

Designer's Response



Project	Elizabeth Huggins Cottages, Gravesend
Project Number	23504

Comments Received from Kent County Council dated 17 January 2023

Date Comments Received 18 January 2023

Date of Response 9 February 2023

Comment / Query		Designer's response
1	We appreciate the information provided with the updated drainage layout and hydraulic calculations however note that the hydraulic calculations for the 'upper end' allowance for the 30 (3.3%) year storm scenario as mentioned in our previous response have not been provided.	The upper end allowance has been designed for the 1:100 year storm scenario as the worst storm event. This will in turn make every storm below the 1:100 year plus 40% climate change have a lower outflow discharge and discharge volume. We have included the results from the 2, 10, 30 , 50 , 100, 100 year plus 40% and the 100 year plus 45% climate change within the results. We have analysed each up to 24 hours the critical storm is the 360 minute duration.



Comment / Query		Designer's response
2	We would also request that a copy of the Agreement with Southern Water for the connection to the existing sewer network is evidenced.	A copy of Southern Water's agreement for the connection should not be a requirement for discharging Condition 20 regarding the surface water drainage as this is covered by a separate legislation. Water Industries Act 19991. A section 106 Application for connection to the public sewer has been made to Southern Water and is in their Technical Approval Process. Under S106 of the Water Industries Act the site has a right of connection to the Public Sewer and Southern Water have a statutory duty to accept the connection.
3	Further to this, there is a discrepancy between the hydraulic calculations and the Proposed Levels and Drainage Layout Plan drawing (drawing number 201 Revision G dated 15.06.22) invert levels. We would seek for the invert levels on the drawing to be identical to those within the model.	Noted, Drawing 201H and the model calculations which have been updated to ensure they are identical.

Design Settings

Rainfall Methodology	FEH-13	Minimum Velocity (m/s)	0.75
Return Period (years)	2	Connection Type	Level Soffits
Additional Flow (%)	0	Minimum Backdrop Height (m)	1.000
CV	0.850	Preferred Cover Depth (m)	1.200
Time of Entry (mins)	5.00	Include Intermediate Ground	✓
Maximum Time of Concentration (mins)	30.00	Enforce best practice design rules	x
Maximum Rainfall (mm/hr)	50.0		

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
RE2	0.005	5.00	22.100	100	564499.181	172756.809	0.450
S1	0.003	5.00	22.250	450	564507.009	172748.794	0.762
S2			22.400	450	564515.668	172740.661	0.983
S3	0.070	5.00	22.400	600	564522.243	172747.236	1.114
S4	0.005	5.00	22.575	1200	564555.194	172747.236	1.401
RE1	0.005	5.00	22.400	100	564506.529	172763.211	0.450
S6	0.000		22.400	450	564512.872	172757.436	0.536
S7	0.019	5.00	22.400	450	564516.427	172761.109	0.638
S8	0.000		22.400	450	564542.602	172761.227	0.795
S9	0.013	5.00	22.400	450	564544.842	172770.760	0.853
S10	0.007	5.00	22.400	450	564555.194	172770.760	0.915
S5			22.575	600	564555.164	172756.970	1.434
S16			22.600	1200	564560.505	172757.035	1.503
S12			22.300	450	564558.090	172772.925	1.319
S13			22.310	450	564546.581	172772.492	1.398
S14			22.200	450	564526.723	172766.430	1.413
S18	0.004	5.00	21.750	450	564497.931	172757.032	0.772
S19			21.800	450	564504.940	172763.958	0.921
S15 HB			22.084	1200	564520.691	172766.393	1.350
Outfall			21.100	1200	564519.246	172774.056	0.463

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	RE2	S1	11.203	0.600	21.650	21.538	0.112	100.0	100	5.24	50.0
1.001	S1	S2	11.880	0.600	21.488	21.417	0.071	167.3	150	5.50	50.0
1.002	S2	S3	9.298	0.600	21.417	21.286	0.131	71.0	150	5.63	50.0
1.003	S3	S4	32.951	0.600	21.286	21.174	0.112	294.2	225	6.35	50.0
1.004	S4	S5	9.734	0.600	21.174	21.141	0.033	295.0	225	6.57	49.6
2.000	RE1	S6	8.578	0.600	21.950	21.868	0.082	104.6	100	5.19	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	0.769	6.0	0.8	0.350	0.612	0.005	0.0	24	0.521
1.001	0.774	13.7	1.2	0.612	0.833	0.008	0.0	30	0.477
1.002	1.195	21.1	1.2	0.833	0.964	0.008	0.0	24	0.647
1.003	0.757	30.1	12.0	0.889	1.176	0.078	0.0	99	0.716
1.004	0.756	30.1	12.6	1.176	1.209	0.083	0.0	102	0.723
2.000	0.751	5.9	0.8	0.350	0.432	0.005	0.0	25	0.519

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)
2.001	S6	S7	5.112	0.600	21.864	21.762	0.102	50.1	150	5.25	50.0
2.002	S7	S8	26.175	0.600	21.762	21.605	0.157	166.7	150	5.81	50.0
2.003	S8	S9	9.793	0.600	21.605	21.547	0.058	168.8	150	6.02	50.0
2.004	S9	S10	10.352	0.600	21.547	21.485	0.062	167.0	150	6.25	50.0
2.005	S10	S5	13.790	0.600	21.485	21.141	0.344	40.1	150	6.39	50.0
1.005	S5	S16	5.341	0.600	21.141	21.097	0.044	121.4	225	6.64	49.3
1.006	S16	S12	16.072	0.600	21.097	20.981	0.116	138.6	225	6.89	48.4
1.007	S12	S13	11.517	0.600	20.981	20.912	0.069	166.9	150	7.13	47.5
1.008	S13	S14	20.763	0.600	20.912	20.787	0.125	166.1	150	7.58	46.1
1.009	S14	S15 HB	6.032	0.600	20.787	20.734	0.053	113.8	150	7.69	45.8
3.000	S18	S19	9.854	0.600	20.978	20.879	0.099	99.5	150	5.16	50.0
3.001	S19	S15 HB	15.938	0.600	20.879	20.734	0.145	109.9	150	5.44	50.0
1.010	S15 HB	Outfall	7.798	0.600	20.734	20.637	0.097	80.0	100	7.84	45.3

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
2.001	1.424	25.2	0.8	0.386	0.488	0.005	0.0	18	0.635
2.002	0.775	13.7	3.7	0.488	0.645	0.024	0.0	53	0.658
2.003	0.770	13.6	3.7	0.645	0.703	0.024	0.0	53	0.654
2.004	0.775	13.7	5.7	0.703	0.765	0.037	0.0	67	0.738
2.005	1.594	28.2	6.8	0.765	1.284	0.044	0.0	50	1.315
1.005	1.185	47.1	19.2	1.209	1.278	0.127	0.0	100	1.125
1.006	1.109	44.1	18.9	1.278	1.094	0.127	0.0	102	1.065
1.007	0.775	13.7	18.5	1.169	1.248	0.127	0.0	150	0.789
1.008	0.777	13.7	18.0	1.248	1.263	0.127	0.0	150	0.791
1.009	0.941	16.6	17.9	1.263	1.200	0.127	0.0	150	0.959
3.000	1.007	17.8	0.6	0.622	0.771	0.004	0.0	19	0.466
3.001	0.958	16.9	0.6	0.771	1.200	0.004	0.0	20	0.452
1.010	0.861	6.8	18.2	1.250	0.363	0.131	0.0	100	0.884

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	11.203	100.0	100	Circular	22.100	21.650	0.350	22.250	21.538	0.612
1.001	11.880	167.3	150	Circular	22.250	21.488	0.612	22.400	21.417	0.833
1.002	9.298	71.0	150	Circular	22.400	21.417	0.833	22.400	21.286	0.964
1.003	32.951	294.2	225	Circular	22.400	21.286	0.889	22.575	21.174	1.176
1.004	9.734	295.0	225	Circular	22.575	21.174	1.176	22.575	21.141	1.209
2.000	8.578	104.6	100	Circular	22.400	21.950	0.350	22.400	21.868	0.432
2.001	5.112	50.1	150	Circular	22.400	21.864	0.386	22.400	21.762	0.488

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	RE2	100	Manhole	Adoptable	S1	450	Manhole	Adoptable
1.001	S1	450	Manhole	Adoptable	S2	450	Manhole	Adoptable
1.002	S2	450	Manhole	Adoptable	S3	600	Manhole	Adoptable
1.003	S3	600	Manhole	Adoptable	S4	1200	Manhole	Adoptable
1.004	S4	1200	Manhole	Adoptable	S5	600	Manhole	Adoptable
2.000	RE1	100	Manhole	Adoptable	S6	450	Manhole	Adoptable
2.001	S6	450	Manhole	Adoptable	S7	450	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)
2.002	26.175	166.7	150	Circular	22.400	21.762	0.488	22.400	21.605	0.645
2.003	9.793	168.8	150	Circular	22.400	21.605	0.645	22.400	21.547	0.703
2.004	10.352	167.0	150	Circular	22.400	21.547	0.703	22.400	21.485	0.765
2.005	13.790	40.1	150	Circular	22.400	21.485	0.765	22.575	21.141	1.284
1.005	5.341	121.4	225	Circular	22.575	21.141	1.209	22.600	21.097	1.278
1.006	16.072	138.6	225	Circular	22.600	21.097	1.278	22.300	20.981	1.094
1.007	11.517	166.9	150	Circular	22.300	20.981	1.169	22.310	20.912	1.248
1.008	20.763	166.1	150	Circular	22.310	20.912	1.248	22.200	20.787	1.263
1.009	6.032	113.8	150	Circular	22.200	20.787	1.263	22.084	20.734	1.200
3.000	9.854	99.5	150	Circular	21.750	20.978	0.622	21.800	20.879	0.771
3.001	15.938	109.9	150	Circular	21.800	20.879	0.771	22.084	20.734	1.200
1.010	7.798	80.0	100	Circular	22.084	20.734	1.250	21.100	20.637	0.363

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
2.002	S7	450	Manhole	Adoptable	S8	450	Manhole	Adoptable
2.003	S8	450	Manhole	Adoptable	S9	450	Manhole	Adoptable
2.004	S9	450	Manhole	Adoptable	S10	450	Manhole	Adoptable
2.005	S10	450	Manhole	Adoptable	S5	600	Manhole	Adoptable
1.005	S5	600	Manhole	Adoptable	S16	1200	Manhole	Adoptable
1.006	S16	1200	Manhole	Adoptable	S12	450	Manhole	Adoptable
1.007	S12	450	Manhole	Adoptable	S13	450	Manhole	Adoptable
1.008	S13	450	Manhole	Adoptable	S14	450	Manhole	Adoptable
1.009	S14	450	Manhole	Adoptable	S15 HB	1200	Manhole	Adoptable
3.000	S18	450	Manhole	Adoptable	S19	450	Manhole	Adoptable
3.001	S19	450	Manhole	Adoptable	S15 HB	1200	Manhole	Adoptable
1.010	S15 HB	1200	Manhole	Adoptable	Outfall	1200	Manhole	Adoptable

Simulation Settings

Rainfall Methodology	FEH-13	Analysis Speed	Normal	Additional Storage (m³/ha)	0.0
Summer CV	0.850	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	0.900	Drain Down Time (mins)	1440	Check Discharge Volume	x

Storm Durations

15	30	60	120	180	240	360	480	600	720	960	1440
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Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0
10	0	0	0
30	0	0	0
50	0	0	0
100	0	0	0
100	40	0	0
100	45	0	0

Node S15 HB Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	20.734	Product Number	CTL-SHE-0069-2000-0900-2000
Design Depth (m)	0.900	Min Outlet Diameter (m)	0.100
Design Flow (l/s)	2.0	Min Node Diameter (mm)	1200

Node S16 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	21.047
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	456

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	172.0	0.0	0.800	172.0	0.0	0.801	0.0	0.0

Node S2 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	21.417
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	4

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	5.0	0.0	0.800	5.0	0.0	0.801	0.0	0.0

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE2	10	21.674	0.024	0.8	0.0002	0.0000	OK
15 minute summer	S1	10	21.520	0.032	1.2	0.0050	0.0000	OK
15 minute winter	S2	12	21.440	0.023	1.2	0.1148	0.0000	OK
15 minute summer	S3	10	21.383	0.097	11.6	0.0274	0.0000	OK
15 minute summer	S4	11	21.283	0.109	12.2	0.1237	0.0000	OK
15 minute winter	RE1	10	21.975	0.025	0.8	0.0002	0.0000	OK
15 minute winter	S6	11	21.882	0.018	0.7	0.0028	0.0000	OK
15 minute summer	S7	11	21.815	0.053	3.6	0.0085	0.0000	OK
15 minute summer	S8	11	21.658	0.053	3.6	0.0085	0.0000	OK
15 minute summer	S9	11	21.615	0.068	5.5	0.0109	0.0000	OK
15 minute summer	S10	11	21.534	0.049	6.4	0.0078	0.0000	OK
15 minute summer	S5	11	21.251	0.110	18.6	0.0310	0.0000	OK
180 minute winter	S16	136	21.155	0.058	5.2	9.4456	0.0000	OK
120 minute summer	S12	78	21.155	0.174	5.3	0.0277	0.0000	SURCHARGED
180 minute winter	S13	132	21.153	0.241	3.8	0.0383	0.0000	SURCHARGED
180 minute winter	S14	132	21.150	0.363	3.4	0.0578	0.0000	SURCHARGED
180 minute winter	S18	132	21.149	0.171	0.4	0.0273	0.0000	SURCHARGED
180 minute winter	S19	132	21.149	0.270	0.7	0.0430	0.0000	SURCHARGED
180 minute winter	S15 HB	132	21.149	0.415	3.0	0.4699	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE2	1.000	S1	0.7	0.519	0.123	0.0161	
15 minute summer	S1	1.001	S2	1.2	0.598	0.088	0.0257	
15 minute winter	S2	1.002	S3	1.1	0.207	0.053	0.0630	
15 minute summer	S3	1.003	S4	11.5	0.659	0.383	0.5823	
15 minute summer	S4	1.004	S5	12.1	0.633	0.403	0.1864	
15 minute winter	RE1	2.000	S6	0.7	0.509	0.127	0.0126	
15 minute winter	S6	2.001	S7	0.8	0.239	0.030	0.0171	
15 minute summer	S7	2.002	S8	3.6	0.652	0.263	0.1466	
15 minute summer	S8	2.003	S9	3.6	0.532	0.262	0.0657	
15 minute summer	S9	2.004	S10	5.4	0.856	0.398	0.0661	
15 minute summer	S10	2.005	S5	6.4	0.683	0.229	0.1292	
15 minute summer	S5	1.005	S16	18.4	1.037	0.390	0.0948	
180 minute winter	S16	1.006	S12	4.3	0.594	0.098	0.3292	
120 minute summer	S12	1.007	S13	5.0	0.678	0.362	0.2028	
180 minute winter	S13	1.008	S14	3.4	0.549	0.250	0.3655	
180 minute winter	S14	1.009	S15 HB	3.0	0.279	0.179	0.1062	
180 minute winter	S18	3.000	S19	-0.3	0.363	-0.016	0.1735	
180 minute winter	S19	3.001	S15 HB	-0.7	0.076	-0.040	0.2806	
180 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				22.9

Results for 10 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE2	11	21.686	0.036	1.6	0.0003	0.0000	OK
15 minute summer	S1	10	21.534	0.046	2.6	0.0073	0.0000	OK
15 minute summer	S2	11	21.452	0.035	2.6	0.1701	0.0000	OK
15 minute summer	S3	11	21.447	0.161	25.0	0.0456	0.0000	OK
15 minute summer	S4	11	21.362	0.188	26.0	0.2123	0.0000	OK
15 minute summer	RE1	11	21.987	0.037	1.6	0.0003	0.0000	OK
15 minute summer	S6	11	21.890	0.026	1.6	0.0041	0.0000	OK
15 minute summer	S7	10	21.844	0.082	7.8	0.0131	0.0000	OK
15 minute summer	S8	11	21.693	0.088	7.7	0.0140	0.0000	OK
15 minute summer	S9	11	21.655	0.108	11.7	0.0172	0.0000	OK
15 minute summer	S10	11	21.559	0.074	13.9	0.0118	0.0000	OK
15 minute summer	S5	11	21.324	0.183	39.7	0.0517	0.0000	OK
180 minute winter	S16	172	21.248	0.151	9.7	24.7019	0.0000	OK
180 minute winter	S12	172	21.247	0.266	5.3	0.0424	0.0000	SURCHARGED
180 minute winter	S13	168	21.246	0.334	4.3	0.0531	0.0000	SURCHARGED
180 minute winter	S14	168	21.244	0.457	3.5	0.0726	0.0000	SURCHARGED
180 minute winter	S18	168	21.243	0.265	0.6	0.0421	0.0000	SURCHARGED
180 minute winter	S19	168	21.243	0.364	0.8	0.0579	0.0000	SURCHARGED
180 minute winter	S15 HB	168	21.243	0.509	3.1	0.5756	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	RE2	1.000	S1	1.6	0.641	0.265	0.0280	
15 minute summer	S1	1.001	S2	2.6	0.698	0.187	0.0449	
15 minute summer	S2	1.002	S3	2.5	0.251	0.117	0.0961	
15 minute summer	S3	1.003	S4	24.4	0.765	0.812	1.0845	
15 minute summer	S4	1.004	S5	25.8	0.738	0.858	0.3403	
15 minute summer	RE1	2.000	S6	1.6	0.627	0.271	0.0219	
15 minute summer	S6	2.001	S7	1.6	0.289	0.064	0.0304	
15 minute summer	S7	2.002	S8	7.7	0.763	0.560	0.2676	
15 minute summer	S8	2.003	S9	7.7	0.631	0.563	0.1189	
15 minute summer	S9	2.004	S10	11.7	1.044	0.853	0.1152	
15 minute summer	S10	2.005	S5	13.9	0.921	0.493	0.1814	
15 minute summer	S5	1.005	S16	39.5	1.234	0.838	0.1704	
180 minute winter	S16	1.006	S12	5.3	0.611	0.121	0.5466	
180 minute winter	S12	1.007	S13	4.3	0.641	0.311	0.2028	
180 minute winter	S13	1.008	S14	3.5	0.562	0.256	0.3655	
180 minute winter	S14	1.009	S15 HB	3.1	0.268	0.188	0.1062	
180 minute winter	S18	3.000	S19	0.5	0.348	0.031	0.1735	
180 minute winter	S19	3.001	S15 HB	-0.8	0.306	-0.047	0.2806	
180 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				43.7

Results for 30 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE2	10	21.693	0.043	2.2	0.0003	0.0000	OK
15 minute summer	S1	12	21.555	0.067	3.5	0.0107	0.0000	OK
15 minute summer	S2	12	21.546	0.129	3.8	0.6328	0.0000	OK
15 minute summer	S3	12	21.536	0.250	31.0	0.0709	0.0000	SURCHARGED
15 minute summer	S4	12	21.423	0.249	31.3	0.2817	0.0000	SURCHARGED
15 minute winter	RE1	10	21.994	0.044	2.2	0.0003	0.0000	OK
15 minute winter	S6	11	21.894	0.030	2.2	0.0047	0.0000	OK
15 minute summer	S7	10	21.862	0.100	10.4	0.0159	0.0000	OK
15 minute summer	S8	11	21.721	0.116	10.3	0.0184	0.0000	OK
15 minute summer	S9	11	21.687	0.140	15.5	0.0223	0.0000	OK
15 minute summer	S10	11	21.581	0.096	18.3	0.0153	0.0000	OK
15 minute summer	S5	12	21.375	0.234	48.0	0.0663	0.0000	SURCHARGED
180 minute winter	S16	176	21.322	0.225	12.7	36.9636	0.0000	SURCHARGED
180 minute winter	S12	176	21.322	0.341	5.4	0.0542	0.0000	SURCHARGED
180 minute winter	S13	176	21.321	0.409	4.3	0.0650	0.0000	SURCHARGED
180 minute winter	S14	176	21.319	0.532	3.3	0.0846	0.0000	SURCHARGED
180 minute winter	S18	176	21.318	0.340	0.5	0.0541	0.0000	SURCHARGED
180 minute winter	S19	176	21.318	0.439	0.6	0.0698	0.0000	SURCHARGED
180 minute winter	S15 HB	176	21.318	0.584	2.9	0.6608	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE2	1.000	S1	2.2	0.692	0.357	0.0349	
15 minute summer	S1	1.001	S2	3.5	0.711	0.253	0.1409	
15 minute summer	S2	1.002	S3	9.0	0.559	0.427	0.1567	
15 minute summer	S3	1.003	S4	29.1	0.782	0.966	1.3105	
15 minute summer	S4	1.004	S5	30.2	0.763	1.006	0.3871	
15 minute winter	RE1	2.000	S6	2.2	0.677	0.366	0.0274	
15 minute winter	S6	2.001	S7	2.1	0.304	0.085	0.0380	
15 minute summer	S7	2.002	S8	10.3	0.799	0.751	0.3492	
15 minute summer	S8	2.003	S9	10.1	0.652	0.743	0.1552	
15 minute summer	S9	2.004	S10	15.4	1.066	1.122	0.1502	
15 minute summer	S10	2.005	S5	18.2	1.120	0.647	0.2034	
15 minute summer	S5	1.005	S16	48.2	1.255	1.024	0.1986	
180 minute winter	S16	1.006	S12	5.4	0.597	0.122	0.6389	
180 minute winter	S12	1.007	S13	4.3	0.633	0.312	0.2028	
180 minute winter	S13	1.008	S14	3.3	0.557	0.240	0.3655	
180 minute winter	S14	1.009	S15 HB	2.9	0.267	0.173	0.1062	
180 minute winter	S18	3.000	S19	0.3	0.348	0.020	0.1735	
180 minute winter	S19	3.001	S15 HB	0.5	0.306	0.030	0.2806	
180 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				57.5

Results for 50 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE2	10	21.696	0.046	2.5	0.0004	0.0000	OK
15 minute summer	S1	12	21.620	0.132	3.9	0.0209	0.0000	OK
15 minute summer	S2	12	21.611	0.194	9.1	0.9544	0.0000	SURCHARGED
15 minute summer	S3	12	21.600	0.314	34.4	0.0890	0.0000	SURCHARGED
15 minute summer	S4	12	21.461	0.287	33.2	0.3241	0.0000	SURCHARGED
15 minute summer	RE1	10	21.997	0.047	2.5	0.0004	0.0000	OK
15 minute summer	S6	10	21.895	0.031	2.4	0.0050	0.0000	OK
15 minute summer	S7	10	21.871	0.109	11.8	0.0173	0.0000	OK
15 minute summer	S8	11	21.772	0.167	11.6	0.0266	0.0000	SURCHARGED
15 minute summer	S9	11	21.722	0.175	17.0	0.0278	0.0000	SURCHARGED
15 minute summer	S10	12	21.593	0.108	20.0	0.0172	0.0000	OK
15 minute summer	S5	12	21.401	0.260	53.0	0.0735	0.0000	SURCHARGED
180 minute winter	S16	180	21.362	0.265	14.6	43.5062	0.0000	SURCHARGED
180 minute winter	S12	180	21.362	0.381	5.2	0.0605	0.0000	SURCHARGED
180 minute winter	S13	176	21.360	0.448	4.1	0.0713	0.0000	SURCHARGED
180 minute winter	S14	176	21.358	0.571	4.0	0.0909	0.0000	SURCHARGED
180 minute winter	S18	176	21.358	0.380	0.6	0.0604	0.0000	SURCHARGED
180 minute winter	S19	176	21.358	0.479	0.9	0.0761	0.0000	SURCHARGED
180 minute winter	S15 HB	176	21.358	0.624	3.5	0.7054	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	RE2	1.000	S1	2.4	0.712	0.402	0.0545	
15 minute summer	S1	1.001	S2	4.3	0.732	0.317	0.2019	
15 minute summer	S2	1.002	S3	11.0	0.709	0.521	0.1637	
15 minute summer	S3	1.003	S4	31.3	0.796	1.041	1.3105	
15 minute summer	S4	1.004	S5	33.5	0.842	1.114	0.3871	
15 minute summer	RE1	2.000	S6	2.4	0.697	0.411	0.0299	
15 minute summer	S6	2.001	S7	2.4	0.309	0.095	0.0417	
15 minute summer	S7	2.002	S8	11.6	0.812	0.849	0.4020	
15 minute summer	S8	2.003	S9	11.0	0.650	0.805	0.1724	
15 minute summer	S9	2.004	S10	16.7	1.080	1.219	0.1614	
15 minute summer	S10	2.005	S5	19.5	1.162	0.694	0.2151	
15 minute summer	S5	1.005	S16	53.2	1.348	1.129	0.2022	
180 minute winter	S16	1.006	S12	5.2	0.590	0.119	0.6392	
180 minute winter	S12	1.007	S13	4.1	0.628	0.301	0.2028	
180 minute winter	S13	1.008	S14	4.0	0.558	0.290	0.3655	
180 minute winter	S14	1.009	S15 HB	3.5	0.267	0.208	0.1062	
180 minute winter	S18	3.000	S19	0.5	0.348	0.026	0.1735	
180 minute winter	S19	3.001	S15 HB	-0.9	0.306	-0.050	0.2806	
180 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				65.3

Results for 100 year Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	RE2	12	21.730	0.080	2.9	0.0006	0.0000	OK
15 minute summer	S1	12	21.715	0.227	5.8	0.0361	0.0000	SURCHARGED
15 minute summer	S2	12	21.707	0.290	8.5	1.4251	0.0000	SURCHARGED
15 minute summer	S3	12	21.695	0.409	40.1	0.1157	0.0000	SURCHARGED
15 minute summer	S4	12	21.509	0.335	38.3	0.3791	0.0000	SURCHARGED
15 minute summer	RE1	10	22.001	0.051	2.9	0.0004	0.0000	OK
15 minute summer	S6	12	21.961	0.096	2.9	0.0153	0.0000	OK
15 minute summer	S7	12	21.955	0.193	13.7	0.0307	0.0000	SURCHARGED
15 minute summer	S8	12	21.838	0.233	11.9	0.0370	0.0000	SURCHARGED
15 minute summer	S9	12	21.785	0.238	18.4	0.0379	0.0000	SURCHARGED
15 minute summer	S10	12	21.658	0.173	21.8	0.0275	0.0000	SURCHARGED
240 minute winter	S5	236	21.431	0.290	13.9	0.0820	0.0000	SURCHARGED
240 minute winter	S16	236	21.431	0.334	13.7	54.8007	0.0000	SURCHARGED
240 minute winter	S12	236	21.430	0.449	4.7	0.0714	0.0000	SURCHARGED
240 minute winter	S13	232	21.429	0.517	3.9	0.0822	0.0000	SURCHARGED
240 minute winter	S14	232	21.427	0.640	3.3	0.1017	0.0000	SURCHARGED
240 minute winter	S18	232	21.426	0.448	0.5	0.0712	0.0000	SURCHARGED
240 minute winter	S19	232	21.426	0.547	0.7	0.0869	0.0000	SURCHARGED
240 minute winter	S15 HB	232	21.426	0.692	3.0	0.7824	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	RE2	1.000	S1	3.0	0.715	0.497	0.0816	
15 minute summer	S1	1.001	S2	5.0	0.687	0.366	0.2091	
15 minute summer	S2	1.002	S3	13.0	0.739	0.616	0.1637	
15 minute summer	S3	1.003	S4	36.1	0.907	1.198	1.3105	
15 minute summer	S4	1.004	S5	38.5	0.968	1.281	0.3871	
15 minute summer	RE1	2.000	S6	2.9	0.723	0.487	0.0464	
15 minute summer	S6	2.001	S7	4.0	0.314	0.159	0.0756	
15 minute summer	S7	2.002	S8	11.9	0.822	0.871	0.4608	
15 minute summer	S8	2.003	S9	12.0	0.684	0.885	0.1724	
15 minute summer	S9	2.004	S10	17.8	1.091	1.299	0.1822	
15 minute summer	S10	2.005	S5	20.5	1.192	0.729	0.2428	
240 minute winter	S5	1.005	S16	13.7	0.867	0.290	0.2124	
240 minute winter	S16	1.006	S12	4.7	0.599	0.107	0.6392	
240 minute winter	S12	1.007	S13	3.9	0.611	0.283	0.2028	
240 minute winter	S13	1.008	S14	3.3	0.541	0.241	0.3655	
240 minute winter	S14	1.009	S15 HB	3.0	0.263	0.179	0.1062	
240 minute winter	S18	3.000	S19	0.4	0.348	0.022	0.1735	
240 minute winter	S19	3.001	S15 HB	-0.7	0.306	-0.040	0.2806	
240 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				83.8

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.88%

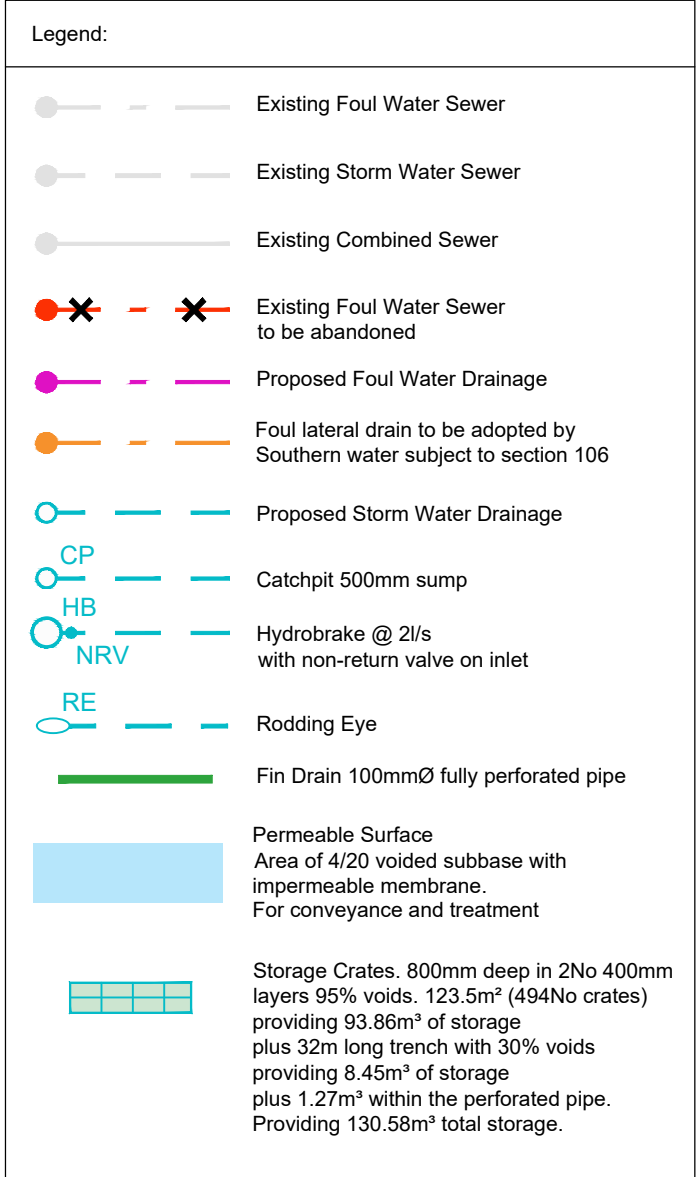
Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE2	12	22.041	0.391	4.0	0.0031	0.0000	FLOOD RISK
15 minute winter	S1	12	22.010	0.522	4.8	0.0831	0.0000	FLOOD RISK
15 minute winter	S2	12	21.999	0.582	17.1	2.8594	0.0000	SURCHARGED
15 minute winter	S3	12	21.987	0.701	55.7	0.1983	0.0000	SURCHARGED
15 minute winter	S4	12	21.661	0.487	50.8	0.5508	0.0000	SURCHARGED
15 minute summer	RE1	12	22.312	0.362	4.0	0.0029	0.0000	FLOOD RISK
15 minute summer	S6	12	22.293	0.429	3.9	0.0683	0.0000	FLOOD RISK
15 minute summer	S7	12	22.292	0.530	15.9	0.0842	0.0000	FLOOD RISK
15 minute summer	S8	12	22.121	0.516	13.2	0.0820	0.0000	FLOOD RISK
15 minute summer	S9	12	22.052	0.505	21.2	0.0803	0.0000	SURCHARGED
15 minute summer	S10	12	21.865	0.380	25.2	0.0605	0.0000	SURCHARGED
360 minute winter	S5	344	21.603	0.462	13.9	0.1308	0.0000	SURCHARGED
360 minute winter	S16	352	21.603	0.506	13.8	83.2086	0.0000	SURCHARGED
360 minute winter	S12	352	21.603	0.622	3.8	0.0989	0.0000	SURCHARGED
360 minute winter	S13	344	21.601	0.689	3.1	0.1096	0.0000	SURCHARGED
360 minute winter	S14	344	21.598	0.811	2.8	0.1290	0.0000	SURCHARGED
360 minute winter	S18	344	21.597	0.619	0.5	0.0985	0.0000	FLOOD RISK
360 minute winter	S19	344	21.597	0.718	0.4	0.1142	0.0000	FLOOD RISK
360 minute winter	S15 HB	344	21.597	0.863	2.6	0.9766	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE2	1.000	S1	3.4	0.733	0.563	0.0877	
15 minute winter	S1	1.001	S2	6.3	0.720	0.461	0.2091	
15 minute winter	S2	1.002	S3	16.5	0.936	0.780	0.1637	
15 minute winter	S3	1.003	S4	47.7	1.198	1.584	1.3105	
15 minute winter	S4	1.004	S5	50.8	1.277	1.689	0.3871	
15 minute summer	RE1	2.000	S6	3.9	0.707	0.653	0.0671	
15 minute summer	S6	2.001	S7	6.0	0.339	0.237	0.0900	
15 minute summer	S7	2.002	S8	13.2	0.842	0.964	0.4608	
15 minute summer	S8	2.003	S9	14.6	0.831	1.074	0.1724	
15 minute summer	S9	2.004	S10	20.7	1.175	1.511	0.1822	
15 minute summer	S10	2.005	S5	24.9	1.416	0.885	0.2428	
360 minute winter	S5	1.005	S16	13.8	0.788	0.292	0.2124	
360 minute winter	S16	1.006	S12	3.8	0.566	0.087	0.6392	
360 minute winter	S12	1.007	S13	3.1	0.582	0.229	0.2028	
360 minute winter	S13	1.008	S14	2.8	0.529	0.206	0.3655	
360 minute winter	S14	1.009	S15 HB	2.6	0.262	0.157	0.1062	
360 minute winter	S18	3.000	S19	0.4	0.278	0.024	0.1735	
360 minute winter	S19	3.001	S15 HB	0.4	0.328	0.025	0.2806	
360 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				129.5

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.88%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	RE2	12	22.081	0.431	4.1	0.0035	0.0000	FLOOD RISK
15 minute summer	S1	12	22.050	0.562	5.6	0.0893	0.0000	FLOOD RISK
15 minute winter	S2	12	22.039	0.622	16.9	3.0516	0.0000	SURCHARGED
15 minute summer	S3	12	22.026	0.740	58.0	0.2095	0.0000	SURCHARGED
15 minute summer	S4	12	21.681	0.507	52.3	0.5735	0.0000	SURCHARGED
15 minute summer	RE1	12	22.362	0.412	4.1	0.0033	0.0000	FLOOD RISK
15 minute summer	S6	12	22.342	0.478	4.0	0.0761	0.0000	FLOOD RISK
15 minute summer	S7	12	22.341	0.579	15.8	0.0920	0.0000	FLOOD RISK
15 minute summer	S8	12	22.162	0.557	13.5	0.0885	0.0000	FLOOD RISK
15 minute summer	S9	12	22.090	0.543	21.7	0.0863	0.0000	SURCHARGED
15 minute summer	S10	12	21.895	0.410	25.8	0.0652	0.0000	SURCHARGED
360 minute winter	S5	352	21.630	0.489	14.5	0.1385	0.0000	SURCHARGED
360 minute winter	S16	352	21.630	0.533	14.4	87.6478	0.0000	SURCHARGED
360 minute winter	S12	352	21.630	0.649	3.5	0.1032	0.0000	SURCHARGED
360 minute winter	S13	344	21.628	0.716	3.0	0.1139	0.0000	SURCHARGED
360 minute winter	S14	344	21.625	0.838	2.6	0.1333	0.0000	SURCHARGED
360 minute winter	S18	344	21.624	0.646	0.5	0.1028	0.0000	FLOOD RISK
360 minute winter	S19	344	21.624	0.745	0.4	0.1185	0.0000	FLOOD RISK
360 minute winter	S15 HB	344	21.624	0.890	2.5	1.0069	0.0000	SURCHARGED
15 minute summer	Outfall	1	20.637	0.000	2.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	RE2	1.000	S1	3.5	0.740	0.575	0.0877	
15 minute summer	S1	1.001	S2	6.5	0.713	0.478	0.2091	
15 minute winter	S2	1.002	S3	17.0	0.968	0.807	0.1637	
15 minute summer	S3	1.003	S4	49.0	1.232	1.628	1.3105	
15 minute summer	S4	1.004	S5	52.2	1.313	1.737	0.3871	
15 minute summer	RE1	2.000	S6	4.0	0.717	0.671	0.0671	
15 minute summer	S6	2.001	S7	6.1	0.466	0.243	0.0900	
15 minute summer	S7	2.002	S8	13.5	0.845	0.987	0.4608	
15 minute summer	S8	2.003	S9	15.0	0.853	1.102	0.1724	
15 minute summer	S9	2.004	S10	21.2	1.202	1.545	0.1822	
15 minute summer	S10	2.005	S5	25.5	1.451	0.907	0.2428	
360 minute winter	S5	1.005	S16	14.4	0.773	0.306	0.2124	
360 minute winter	S16	1.006	S12	3.5	0.553	0.079	0.6392	
360 minute winter	S12	1.007	S13	3.0	0.590	0.218	0.2028	
360 minute winter	S13	1.008	S14	2.6	0.532	0.192	0.3655	
360 minute winter	S14	1.009	S15 HB	2.5	0.262	0.149	0.1062	
360 minute winter	S18	3.000	S19	0.4	0.278	0.024	0.1735	
360 minute winter	S19	3.001	S15 HB	0.4	0.328	0.024	0.2806	
360 minute winter	S15 HB	Hydro-Brake®	Outfall	2.0				134.8



- NOTES:
1. All dimensions to be checked on site. All details and dimensions relating to sub-Contractors work must be checked and agreed between the sub-Contractor or supplier and the general Contractor.
 2. This drawing is to be read in conjunction with all relevant Architects and Engineer's drawings and specification.
 3. The main Contractor is responsible for ensuring the stability of the structure whilst the works are in progress.
 4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority. No liability is accepted by the Consultant and the main Contractor is responsible for obtaining and checking all information and taking due care and attention whilst undertaking the works.
 5. All pipes, bends and junctions shall be vitrified clay to BS EN 295-1, with flexible joints and kitemark certified. Alternatively all pipes and fittings can be UPVC conforming to BS EN 14011-1 and shall be laid in accordance with the specification by the Consultant and the main Contractor. The Engineer or the manufacturer shall be approved by the Engineer prior to construction.
 6. All Adoptable sewers shall be in strict accordance with the current Edition of Sewers for Adoption. Unless otherwise stated adoptable sewers shall be 150mm diameter and shall be laid in a class B bedding. Where the depth to the soffit is less than 1.2m under a public highway or 0.9m elsewhere the pipe shall be laid with a class 2 bedding.
 7. All private building drainage shall be constructed in strict accordance with BS EN 752:1996. Unless otherwise specified building drainage shall be bedded to the Consultant's satisfaction at a minimum gradient of 1 in 40 for foul drains and 1 in 80 for surface water drains. All building drains shall be laid in class B bedding unless otherwise specified.
 8. Where the service trench is near to the foundation of any building, refer to the guidance in Approved Document H, Building Regulations Part H1.
 9. Where pipes, external to the structures, have a depth to soffit from ground level of less than 450mm they shall have a class GEN 3 concrete encasement (150mm thick). In all other cases the pipes shall be bedded and surrounded with 100mm thick granular material.
 10. In any circumstances where pipes are bedded and surrounded in concrete flexible joints should be provided. Compressible boards (fibreglass or polystyrene) shall be provided at a maximum of 8m centres (see detail) and shall be cut to the required depth of the pipe diameter and to a height and width equal to the concrete cross section. A board thickness of 18mm for pipes up to 450mm nominal diameter and 36mm for pipes over 450mm nominal diameter.
 11. All syys shall have rodding access plates fitted at their bases (ground floor level).
 12. Where existing pipes are to be abandoned they shall be dug out together with any abandoned manholes.

EXISTING SERVICES

1. Information compiled from services plans received and reproduced in good faith. Specific locations to be confirmed on site prior to construction.

MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
S1	22.250	21.488	0.762	450mmØ	A15	FIG B_18 Type D	564507.009	172748.794
S2	22.400	21.417	0.983	450mmØ	A15	FIG B_18 Type D	564515.668	172740.661
S3	22.400	21.286	1.114	600mmØ	A15	Wavin Range 600	564522.262	172747.216
S4	22.575	21.174	1.401	600mmØ	D400	Wavin Range 600	564555.194	172747.236
S5	22.575	21.141	1.434	600mmØ	A15	Wavin Range 600	564555.164	172756.970
S6	22.400	21.864	0.536	450mmØ	A15	FIG B_18 Type D	564512.872	172757.436
S7	22.400	21.762	0.638	450mmØ	A15	FIG B_18 Type D	564516.427	172761.109
S8	22.400	21.605	0.795	450mmØ	A15	FIG B_18 Type D	564542.002	172761.227
S9	22.400	21.547	0.853	450mmØ	A15	FIG B_18 Type D	564544.842	172770.760
S10	22.400	21.485	0.915	450mmØ	A15	FIG B_18 Type D	564555.194	172770.76
S11	22.600	21.097	1.503	450mmØ	A15	Wavin Range 600	564559.547	172773.846
S12	22.300	20.981	1.319	450mmØ	A15	FIG B_18 Type D	564558.090	172772.925
S13	22.310	20.912	1.398	450mmØ	A15	FIG B_18 Type D	564546.581	172772.492
S14	22.200	20.787	1.413	450mmØ	A15	FIG B_18 Type D	564526.723	172766.430
S15 HB	22.000	20.720	1.280	1200mmØ	A15	Hydrobrake	564520.691	172766.393
S16	22.600	21.097	1.503	600mmØ	D400	Wavin Range 600	564560.505	172757.035
S17	22.600	21.097	1.503	600mmØ	A15	Wavin Range 600	564563.991	172741.475
S18	21.750	20.978	0.772	450mmØ	A15	FIG B_18 Type D	564497.931	172757.032
S19	21.800	20.879	0.921	450mmØ	A15	FIG B_18 Type D	564504.940	172763.958

FOUL WATER MANHOLE SCHEDULE								
MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT	DIAMETER / SIZE	COVER TYPE	MANHOLE TYPE	EASTINGS	NORTHINGS
F1	22.400	21.750	0.650	450mmØ	A15	FIG B_18 Type D	564511.441	172757.957
F2	22.400	21.725	0.675	450mmØ	A15	FIG B_18 Type D	564512.872	172756.577
F3	22.400	21.656	0.744	450mmØ	A15	FIG B_18 Type D	564516.673	172760.496
F4	22.400	21.300	1.100	450mmØ	A15	FIG B_18 Type D	564528.594	172760.626
F5	22.400	21.750	0.650	450mmØ	A15	FIG B_18 Type D	564544.001	172762.780
F6	22.400	21.727	0.673	450mmØ	A15	FIG B_18 Type D	564543.706	172760.554
F7	22.400	21.644	0.756	450mmØ	A15	FIG B_18 Type D	564537.443	172760.630
F8	22.400	21.572	0.828	450mmØ	A15	FIG B_18 Type D	564531.358	172760.570
F9	22.525	21.058	1.467	1200mmØ	A15	FIG B_09 Type B	564549.777	172740.664
F10	22.600	20.907	1.693	1200mmØ	A15	FIG B_09 Type B	564560.587	172751.251
F11	22.300	20.696	1.604	1200mmØ	A15	FIG B_09 Type B	564557.366	172772.104
F12	22.060	20.478	1.582	1200mmØ	A15	FIG B_09 Type B	564535.584	172771.198

09.02.23	MJP	Coordinates added to manhole schedules.	SRM
Small volume of		storage crates added	
15.06.22	MJP	Crates layout updated	SRM
25.05.22	MJP	S04 & S50 Invert levels updated on plan	SRM
19.05.22	MJP	Updated stormwater drainage layout	SRM
13.04.22	MJP	Updated storm outfall	SRM
12.01.22	MJP	Updated site layout	SRM
11.01.22	MJP	Drawing updated to suit IL received	SRM
23.11.21	MJP	Drawing updated to client comments	SRM
DATE	INT	DESCRIPTION	CHK

FOR TENDER

		The Civil Engineering Practice 11 Tungsten Building George Street Fishergate Sussex BN41 1RA 01273 424424 reception@civil.co.uk www.civil.co.uk
CLIENT Stonechart Developments Ltd		
PROJECT Elizabth Huggins Cotages, Gravesend		
TITLE Proposed Levels and Drainage Layout Plan		
DRAWN M Pacifico	DATE Sept 2021	PROJECT NO. 23504
ENGINEER S Doughty	CHECKED	DWG. No. REV. 201 H
SCALE 1:200 @ A1		