other information supplied by the Customer or Client when placing the Order.

2.4 The Report provides information as to the indicative location and connection of existing services and other information in relation to drainage and water enquiries and should not be relied on for any other purpose.

2.5 The Report is produced only for use in relation to transactions which require the provision of drainage and water information.

2.6 The Customer shall only use the Report for the purpose set out above in clause 2.5, for which it is supplied in accordance with these terms and conditions.

2.7 The position and depth of Apparatus shown on any maps attached to the Report are approximate, and are furnished as a general guide only, and no warranty as to its correctness is given or implied. The exact positions and depths should be obtained by excavation trial holes and the maps must not be relied on in the event of excavation or other works made in the vicinity of Apparatus shown on any maps.

3. Disclaimers

3.1 Without prejudice to any other terms and conditions set out herein, the Company accepts responsibility for any inaccuracy in the location of Apparatus, or missing Apparatus contained in the maps within the Report only where such inaccuracies or errors arise as a direct result of the negligence of the Company and the existence of which the Company should reasonably have been aware.

4. Liability

4.1 The Company shall not be liable to the Customer or Client in contract, tort, negligence, breach of statutory duty, misrepresentation or otherwise for any inaccuracies, mistakes or omissions in the Report unless any such liability arises as a direct consequence of the Company's negligence and the existence of which the Company should reasonably have been aware.

4.2 Where the Customer sells this report to a Client (other than in the case of a bona fide legal adviser recharging the cost of the Report as a disbursement) the Company shall not in any circumstances (whether for breach of contract, negligence or any other tort, under statute or statutory duty or otherwise at all) be liable for any loss or damage whatsoever and the Customer shall indemnify the Company in respect of any claim by the Client.

4.3 Notwithstanding clause 4.1 above, the Company does not exclude liability for (a) death or personal injury arising from its negligence, (b) fraud or fraudulent misrepresentation, and (c) any other liability which cannot be excluded or limited by law.

4.4 Subject to clause 4.3 above, the Company's total liability to the Customer or Client, whether for breach of contract, tort, negligence, breach of statutory duty, misrepresentation or otherwise, arising under or in connection with these terms and conditions and/or the provision of a Report shall be limited to £10 million in aggregate.

5. Copyright and Confidentiality

5.1 The Customer and the Client acknowledge that the Report is confidential and is intended for the personal use of the Client. The copyright and any other intellectual property rights in the Report shall remain the property of the Company and/or its licensors. No intellectual or other property rights are transferred or licensed to the Customer or the Client except to the extent expressly provided in these terms and conditions.

5.2 The Customer or Client is entitled to make copies of the Report for their own internal purposes but may only copy Ordnance Survey mapping or data contained in or attached to the Report if they have an appropriate licence from the originating source of that mapping or data.

5.3 The Customer and the Client agree (in respect of both the original and any copies made) to respect and not to alter any trademark, copyright notice or other property marking which appears on the Report.

5.4 The maps contained in the Report are protected by Crown Copyright and must not be used for any purpose outside the context of the Report.

5.5 The enquiries in the Report are protected by copyright by the Law Society of 113 Chancery Lane, London WC2A 1PL and must not be used for any purpose outside the context of the Report.

5.6 The Customer and the Client agree to indemnify the Company against any losses, costs, claims, and damage suffered by the Company as a result of any breach by either of them of clauses 5.1 to 5.5 inclusive.

6. Payment

6.1 Unless otherwise stated all prices are inclusive of VAT. The Customer shall pay for the price of the Report specified by the Company, without any set off, deduction or counterclaim. Unless otherwise agreed in writing between the parties, the Company must receive full payment for the Report in advance of the Report being produced. Where the parties agree that payment is not required in advance, the Customer must pay for the Report in full within 14 days of the date of the invoice, unless otherwise agreed in writing between the parties.

7. Cancellations or Alterations

As a consumer

7.1 Where the Customer is an individual consumer (and not acting for purposes wholly or mainly relating to his or her trade, business, craft or profession), the Customer has specific legal rights relating to cancellation of any Order the Customer may place. The Customer may cancel his or her Order at any time within 14 days after the day on which the Order is entered into ("Cancellation Period").

7.2 To exercise the right to cancel, the Customer must inform the Company in writing of his or her decision to cancel the Order.

7.3 Where the Customer is ordering a Report as a consumer, due to the Customer's cancellation rights, the Company will not process the Order or provide the Report to the Customer before the end of the Cancellation Period unless the Customer provides his or her express consent and acknowledges that he or she will lose the right to cancel the contract under regulation 29(1) of the Consumer Contracts (Information, Cancellation, and Additional Charges) Regulations 2013.

CON29DW Commercial Drainage & Water Enquiry Terms and Conditions (2)

- 7.4 Notwithstanding above clauses 7.1 to 7.3 (cancellation rights), should the Customer wish to cancel the Order beyond the Cancellation Period and/ or despite its consent to waiver the Cancellation Period, the Company may still consider a Customer's cancellation request of any Order and any such cancellation shall be in accordance with its cancellation policy, which can be found on the Company's [website](#).

As a business

- 7.5 The Cancellation Period does not apply to the Customer's Order if the Customer is placing the Order wholly or mainly for purposes relating to their trade, business, craft or profession.

- 7.6 If the Customer cancels the Order other than in accordance with this clause the Customer may be liable for fees as detailed in the Company's cancellation policy which can be found on the Company's [website](#).

8. Complaints

- 8.1 The Company's complaints procedure is available on the Company's website.
- 8.2 The Company should acknowledge a complaint within 5 working days from receipt.
- 8.3 If the Customer follows the Company's complaints procedure but is dissatisfied with the response, the Customer may refer the complaint for consideration under The Property Ombudsman Scheme (TPOs) who can award compensation up to £25,000. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.
- 8.4 In addition to TPO redress scheme covering consumers, TPO will also provide redress to small businesses (including Charities and Trusts) that meet the following criteria:
- A small business (or group of companies) with an annual turnover of less than £3 million;
 - A charity with an annual income of less than £3 million;
 - A trust with a net asset value of less than £3 million.

9. General

- 9.1 We are a member of the Drainage and Water Searches Network (DWSN), a membership organisation for companies who are responsible for compiling full and complete responses to the Law Society's CON29DW Residential and CON29DW Commercial products. For more information please visit www.con29dw.co.uk. The DWSN Standards are:
- Promotion of best practice and quality.
 - Maintain adequate insurance.
 - Display the appropriate logos to signify high standards.
 - Respond to complaints in a timely fashion and provide an appropriate escalation procedure.
 - Comply with all applicable UK legislation, regulations and industry standards.
 - Act in a professional and honest manner and provide a service with due care and skill.
- 9.2 These terms and conditions are the only terms and conditions that shall apply to any Order and the provision of a Report by the Company to the Customer and shall constitute the entire agreement between the Customer and the Company and supersede, replace and extinguish any previous arrangement, understanding or agreement between the parties relating to such Report.
- 9.3 In the event of any conflict of inconsistency between any information on the Company's website describing the features of the Report and these terms and conditions, then these terms and conditions shall prevail.
- 9.4 Where the Customer is acting wholly or mainly in the normal course of his or her trade, business, craft or profession, the Client is entitled to the benefit of these terms and conditions. Save as provided in this clause 9.4, it is not intended that any other person who is not a party to these terms and conditions has any right to enforce any term or these terms and conditions under the Contracts (Rights of Third Parties) Act 1999.
- 9.5 If any provision of these terms and conditions is or becomes invalid or unenforceable, it will be taken to be removed from the rest of these terms and conditions to the extent that it is invalid or unenforceable. No other provision of these terms and conditions shall be affected.
- 9.6 These terms and conditions shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts.

- 9.7 Nothing in these terms and conditions shall in any way restrict the Customer or Client's statutory or any other rights of access to the information contained in the Report.

These Terms & Conditions are available in larger print for those with impaired vision.

Payment Terms and Conditions

All sales are made in accordance with Thames Water Utilities Limited (TWUL) standard terms and conditions unless previously agreed in writing.

1. All goods remain in the property of Thames Water Utilities Ltd until full payment is received.
2. Provision of service will be in accordance with all legal requirements and published TWUL policies.
3. All invoices are strictly due for payment within 14 days of the date of the invoice. Any other terms must be accepted/agreed in writing prior to provision of goods or service or will be held to be invalid.
4. Penalty interest may be invoked by TWUL in the event of unjustifiable payment delay. Interest charges will be in line with UK Statute Law 'The Late Payment of Commercial Debts (Interest) Act 1998'.
5. Interest will be charged in line with current Court Interest Charges, if legal action is taken.
6. A charge may be made at the discretion of the company for increased administration costs.

A copy of Thames Water's standard terms and conditions are available from the Commercial Billing Team (cashoperations@thameswater.co.uk).

We publish several Codes of Practice including a guaranteed standards scheme. You can obtain copies of these leaflets by calling us on 0800 980 8800.

If you are unhappy with our service, you can speak to your original goods or customer service provider. If you are still not satisfied with the outcome provided, we will refer the matter to a Senior Manager for resolution who will provide you with a response.

If you are still dissatisfied with our final response, and in certain circumstances such as you are buying a residential property or commercial property within certain parameters, The Property Ombudsman will investigate your case and give an independent view. The Ombudsman can award compensation of up to £25,000 to you if he finds that you have suffered actual financial loss and/or aggravation, distress, or inconvenience because of your search not keeping to the Code. Further information can be obtained by visiting www.tpos.co.uk or by sending an email to admin@tpos.co.uk.

If the Goods or Services covered by this invoice falls under the regulation of the 1991 Water Industry Act, and you remain dissatisfied you can refer your complaint to Consumer Council for Water on 0300 034 2222 or write to them at Consumer Council for Water, 1st Floor, Victoria Square House, Victoria Square, Birmingham, B2 4AJ.

Ways to pay your bill

Credit Card	BACS Payment	Telephone Banking
Please call 0800 009 4540 quoting your invoice number starting CBA or ADS	Account Number 90478703 Sort code 60-00-01 A remittance advice must be sent to Thames Water Utilities Ltd. PO Box 3189 Slough SL14WW or email ps.billing@thameswater.co.uk	By calling your bank and quoting Account number 90478703 Sort code 60-00-01 and your invoice number

Thames Water Utilities Ltd Registered in England & Wales No. 2366661 Registered Office Clearwater Court, Vastern Rd, Reading, Berks, RG1 8DB.