

WSP Group Ltd		Page 1
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB Blavignac, Julien (UKJB042)	Digitally signed by Blavignac, Julien (UKJB042) DN: cn=Blavignac, Julien (UKJB042), o=Micro Drainage, ou=Micro Drainage, email=Julien.Blavignac@wspgroup.com, c=GB, serial=2024.02.19.10.27.19
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Proposed - Storm (No Infil)

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales			
Return Period (years)	2	PIMP (%)	100
M5-60 (mm)	19.700	Add Flow / Climate Change (%)	0
Ratio R	0.350	Minimum Backdrop Height (m)	0.600
Maximum Rainfall (mm/hr)	550	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	200

Designed with Level Soffits

Time Area Diagram for Proposed - Storm (No Infil)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.820	4-8	0.605
Total Area Contributing (ha) = 1.425			
Total Pipe Volume (m³) = 223.482			

Network Design Table for Proposed - Storm (No Infil)

- Indicates pipe length does not match coordinates

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	22.991	1.060	21.7	0.067	2.00	0.0	0.600		o	150	Pipe/Conduit	
S1.001	21.806	1.835	11.9	0.056	0.00	0.0	0.600		o	150	Pipe/Conduit	
S1.002	20.451	1.565	13.1	0.065	0.00	0.0	0.600		o	150	Pipe/Conduit	
S1.003	12.740	0.805	15.8	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S1.004	65.176	2.260	28.8	0.222	0.00	0.0	0.600		o	225	Pipe/Conduit	
S2.000	23.826	0.125	190.8	0.131	2.00	0.0	0.600		o	225	Pipe/Conduit	
S1.005	37.789	2.915	13.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	84.90	2.18	51.550	0.067	0.0	0.0	0.0	2.17	38.4	15.4
S1.001	83.69	2.30	50.490	0.123	0.0	0.0	0.0	2.94	51.9	27.9
S1.002	82.53	2.42	48.655	0.189	0.0	0.0	0.0	2.80	49.5	42.1
S1.003	81.76	2.51	47.090	0.189	0.0	0.0	0.0	2.54	45.0	42.1
S1.004	77.94	2.95	46.210	0.411	0.0	0.0	0.0	2.45	97.2	86.7
S2.000	82.54	2.42	44.075	0.131	0.0	0.0	0.0	0.94	37.5	29.2
S1.005	76.56	3.12	43.950	0.541	0.0	0.0	0.0	3.65	145.3	112.2

WSP Group Ltd		Page 2
. . .	Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Network Design Table for Proposed - Storm (No Infil)

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S3.000	7.600	0.130	58.5	0.042	2.00	0.0	0.600		o	225	Pipe/Conduit	
S1.006	6.811	0.875	7.8	0.047	0.00	0.0	0.600		o	375	Pipe/Conduit	
S4.000	24.756	0.235	105.3	0.057	2.00	0.0	0.600		o	225	Pipe/Conduit	
S1.007	36.218	1.200	30.2	0.078	0.00	0.0	0.600		o	375	Pipe/Conduit	
S5.000	44.736	3.945	11.3	0.090	2.00	0.0	0.600		o	150	Pipe/Conduit	
S5.001	22.741	0.325	70.0	0.026	0.00	0.0	0.600		o	225	Pipe/Conduit	
S5.002	35.094	0.205	171.2	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S1.008	11.383	0.730	15.6	0.096	0.00	0.0	0.600		o	375	Pipe/Conduit	
S6.000	24.351	0.170	143.2	0.066	2.00	0.0	0.600		o	225	Pipe/Conduit	
S1.009	23.512	0.780	30.1	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
S1.010	13.206	0.295	44.8	0.093	0.00	0.0	0.600		o	375	Pipe/Conduit	
S1.011	29.141	0.590	49.4	0.035	0.00	0.0	0.600		o	375	Pipe/Conduit	
S7.000	10.000#	0.075	133.3	0.000	2.00	0.0	0.600		o	150	Pipe/Conduit	
S7.001	10.000#	0.075	133.3	0.000	0.00	0.0	0.600		o	150	Pipe/Conduit	
S7.002	10.561	0.140	75.4	0.000	0.00	0.0	0.600	ooo		-2	Pipe/Conduit	
S7.003	4.761	0.095	50.1	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S1.012	16.991	0.105	161.8	0.042	0.00	0.0	0.600		o	225	Pipe/Conduit	
S1.013	11.994	0.060	199.9	0.033	0.00	0.0	0.600		o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S3.000	85.93	2.07	41.165	0.042	0.0	0.0	0.0	1.71	68.1	9.7
S1.006	76.43	3.14	40.885	0.630	0.0	0.0	0.0	6.53	721.0	130.3
S4.000	83.46	2.32	40.320	0.057	0.0	0.0	0.0	1.27	50.6	12.9
S1.007	75.04	3.32	39.935	0.764	0.0	0.0	0.0	3.31	365.4	155.3
S5.000	84.19	2.25	42.810	0.090	0.0	0.0	0.0	3.01	53.2	20.5
S5.001	81.90	2.49	38.790	0.116	0.0	0.0	0.0	1.57	62.2	25.7
S5.002	76.91	3.08	38.465	0.116	0.0	0.0	0.0	1.00	39.6	25.7
S1.008	74.74	3.36	38.110	0.976	0.0	0.0	0.0	4.61	509.0	197.6
S6.000	83.00	2.37	37.700	0.066	0.0	0.0	0.0	1.09	43.4	14.8
S1.009	73.88	3.48	37.380	1.042	0.0	0.0	0.0	3.31	365.7	208.5
S1.010	73.30	3.56	36.600	1.135	0.0	0.0	0.0	2.71	299.8	225.4
S1.011	72.01	3.75	36.305	1.170	0.0	0.0	0.0	2.58	285.3	228.2
S7.000	84.74	2.19	36.100	0.000	0.0	0.0	0.0	0.87	15.3	0.0
S7.001	82.89	2.38	36.025	0.000	0.0	0.0	0.0	0.87	15.3	0.0
S7.002	81.49	2.54	35.950	0.000	0.0	0.0	0.0	1.16	61.4	0.0
S7.003	81.10	2.58	35.810	0.000	0.0	0.0	0.0	1.85	73.6	0.0
S1.012	83.92	2.28	35.715	0.000	20.0	0.0	0.0	1.03	40.8	20.0
S1.013	81.87	2.49	35.610	0.033	20.0	0.0	0.0	0.92	36.6	27.3

WSP Group Ltd		Page 3
. . .	Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Network Design Table for Proposed - Storm (No Infil)

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.014	11.357	0.060	189.3	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S1.015	22.952	0.370	62.0	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S8.000	22.052	0.220	100.2	0.062	2.00	0.0	0.600		o	150	Pipe/Conduit	
S9.000	22.708	0.570	39.8	0.007	2.00	0.0	0.600		o	150	Pipe/Conduit	
S8.001	38.963	0.285	136.7	0.040	0.00	0.0	0.600		o	225	Pipe/Conduit	
S8.002	7.948	0.045	176.6	0.047	0.00	0.0	0.600		o	225	Pipe/Conduit	
S8.003	11.707	0.060	195.1	0.000	0.00	0.0	0.600		o	225	Pipe/Conduit	
S1.016	12.461	0.085	146.6	0.024	0.00	0.0	0.600		oo	-1	Pipe/Conduit	
S1.017	17.809#	0.633	28.1	0.000	0.00	0.0		0.030	2 _ /	1000	1:2 Ditch	
S1.018	11.314#	0.780	14.5	0.000	0.00	0.0		0.030	2 _ /	600	1:2 Ditch	
S1.019	5.000#	0.100	50.0	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.014	80.09	2.69	35.550	0.033	20.0	0.0	0.0	0.95	37.7	27.3
S1.015	78.15	2.92	35.490	0.033	20.0	0.0	0.0	1.66	66.1	27.3
S8.000	83.05	2.37	35.805	0.062	0.0	0.0	0.0	1.00	17.7	14.0
S9.000	84.30	2.24	36.155	0.007	0.0	0.0	0.0	1.60	28.3	1.6
S8.001	77.95	2.95	35.510	0.109	0.0	0.0	0.0	1.12	44.4	23.0
S8.002	76.87	3.08	35.225	0.156	0.0	0.0	0.0	0.98	39.0	32.5
S8.003	75.26	3.29	35.180	0.156	0.0	0.0	0.0	0.93	37.1	32.5
S1.016	84.16	2.25	35.120	0.000	10.0	0.0	0.0	0.83	29.3	10.0
S1.017	82.86	2.39	35.013	0.000	10.0	0.0	0.0	2.18	1048.7	10.0
S1.018	82.24	2.45	34.380	0.000	10.0	0.0	0.0	2.85	1024.5	10.0
S1.019	86.31	2.04	32.900	0.000	1.0	0.0	0.0	2.23	157.5	1.0

WSP Group Ltd				Page 4	
. . .				Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024				Designed by JB	
File 70015667 Church Road As Built ...				Checked by OJF	
XP Solutions				Network 2018.1.1	



Manhole Schedules for Proposed - Storm (No Infil)

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Diameter (mm)	PN	Pipes In Invert Level (m)	Diameter (mm)	Backdrop (mm)
S1	53.165	1.615	Open Manhole	1200	S1.000	51.550	150				
S2	51.840	1.350	Open Manhole	1200	S1.001	50.490	150	S1.000	50.490	150	
S3	50.005	1.350	Open Manhole	1200	S1.002	48.655	150	S1.001	48.655	150	
S4	48.440	1.350	Open Manhole	1200	S1.003	47.090	150	S1.002	47.090	150	
S5	47.635	1.425	Open Manhole	1200	S1.004	46.210	225	S1.003	46.285	150	
S8	45.500	1.425	Open Manhole	1200	S2.000	44.075	225				
S9	45.510	1.560	Open Manhole	1200	S1.005	43.950	225	S1.004	43.950	225	
								S2.000	43.950	225	
S10	43.090	1.925	Open Manhole	1200	S3.000	41.165	225				
S11	43.065	2.180	Open Manhole	1350	S1.006	40.885	375	S1.005	41.035	225	
								S3.000	41.035	225	
S12	43.000	2.680	Open Manhole	1200	S4.000	40.320	225				
S13	42.600	2.665	Open Manhole	1350	S1.007	39.935	375	S1.006	40.010	375	75
								S4.000	40.085	225	
S14	44.160	1.350	Open Manhole	1200	S5.000	42.810	150				
S15	40.215	1.425	Open Manhole	1200	S5.001	38.790	225	S5.000	38.865	150	
S16	39.890	1.425	Open Manhole	1200	S5.002	38.465	225	S5.001	38.465	225	
S17	40.095	1.985	Open Manhole	1350	S1.008	38.110	375	S1.007	38.735	375	625
								S5.002	38.260	225	
S18	39.475	1.775	Open Manhole	1200	S6.000	37.700	225				
S19	39.310	1.930	Open Manhole	1350	S1.009	37.380	375	S1.008	37.380	375	
								S6.000	37.530	225	
S20	38.050	1.450	Open Manhole	1350	S1.010	36.600	375	S1.009	36.600	375	
S22	38.135	1.830	Open Manhole	1350	S1.011	36.305	375	S1.010	36.305	375	
STANK 2	38.570	2.470	Open Manhole	500	S7.000	36.100	150				
S24	38.790	2.765	Open Manhole	1200	S7.001	36.025	150	S7.000	36.025	150	
STANK 1	38.200	2.250	Open Manhole	500	S7.002	35.950	-2	S7.001	35.950	150	
S23A	37.720	1.910	Open Manhole	1200	S7.003	35.810	225	S7.002	35.810	-2	
S23	37.775	2.060	Open Manhole	1350	S1.012	35.715	225	S1.011	35.715	375	
								S7.003	35.715	225	
S27	37.675	2.065	Open Manhole	1200	S1.013	35.610	225	S1.012	35.610	225	
S28	37.420	1.870	Open Manhole	1200	S1.014	35.550	225	S1.013	35.550	225	
SHW1	37.291	1.801	Open Manhole	1	S1.015	35.490	225	S1.014	35.490	225	
S29	37.200	1.395	Open Manhole	1200	S8.000	35.805	150				
S30	37.505	1.350	Open Manhole	1200	S9.000	36.155	150				
S31	37.070	1.560	Open Manhole	1200	S8.001	35.510	225	S8.000	35.585	150	
								S9.000	35.585	150	
S32	36.640	1.415	Open Manhole	1200	S8.002	35.225	225	S8.001	35.225	225	
S33	36.720	1.540	Open Manhole	1200	S8.003	35.180	225	S8.002	35.180	225	
SHW2	36.981	1.861	Open Manhole	1200	S1.016	35.120	-1	S1.015	35.120	225	
								S8.003	35.120	225	
SHW3	36.900	1.887	Open Manhole	500	S1.017	35.013	1000	S1.016	35.035	-1	
SHW4	35.400	1.020	Open Manhole	500	S1.018	34.380	600	S1.017	34.380	1000	
SFIELD	34.300	1.400	Open Manhole	1 x 10000	S1.019	32.900	300	S1.018	33.600	600	700
SDUMMY	34.000	1.200	Open Manhole	0		OUTFALL		S1.019	32.800	300	

WSP Group Ltd		Page 5
. . .	Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

PIPELINE SCHEDULES for Proposed - Storm (No Infil)

Upstream Manhole

- Indicates pipe length does not match coordinates

PN	Hyd	Diam	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	Sect	(mm)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	o	150	S1	53.165	51.550	1.465	Open Manhole	1200
S1.001	o	150	S2	51.840	50.490	1.200	Open Manhole	1200
S1.002	o	150	S3	50.005	48.655	1.200	Open Manhole	1200
S1.003	o	150	S4	48.440	47.090	1.200	Open Manhole	1200
S1.004	o	225	S5	47.635	46.210	1.200	Open Manhole	1200
S2.000	o	225	S8	45.500	44.075	1.200	Open Manhole	1200
S1.005	o	225	S9	45.510	43.950	1.335	Open Manhole	1200
S3.000	o	225	S10	43.090	41.165	1.700	Open Manhole	1200
S1.006	o	375	S11	43.065	40.885	1.805	Open Manhole	1350
S4.000	o	225	S12	43.000	40.320	2.455	Open Manhole	1200
S1.007	o	375	S13	42.600	39.935	2.290	Open Manhole	1350
S5.000	o	150	S14	44.160	42.810	1.200	Open Manhole	1200
S5.001	o	225	S15	40.215	38.790	1.200	Open Manhole	1200
S5.002	o	225	S16	39.890	38.465	1.200	Open Manhole	1200
S1.008	o	375	S17	40.095	38.110	1.610	Open Manhole	1350

Downstream Manhole

PN	Length	Slope	MH	C.Level	I.Level	D.Depth	MH	MH DIAM., L*W
	(m)	(1:X)	Name	(m)	(m)	(m)	Connection	(mm)
S1.000	22.991	21.7	S2	51.840	50.490	1.200	Open Manhole	1200
S1.001	21.806	11.9	S3	50.005	48.655	1.200	Open Manhole	1200
S1.002	20.451	13.1	S4	48.440	47.090	1.200	Open Manhole	1200
S1.003	12.740	15.8	S5	47.635	46.285	1.200	Open Manhole	1200
S1.004	65.176	28.8	S9	45.510	43.950	1.335	Open Manhole	1200
S2.000	23.826	190.8	S9	45.510	43.950	1.335	Open Manhole	1200
S1.005	37.789	13.0	S11	43.065	41.035	1.805	Open Manhole	1350
S3.000	7.600	58.5	S11	43.065	41.035	1.805	Open Manhole	1350
S1.006	6.811	7.8	S13	42.600	40.010	2.215	Open Manhole	1350
S4.000	24.756	105.3	S13	42.600	40.085	2.290	Open Manhole	1350
S1.007	36.218	30.2	S17	40.095	38.735	0.985	Open Manhole	1350
S5.000	44.736	11.3	S15	40.215	38.865	1.200	Open Manhole	1200
S5.001	22.741	70.0	S16	39.890	38.465	1.200	Open Manhole	1200
S5.002	35.094	171.2	S17	40.095	38.260	1.610	Open Manhole	1350
S1.008	11.383	15.6	S19	39.310	37.380	1.555	Open Manhole	1350

WSP Group Ltd		Page 6
. . .	Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

PIPELINE SCHEDULES for Proposed - Storm (No Infil)

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S6.000	o	225	S18	39.475	37.700	1.550	Open Manhole	1200
S1.009	o	375	S19	39.310	37.380	1.555	Open Manhole	1350
S1.010	o	375	S20	38.050	36.600	1.075	Open Manhole	1350
S1.011	o	375	S22	38.135	36.305	1.455	Open Manhole	1350
S7.000	o	150	STANK 2	38.570	36.100	2.320	Open Manhole	500
S7.001	o	150	S24	38.790	36.025	2.615	Open Manhole	1200
S7.002	ooo	-2	STANK 1	38.200	35.950	2.100	Open Manhole	500
S7.003	o	225	S23A	37.720	35.810	1.760	Open Manhole	1200
S1.012	o	225	S23	37.775	35.715	1.835	Open Manhole	1350
S1.013	o	225	S27	37.675	35.610	1.840	Open Manhole	1200
S1.014	o	225	S28	37.420	35.550	1.645	Open Manhole	1200
S1.015	o	225	SHW1	37.291	35.490	1.576	Open Manhole	1
S8.000	o	150	S29	37.200	35.805	1.245	Open Manhole	1200
S9.000	o	150	S30	37.505	36.155	1.200	Open Manhole	1200
S8.001	o	225	S31	37.070	35.510	1.335	Open Manhole	1200
S8.002	o	225	S32	36.640	35.225	1.190	Open Manhole	1200
S8.003	o	225	S33	36.720	35.180	1.315	Open Manhole	1200
S1.016	oo	-1	SHW2	36.981	35.120	1.711	Open Manhole	1200
S1.017	2 _ /	1000	SHW3	36.900	35.013	1.587	Open Manhole	500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S6.000	24.351	143.2	S19	39.310	37.530	1.555	Open Manhole	1350
S1.009	23.512	30.1	S20	38.050	36.600	1.075	Open Manhole	1350
S1.010	13.206	44.8	S22	38.135	36.305	1.455	Open Manhole	1350
S1.011	29.141	49.4	S23	37.775	35.715	1.685	Open Manhole	1350
S7.000	10.000#	133.3	S24	38.790	36.025	2.615	Open Manhole	1200
S7.001	10.000#	133.3	STANK 1	38.200	35.950	2.100	Open Manhole	500
S7.002	10.561	75.4	S23A	37.720	35.810	1.760	Open Manhole	1200
S7.003	4.761	50.1	S23	37.775	35.715	1.910	Open Manhole	1350
S1.012	16.991	161.8	S27	37.675	35.610	1.840	Open Manhole	1200
S1.013	11.994	199.9	S28	37.420	35.550	1.645	Open Manhole	1200
S1.014	11.357	189.3	SHW1	37.291	35.490	1.576	Open Manhole	1
S1.015	22.952	62.0	SHW2	36.981	35.120	1.636	Open Manhole	1200
S8.000	22.052	100.2	S31	37.070	35.585	1.335	Open Manhole	1200
S9.000	22.708	39.8	S31	37.070	35.585	1.335	Open Manhole	1200
S8.001	38.963	136.7	S32	36.640	35.225	1.190	Open Manhole	1200
S8.002	7.948	176.6	S33	36.720	35.180	1.315	Open Manhole	1200
S8.003	11.707	195.1	SHW2	36.981	35.120	1.636	Open Manhole	1200
S1.016	12.461	146.6	SHW3	36.900	35.035	1.715	Open Manhole	500
S1.017	17.809#	28.1	SHW4	35.400	34.380	0.720	Open Manhole	500

WSP Group Ltd		Page 7
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

PIPELINE SCHEDULES for Proposed - Storm (No Infil)

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.018	2 _ /	600	SHW4	35.400	34.380	0.720	Open Manhole	500
S1.019	o	300	SFIELD	34.300	32.900	1.100	Open Manhole	1 x 10000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.018	11.314#	14.5	SFIELD	34.300	33.600	0.400	Open Manhole	1 x 10000
S1.019	5.000#	50.0	SDUMMY	34.000	32.800	0.900	Open Manhole	0

WSP Group Ltd		Page 8
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Area Summary for Proposed - Storm (No Infil)

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.067	0.067	0.067
1.001	User	-	100	0.056	0.056	0.056
1.002	User	-	100	0.065	0.065	0.065
1.003	-	-	100	0.000	0.000	0.000
1.004	User	-	100	0.222	0.222	0.222
2.000	User	-	100	0.040	0.040	0.040
	User	-	100	0.021	0.021	0.061
	User	-	100	0.033	0.033	0.095
	User	-	100	0.036	0.036	0.131
1.005	-	-	100	0.000	0.000	0.000
3.000	User	-	100	0.042	0.042	0.042
1.006	User	-	100	0.047	0.047	0.047
4.000	User	-	100	0.057	0.057	0.057
1.007	User	-	100	0.029	0.029	0.029
	User	-	100	0.048	0.048	0.078
5.000	User	-	100	0.090	0.090	0.090
5.001	User	-	100	0.026	0.026	0.026
5.002	-	-	100	0.000	0.000	0.000
1.008	User	-	100	0.096	0.096	0.096
6.000	User	-	100	0.066	0.066	0.066
1.009	-	-	100	0.000	0.000	0.000
1.010	User	-	100	0.093	0.093	0.093
1.011	User	-	100	0.035	0.035	0.035
7.000	-	-	100	0.000	0.000	0.000
7.001	-	-	100	0.000	0.000	0.000
7.002	-	-	100	0.000	0.000	0.000
7.003	-	-	100	0.000	0.000	0.000
1.012	User	-	100	0.042	0.042	0.042
1.013	User	-	100	0.033	0.033	0.033
1.014	-	-	100	0.000	0.000	0.000
1.015	-	-	100	0.000	0.000	0.000
8.000	User	-	100	0.062	0.062	0.062
9.000	User	-	100	0.007	0.007	0.007
8.001	User	-	100	0.040	0.040	0.040
8.002	User	-	100	0.047	0.047	0.047
8.003	-	-	100	0.000	0.000	0.000
1.016	User	-	100	0.024	0.024	0.024
1.017	-	-	100	0.000	0.000	0.000
1.018	-	-	100	0.000	0.000	0.000
1.019	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.425	1.425	1.425

Free Flowing Outfall Details for Proposed - Storm (No Infil)

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.019	SDUMMY	34.000	32.800	0.000	0	0

WSP Group Ltd		Page 9
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Simulation Criteria for Proposed - Storm (No Infil)

Volumetric Runoff Coeff	0.840	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	10.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	2880
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	24

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 6 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Winter
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	19.700	Storm Duration (mins)	1440
Ratio R	0.350		

WSP Group Ltd		Page 10
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Online Controls for Proposed - Storm (No Infil)

Orifice Manhole: S11, DS/PN: S1.006, Volume (m³): 4.8

Diameter (m) 0.275 Discharge Coefficient 0.600 Invert Level (m) 40.885

Orifice Manhole: S13, DS/PN: S1.007, Volume (m³): 5.4

Diameter (m) 0.225 Discharge Coefficient 0.600 Invert Level (m) 39.935

Orifice Manhole: S19, DS/PN: S1.009, Volume (m³): 4.8

Diameter (m) 0.200 Discharge Coefficient 0.600 Invert Level (m) 37.380

Hydro-Brake® Optimum Manhole: S24, DS/PN: S7.001, Volume (m³): 3.3

Unit Reference	MD-SHE-0082-4000-2000-4000
Design Head (m)	2.000
Design Flow (l/s)	4.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	82
Invert Level (m)	36.025
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points			Control Points		
	Head (m)	Flow (l/s)		Head (m)	Flow (l/s)
Design Point (Calculated)	2.000	4.0	Kick-Flo®	0.729	2.5
Flush-Flo™	0.356	3.1	Mean Flow over Head Range	-	3.1

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.4	0.800	2.6	2.000	4.0	4.000	5.5	7.000	7.2
0.200	3.0	1.000	2.9	2.200	4.2	4.500	5.8	7.500	7.4
0.300	3.1	1.200	3.2	2.400	4.3	5.000	6.1	8.000	7.7
0.400	3.1	1.400	3.4	2.600	4.5	5.500	6.4	8.500	7.9
0.500	3.1	1.600	3.6	3.000	4.8	6.000	6.7	9.000	8.1
0.600	2.9	1.800	3.8	3.500	5.2	6.500	6.9	9.500	8.3

Complex Manhole: S23, DS/PN: S1.012, Volume (m³): 6.2

Hydro-Brake® Optimum

Unit Reference	MD-SHE-0147-1000-0900-1000
Design Head (m)	0.900
Design Flow (l/s)	10.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	147
Invert Level (m)	35.715
Minimum Outlet Pipe Diameter (mm)	225

WSP Group Ltd		Page 11
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Hydro-Brake® Optimum

Suggested Manhole Diameter (mm) 1200

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.900	10.0	Kick-Flo®	0.625	8.4
Flush-Flo™	0.283	10.0	Mean Flow over Head Range	-	8.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.3	0.800	9.5	2.000	14.6	4.000	20.3	7.000	26.5
0.200	9.8	1.000	10.5	2.200	15.2	4.500	21.5	7.500	27.4
0.300	10.0	1.200	11.4	2.400	15.9	5.000	22.6	8.000	28.3
0.400	9.8	1.400	12.3	2.600	16.5	5.500	23.6	8.500	29.1
0.500	9.5	1.600	13.1	3.000	17.7	6.000	24.6	9.000	30.0
0.600	8.8	1.800	13.9	3.500	19.0	6.500	25.6	9.500	30.7

Weir

Discharge Coef 0.544 Width (m) 1.000 Invert Level (m) 37.300

Complex Manhole: SFIELD, DS/PN: S1.019, Volume (m³): 29.8

Orifice

Diameter (m) 0.090 Discharge Coefficient 0.600 Invert Level (m) 33.442

Weir

Discharge Coef 0.510 Width (m) 0.250 Invert Level (m) 34.113

WSP Group Ltd		Page 12
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Offline Controls for Proposed - Storm (No Infil)

Pipe Manhole: STANK 1, DS/PN: S7.002, Loop to PN: S7.000

Diameter (m)	-3	Roughness k (mm)	0.600
Section Type	Pipe/Conduit	Entry Loss Coefficient	0.500
Slope (1:X)	100.0	Coefficient of Contraction	0.600
Length (m)	20.000	Upstream Invert Level (m)	36.925

WSP Group Ltd		Page 13
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

Storage Structures for Proposed - Storm (No Infil)

Cellular Storage Manhole: S10, DS/PN: S3.000

Invert Level (m) 41.165 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

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	33.0	33.0	1.200	33.0	66.6	1.300	0.0	66.6

Cellular Storage Manhole: S12, DS/PN: S4.000

Invert Level (m) 40.320 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

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	66.5	66.5	1.200	66.5	106.1	1.300	0.0	106.1

Cellular Storage Manhole: S18, DS/PN: S6.000

Invert Level (m) 37.700 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

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	112.0	0.0	1.200	112.0	0.0	1.201	0.0	0.0

Cellular Storage Manhole: STANK 2, DS/PN: S7.000

Invert Level (m) 36.100 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

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	148.0	148.0	1.200	148.0	211.6	1.300	0.0	211.6

Cellular Storage Manhole: STANK 1, DS/PN: S7.002

Invert Level (m) 35.950 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

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	400.0	400.0	1.200	400.0	496.0	1.300	0.0	496.0

Infiltration Basin Manhole: SFIELD, DS/PN: S1.019

Invert Level (m) 33.000 Safety Factor 1.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 1.00
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	0.0	0.100	0.0	0.200	0.0	0.300	0.0

Infiltration Basin Manhole: SFIELD, DS/PN: S1.019

Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.439	0.0	0.600	87.0	0.900	114.5	1.100	132.7
0.440	71.8	0.700	95.8	1.000	123.5	1.200	142.1
0.500	77.8	0.800	104.6	1.010	124.5	1.300	151.6

WSP Group Ltd		Page 15
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 10.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 6 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

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

PN	US/MH Name		Event			US/CL (m)	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)
S1.000	S1	15 minute	1 year	Summer	I+0%	53.165	51.609	-0.091	0.000	0.33		0.061
S1.001	S2	15 minute	1 year	Summer	I+0%	51.840	50.552	-0.088	0.000	0.35		0.071
S1.002	S3	15 minute	1 year	Summer	I+0%	50.005	48.733	-0.072	0.000	0.52		0.087
S1.003	S4	15 minute	1 year	Summer	I+0%	48.440	47.174	-0.066	0.000	0.60		0.095
S1.004	S5	15 minute	1 year	Winter	I+0%	47.635	46.325	-0.111	0.000	0.51		0.125
S2.000	S8	15 minute	1 year	Summer	I+0%	45.500	44.207	-0.093	0.000	0.58		0.144
S1.005	S9	15 minute	1 year	Winter	I+0%	45.510	44.062	-0.113	0.000	0.49		0.306
S3.000	S10	15 minute	1 year	Winter	I+0%	43.090	41.224	-0.166	0.000	0.11		1.904
S1.006	S11	15 minute	1 year	Winter	I+0%	43.065	41.239	-0.021	0.000	0.19		0.694
S4.000	S12	15 minute	1 year	Winter	I+0%	43.000	40.382	-0.163	0.000	0.14		3.991
S1.007	S13	15 minute	1 year	Winter	I+0%	42.600	40.486	0.176	0.000	0.21		1.861
S5.000	S14	15 minute	1 year	Summer	I+0%	44.160	42.867	-0.093	0.000	0.31		0.059
S5.001	S15	15 minute	1 year	Summer	I+0%	40.215	38.881	-0.134	0.000	0.33		0.098
S5.002	S16	15 minute	1 year	Summer	I+0%	39.890	38.577	-0.113	0.000	0.49		0.182
S1.008	S17	15 minute	1 year	Winter	I+0%	40.095	38.245	-0.240	0.000	0.28		0.192
S6.000	S18	30 minute	1 year	Winter	I+0%	39.475	37.835	-0.090	0.000	0.44		14.537
S1.009	S19	15 minute	1 year	Summer	I+0%	39.310	38.047	0.292	0.000	0.20		2.586
S1.010	S20	15 minute	1 year	Winter	I+0%	38.050	36.754	-0.221	0.000	0.35		0.298
S1.011	S22	15 minute	1 year	Winter	I+0%	38.135	36.624	-0.056	0.000	0.28		1.020
S7.000	STANK 2	180 minute	1 year	Winter	I+0%	38.570	36.118	-0.132	0.000	0.02		2.523
S7.001	S24	120 minute	1 year	Winter	I+0%	38.790	36.167	-0.008	0.000	0.02		0.254
S7.002	STANK 1	120 minute	1 year	Winter	I+0%	38.200	36.192	0.092	0.000	0.22	0.0	92.246
S7.003	S23A	15 minute	1 year	Winter	I+0%	37.720	36.376	0.341	0.000	0.19		1.149
S1.012	S23	15 minute	1 year	Winter	I+0%	37.775	36.576	0.636	0.000	0.27		4.360
S1.013	S27	15 minute	1 year	Summer	I+0%	37.675	35.718	-0.117	0.000	0.46		0.232
S1.014	S28	15 minute	1 year	Summer	I+0%	37.420	35.650	-0.125	0.000	0.41		0.218
S1.015	SHW1	15 minute	1 year	Winter	I+0%	37.291	35.568	-0.147	0.000	0.26		0.084
S8.000	S29	15 minute	1 year	Summer	I+0%	37.200	35.893	-0.062	0.000	0.62		0.094
S9.000	S30	15 minute	1 year	Summer	I+0%	37.505	36.176	-0.129	0.000	0.05		0.018
S8.001	S31	15 minute	1 year	Summer	I+0%	37.070	35.606	-0.129	0.000	0.36		0.105

WSP Group Ltd		Page 16
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

PN	US/MH Name	Discharge Vol (m ³)	Pipe Flow (l/s)	Status
S1.000	S1	3.665	11.9	OK
S1.001	S2	6.746	17.2	OK
S1.002	S3	10.316	24.3	OK
S1.003	S4	10.316	24.5	OK
S1.004	S5	25.168	47.6	OK
S2.000	S8	7.142	20.1	OK
S1.005	S9	33.172	64.5	OK
S3.000	S10	2.543	5.6	OK
S1.006	S11	38.577	69.0	OK
S4.000	S12	3.088	6.5	OK
S1.007	S13	46.347	69.9	SURCHARGED
S5.000	S14	4.922	16.0	OK
S5.001	S15	6.349	17.9	OK
S5.002	S16	6.349	18.3	OK
S1.008	S17	59.334	92.5	OK
S6.000	S18	2.540	17.5	OK
S1.009	S19	54.397	61.4	SURCHARGED
S1.010	S20	66.787	71.5	OK
S1.011	S22	68.949	69.9	OK
S7.000	STANK 2	-1.137	0.3	OK
S7.001	S24	-1.627	0.3	OK
S7.002	STANK 1	-31.241	9.6	SURCHARGED
S7.003	S23A	-37.609	8.5	SURCHARGED
S1.012	S23	31.888	9.9	SURCHARGED
S1.013	S27	33.179	13.1	OK
S1.014	S28	32.907	13.1	OK
S1.015	SHW1	32.972	13.1	OK
S8.000	S29	3.410	10.4	OK
S9.000	S30	0.375	1.2	OK
S8.001	S31	5.953	15.0	OK

WSP Group Ltd		Page 17
. . .	Church Road, Bishopstoke SW - Field Attenuation Basin As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

					Water		Surcharged	Flooded		
PN	US/MH Name	Event	US/CL (m)	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)	
S8.002	S32	15 minute 1 year Winter I+0%	36.640	35.391	-0.059	0.000	0.56		0.502	
S8.003	S33	15 minute 1 year Winter I+0%	36.720	35.374	-0.031	0.000	0.51		0.424	
S1.016	SHW2	15 minute 1 year Winter I+0%	36.981	35.350	0.080	0.000	1.42		0.883	
S1.017	SHW3	15 minute 1 year Winter I+0%	36.900	35.051	-1.849	0.000	0.00		0.035	
S1.018	SHW4	15 minute 1 year Winter I+0%	35.400	34.426	-0.974	0.000	0.00		0.018	
S1.019	SFIELD	720 minute 1 year Winter I+0%	34.300	33.929	0.729	0.000	0.18		47.048	

				Pipe			
PN	US/MH Name	Discharge Vol (m³)	Flow (l/s)	Status			
S8.002	S32	9.573	16.8	OK			
S8.003	S33	9.559	16.1	OK			
S1.016	SHW2	43.562	30.6	SURCHARGED			
S1.017	SHW3	43.465	30.6	OK			
S1.018	SHW4	43.370	30.6	OK			
S1.019	SFIELD	340.719	11.2	SURCHARGED			

WSP Group Ltd		Page 18
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 10.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 6 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

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

PN	US/MH Name	Event	US/CL (m)	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)
S1.000	S1	15 minute 30 year Summer I+0%	53.165	51.653	-0.047	0.000	0.80		0.111
S1.001	S2	15 minute 30 year Summer I+0%	51.840	50.626	-0.014	0.000	0.94		0.169
S1.002	S3	15 minute 30 year Winter I+0%	50.005	49.300	0.495	0.000	1.03		0.836
S1.003	S4	15 minute 30 year Winter I+0%	48.440	47.695	0.455	0.000	1.15		0.793
S1.004	S5	15 minute 30 year Winter I+0%	47.635	46.646	0.210	0.000	1.03		0.558
S2.000	S8	15 minute 30 year Summer I+0%	45.500	44.412	0.112	0.000	1.20		0.375
S1.005	S9	15 minute 30 year Summer I+0%	45.510	44.296	0.121	0.000	0.98		1.528
S3.000	S10	30 minute 30 year Winter I+0%	43.090	41.604	0.214	0.000	0.82		14.259
S1.006	S11	30 minute 30 year Winter I+0%	43.065	41.615	0.355	0.000	0.33		1.519
S4.000	S12	30 minute 30 year Winter I+0%	43.000	40.813	0.268	0.000	0.97		31.725
S1.007	S13	30 minute 30 year Winter I+0%	42.600	40.883	0.573	0.000	0.29		2.753
S5.000	S14	15 minute 30 year Summer I+0%	44.160	42.909	-0.051	0.000	0.76		0.106
S5.001	S15	15 minute 30 year Summer I+0%	40.215	38.981	-0.034	0.000	0.85		0.219
S5.002	S16	15 minute 30 year Summer I+0%	39.890	38.761	0.071	0.000	1.12		0.801
S1.008	S17	15 minute 30 year Winter I+0%	40.095	38.565	0.080	0.000	0.44		1.725
S6.000	S18	60 minute 30 year Winter I+0%	39.475	38.290	0.365	0.000	1.12		63.475
S1.009	S19	15 minute 30 year Winter I+0%	39.310	38.419	0.664	0.000	0.26		3.494
S1.010	S20	15 minute 30 year Winter I+0%	38.050	37.257	0.282	0.000	0.45		2.392
S1.011	S22	15 minute 30 year Winter I+0%	38.135	37.197	0.517	0.000	0.39		2.580
S7.000	STANK 2	600 minute 30 year Winter I+0%	38.570	36.455	0.205	0.000	0.25		50.025
S7.001	S24	600 minute 30 year Winter I+0%	38.790	36.459	0.284	0.000	0.19		0.647
S7.002	STANK 1	180 minute 30 year Winter I+0%	38.200	36.709	0.609	0.000	0.22	0.0	288.911
S7.003	S23A	180 minute 30 year Winter I+0%	37.720	36.769	0.734	0.000	0.22		1.593
S1.012	S23	15 minute 30 year Winter I+0%	37.775	37.110	1.170	0.000	0.33		5.197
S1.013	S27	15 minute 30 year Winter I+0%	37.675	35.805	-0.030	0.000	0.77		0.613
S1.014	S28	15 minute 30 year Winter I+0%	37.420	35.775	0.000	0.000	0.65		0.612
S1.015	SHW1	15 minute 30 year Winter I+0%	37.291	35.750	0.035	0.000	0.40		0.390
S8.000	S29	15 minute 30 year Summer I+0%	37.200	36.081	0.126	0.000	1.21		0.306
S9.000	S30	15 minute 30 year Summer I+0%	37.505	36.188	-0.117	0.000	0.11		0.032
S8.001	S31	15 minute 30 year Winter I+0%	37.070	35.902	0.167	0.000	0.68		0.943

WSP Group Ltd		Page 19
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

PN	US/MH Name	Discharge Vol (m³)	Pipe Flow (l/s)	Status
S1.000	S1	8.982	29.2	OK
S1.001	S2	16.532	46.1	OK
S1.002	S3	28.315	47.9	SURCHARGED
S1.003	S4	28.315	47.0	SURCHARGED
S1.004	S5	61.671	96.6	SURCHARGED
S2.000	S8	17.502	41.4	SURCHARGED
S1.005	S9	72.563	128.7	SURCHARGED
S3.000	S10	8.240	41.6	SURCHARGED
S1.006	S11	125.739	120.5	SURCHARGED
S4.000	S12	10.090	45.3	SURCHARGED
S1.007	S13	151.165	96.5	SURCHARGED
S5.000	S14	12.062	39.2	OK
S5.001	S15	15.560	45.8	OK
S5.002	S16	15.561	41.7	SURCHARGED
S1.008	S17	145.554	148.7	SURCHARGED
S6.000	S18	14.593	44.6	SURCHARGED
S1.009	S19	150.834	80.8	SURCHARGED
S1.010	S20	164.561	92.2	SURCHARGED
S1.011	S22	169.681	97.0	SURCHARGED
S7.000	STANK 2	-1.280	2.7	SURCHARGED
S7.001	S24	-1.462	2.4	SURCHARGED
S7.002	STANK 1	-213.566	9.5	SURCHARGED
S7.003	S23A	-215.053	9.5	SURCHARGED
S1.012	S23	33.095	11.9	SURCHARGED
S1.013	S27	37.645	21.8	OK
S1.014	S28	37.395	20.7	SURCHARGED
S1.015	SHW1	37.186	19.8	SURCHARGED
S8.000	S29	8.357	20.3	SURCHARGED
S9.000	S30	0.918	3.0	OK
S8.001	S31	16.342	28.6	SURCHARGED

WSP Group Ltd		Page 20
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

PN	US/MH Name	Event	US/CL (m)	Water	Surcharged	Flooded	Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)
				Level (m)	Depth (m)	Volume (m³)			
S8.002	S32	15 minute 30 year Winter I+0%	36.640	35.822	0.372	0.000	1.11		2.171
S8.003	S33	15 minute 30 year Winter I+0%	36.720	35.769	0.364	0.000	1.04		0.929
S1.016	SHW2	15 minute 30 year Winter I+0%	36.981	35.706	0.436	0.000	2.48		1.956
S1.017	SHW3	15 minute 30 year Winter I+0%	36.900	35.071	-1.829	0.000	0.00		0.056
S1.018	SHW4	15 minute 30 year Winter I+0%	35.400	34.444	-0.956	0.000	0.01		0.027
S1.019	SFIELD	240 minute 30 year Winter I+0%	34.300	34.137	0.937	0.000	0.24		75.248

PN	US/MH Name	Pipe		Status
		Discharge Vol (m³)	Flow (l/s)	
S8.002	S32	23.451	33.2	SURCHARGED
S8.003	S33	23.445	33.0	SURCHARGED
S1.016	SHW2	63.823	53.5	SURCHARGED
S1.017	SHW3	63.737	53.5	OK
S1.018	SHW4	63.653	53.5	OK
S1.019	SFIELD	313.945	15.1	FLOOD RISK

WSP Group Ltd		Page 21
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 10.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Offline Controls 1 Number of Time/Area Diagrams 0
 Number of Online Controls 6 Number of Storage Structures 6 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 19.700 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.350 Cv (Winter) 0.840

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

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

PN	US/MH Name	Event	US/CL (m)	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)
S1.000	S1	15 minute 100 year Summer I+30%	53.165	51.942	0.242	0.000	0.98		0.438
S1.001	S2	15 minute 100 year Winter I+30%	51.840	51.397	0.757	0.000	0.94		1.320
S1.002	S3	15 minute 100 year Winter I+30%	50.005	50.008	1.203	2.808	1.06		4.577
S1.003	S4	15 minute 100 year Winter I+30%	48.440	48.440	1.200	0.148	1.25		1.950
S1.004	S5	15 minute 100 year Winter I+30%	47.635	47.463	1.028	0.000	1.08		1.615
S2.000	S8	15 minute 100 year Winter I+30%	45.500	44.995	0.695	0.000	1.39		1.035
S1.005	S9	15 minute 100 year Winter I+30%	45.510	44.847	0.672	0.000	1.03		2.785
S3.000	S10	60 minute 100 year Winter I+30%	43.090	41.933	0.543	0.000	0.95		24.941
S1.006	S11	60 minute 100 year Winter I+30%	43.065	41.930	0.670	0.000	0.35		2.126
S4.000	S12	60 minute 100 year Winter I+30%	43.000	41.263	0.718	0.000	1.17		60.609
S1.007	S13	60 minute 100 year Winter I+30%	42.600	41.298	0.988	0.000	0.36		3.478
S5.000	S14	15 minute 100 year Summer I+30%	44.160	43.130	0.170	0.000	0.99		0.356
S5.001	S15	15 minute 100 year Winter I+30%	40.215	39.811	0.796	0.000	0.99		1.318
S5.002	S16	15 minute 100 year Winter I+30%	39.890	39.510	0.820	0.000	1.30		2.033
S1.008	S17	15 minute 100 year Winter I+30%	40.095	39.224	0.739	0.000	0.54		3.885
S6.000	S18	60 minute 100 year Winter I+30%	39.475	39.107	1.182	0.000	1.53		129.301
S1.009	S19	60 minute 100 year Winter I+30%	39.310	39.103	1.348	0.000	0.32		4.485
S1.010	S20	30 minute 100 year Winter I+30%	38.050	37.960	0.985	0.000	0.53		4.388
S1.011	S22	30 minute 100 year Winter I+30%	38.135	37.878	1.198	0.000	0.46		3.554
S7.000	STANK 2	960 minute 100 year Winter I+30%	38.570	36.903	0.653	0.000	0.28		113.065
S7.001	S24	960 minute 100 year Winter I+30%	38.790	36.906	0.731	0.000	0.20		1.152
S7.002	STANK 1	360 minute 100 year Winter I+30%	38.200	37.560	1.460	0.000	0.29	1.8	469.143
S7.003	S23A	360 minute 100 year Winter I+30%	37.720	37.576	1.541	0.000	0.28		2.507
S1.012	S23	30 minute 100 year Winter I+30%	37.775	37.751	1.811	0.000	0.40		6.115
S1.013	S27	15 minute 100 year Winter I+30%	37.675	36.258	0.423	0.000	0.83		1.352
S1.014	S28	15 minute 100 year Winter I+30%	37.420	36.219	0.444	0.000	0.68		1.180
S1.015	SHW1	15 minute 100 year Winter I+30%	37.291	36.187	0.472	0.000	0.44		0.428
S8.000	S29	15 minute 100 year Winter I+30%	37.200	36.631	0.676	0.000	1.31		0.929
S9.000	S30	15 minute 100 year Winter I+30%	37.505	36.458	0.153	0.000	0.17		0.337
S8.001	S31	15 minute 100 year Winter I+30%	37.070	36.454	0.719	0.000	0.73		1.810

WSP Group Ltd		Page 22
.	Church Road, Bishopstoke	
.	SW - Field Attenuation Basin	
.	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

PN	US/MH Name	Discharge Vol (m ³)	Pipe Flow (l/s)	Status
S1.000	S1	15.121	35.7	SURCHARGED
S1.001	S2	31.173	46.3	SURCHARGED
S1.002	S3	47.676	49.5	FLOOD
S1.003	S4	47.750	51.2	FLOOD
S1.004	S5	103.891	101.8	FLOOD RISK
S2.000	S8	33.003	47.9	SURCHARGED
S1.005	S9	136.894	135.7	SURCHARGED
S3.000	S10	18.156	48.5	SURCHARGED
S1.006	S11	274.217	126.5	SURCHARGED
S4.000	S12	24.445	54.4	SURCHARGED
S1.007	S13	332.357	118.0	SURCHARGED
S5.000	S14	20.307	51.2	SURCHARGED
S5.001	S15	29.340	53.1	SURCHARGED
S5.002	S16	29.339	48.6	SURCHARGED
S1.008	S17	245.232	179.1	SURCHARGED
S6.000	S18	23.011	61.0	SURCHARGED
S1.009	S19	447.451	101.0	FLOOD RISK
S1.010	S20	297.411	107.8	FLOOD RISK
S1.011	S22	304.641	116.5	FLOOD RISK
S7.000	STANK 2	22.789	3.0	SURCHARGED
S7.001	S24	22.799	2.5	SURCHARGED
S7.002	STANK 1	-298.723	12.8	SURCHARGED
S7.003	S23A	-300.091	12.1	FLOOD RISK
S1.012	S23	41.654	14.6	FLOOD RISK
S1.013	S27	47.067	23.6	SURCHARGED
S1.014	S28	46.785	21.8	SURCHARGED
S1.015	SHW1	46.538	21.8	SURCHARGED
S8.000	S29	15.758	21.9	SURCHARGED
S9.000	S30	1.731	4.4	SURCHARGED
S8.001	S31	27.512	30.6	SURCHARGED

WSP Group Ltd		Page 23
. . .	Church Road, Bishopstoke	
	SW - Field Attenuation Basin	
	As Built+Weir Raised(+100mm)	
Date 19/02/2024	Designed by JB	
File 70015667 Church Road As Built ...	Checked by OJF	
XP Solutions	Network 2018.1.1	



100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Proposed - Storm (No Infil)

PN	US/MH Name	Event	Water Surcharged Flooded				Flow / Cap.	Overflow (l/s)	Maximum Vol (m³)
			US/CL (m)	Level (m)	Depth (m)	Volume (m³)			
S8.002	S32	15 minute 100 year Winter I+30%	36.640	36.324	0.874	0.000	1.48		2.739
S8.003	S33	15 minute 100 year Winter I+30%	36.720	36.229	0.824	0.000	1.36		1.449
S1.016	SHW2	15 minute 100 year Winter I+30%	36.981	36.118	0.848	0.000	3.31		2.429
S1.017	SHW3	15 minute 100 year Winter I+30%	36.900	35.082	-1.818	0.000	0.00		0.067
S1.018	SHW4	15 minute 100 year Winter I+30%	35.400	34.457	-0.943	0.000	0.01		0.032
S1.019	SFIELD	180 minute 100 year Winter I+30%	34.300	34.275	1.075	0.000	0.64		97.133

PN	US/MH Name	Pipe		Status
		Discharge Vol (m³)	Flow (l/s)	
S8.002	S32	39.480	44.4	SURCHARGED
S8.003	S33	39.462	43.1	SURCHARGED
S1.016	SHW2	91.572	71.4	SURCHARGED
S1.017	SHW3	91.470	71.4	OK
S1.018	SHW4	91.370	71.3	OK
S1.019	SFIELD	383.099	41.1	FLOOD RISK