

Dudleys Structural and Civil Engineers		Page 1
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25	Designed by VB	
File 170525 SW VB REVIEW.MDX	Checked by AW	
Micro Drainage	Network 2017.1.1	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales			
Return Period (years)	5	PIMP (%)	100
M5-60 (mm)	19.900	Add Flow / Climate Change (%)	0
Ratio R	0.288	Minimum Backdrop Height (m)	0.600
Maximum Rainfall (mm/hr)	100	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 Storm

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.518	4-8	0.060

Total Area Contributing (ha) = 0.578

Total Pipe Volume (m³) = 459.108

Network Design Table for Storm

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	34.111	2.437	14.0	0.158	4.00	0.0	0.600	o	225	Pipe/Conduit	
2.000	28.501	0.190	150.0	0.063	4.00	0.0	0.600	[]	-5	Pipe/Conduit	
2.001	3.000	0.020	150.0	0.000	0.00	0.0	0.600	[]	-5	Pipe/Conduit	
1.001	34.510	3.000	11.5	0.092	0.00	0.0	0.600	o	225	Pipe/Conduit	
1.002	16.345	0.120	136.0	0.012	0.00	0.0	0.600	[]	21	Pipe/Conduit	
1.003	11.561	0.058	200.0	0.080	0.00	0.0	0.600	[]	21	Pipe/Conduit	
1.004	21.405	0.107	200.0	0.017	0.00	0.0	0.600	[]	21	Pipe/Conduit	
3.000	19.298	0.096	200.0	0.029	4.00	0.0	0.600	[]	21	Pipe/Conduit	
1.005	11.867	0.059	200.0	0.127	0.00	0.0	0.600	[]	21	Pipe/Conduit	
1.006	1.399	0.025	56.0	0.000	0.00	0.0	0.600	o	750	Pipe/Conduit	
1.007	12.795	1.280	10.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	81.47	4.16	192.800	0.158	0.0	0.0	0.0	3.52	139.8	34.9
2.000	81.86	4.10	188.420	0.063	0.0	0.0	0.0	4.57	22675.0	14.0
2.001	81.79	4.11	188.230	0.063	0.0	0.0	0.0	4.57	22675.4	14.0
1.001	80.49	4.31	188.210	0.313	0.0	0.0	0.0	3.88	154.3	68.2
1.002	80.09	4.37	185.210	0.325	0.0	0.0	0.0	4.40	16360.1	70.5
1.003	79.75	4.43	185.090	0.405	0.0	0.0	0.0	3.63	13482.4	87.5
1.004	79.14	4.52	185.032	0.422	0.0	0.0	0.0	3.63	13482.4	90.4
3.000	81.97	4.09	185.021	0.029	0.0	0.0	0.0	3.63	13482.4	6.4
1.005	78.80	4.58	184.925	0.578	0.0	0.0	0.0	3.63	13482.4	123.3
1.006	78.76	4.58	184.865	0.578	0.0	0.0	0.0	3.75	1654.8	123.3
1.007	78.35	4.65	184.840	0.578	0.0	0.0	0.0	3.21	56.6	123.3

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.007	OUTFALL	187.500	183.560	183.500	0	0

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Online Controls for Storm

Hydro-Brake® Optimum Manhole: SW1.1 FC, DS/PN: 1.001, Volume (m³): 31.5

Unit Reference	MD-SHE-0088-5000-2400-5000	Sump Available	Yes
Design Head (m)	2.400	Diameter (mm)	88
Design Flow (l/s)	5.0	Invert Level (m)	188.210
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.400	5.0	Kick-Flo®	0.784	3.0
Flush-Flo™	0.381	3.7	Mean Flow over Head Range	-	3.8

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)	Depth (m)	Flow (l/s)
0.100	2.7	0.600	3.6	1.600	4.1	2.600	5.2	5.000	7.1	7.500	8.5
0.200	3.5	0.800	3.0	1.800	4.4	3.000	5.5	5.500	7.4	8.000	8.8
0.300	3.7	1.000	3.3	2.000	4.6	3.500	6.0	6.000	7.7	8.500	9.1
0.400	3.7	1.200	3.6	2.200	4.8	4.000	6.4	6.500	8.0	9.000	9.3
0.500	3.7	1.400	3.9	2.400	5.0	4.500	6.7	7.000	8.3	9.500	9.6

Hydro-Brake® Optimum Manhole: SW1.7 FC , DS/PN: 1.007, Volume (m³): 15.5

Unit Reference	MD-SHE-0091-5000-2050-5000	Sump Available	Yes
Design Head (m)	2.050	Diameter (mm)	91
Design Flow (l/s)	5.0	Invert Level (m)	184.840
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.050	5.0	Kick-Flo®	0.813	3.3
Flush-Flo™	0.402	4.1	Mean Flow over Head Range	-	3.9

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)	Depth (m)	Flow (l/s)
0.100	2.9	0.600	3.9	1.600	4.5	2.600	5.6	5.000	7.6	7.500	9.2
0.200	3.8	0.800	3.3	1.800	4.7	3.000	6.0	5.500	7.9	8.000	9.5
0.300	4.0	1.000	3.6	2.000	4.9	3.500	6.4	6.000	8.3	8.500	9.8
0.400	4.1	1.200	3.9	2.200	5.2	4.000	6.8	6.500	8.6	9.000	10.0
0.500	4.0	1.400	4.2	2.400	5.4	4.500	7.2	7.000	8.9	9.500	10.3

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Checked by AW



Network 2017.1.1

Simulation Criteria

Number of Input Hydrographs	0	Number of Offline Controls	0	Number of Time/Area Diagrams	0
Number of Online Controls	2	Number of Storage Structures	0	Number of Real Time Controls	0

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

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

									Water	Surcharged	Flooded	
PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Level (m)	Depth (m)	Volume (m³)	Flow / Cap.
1.000	SW1.0	15 Winter	100	+30%					192.930	-0.095	0.000	0.64
2.000	SW2.0	360 Winter	100	+30%	100/180 Winter				191.562	0.742	0.000	0.00
2.001	SW2.1	360 Winter	100	+30%	100/120 Winter				191.563	0.933	0.000	0.00
1.001	SW1.1 FC	360 Winter	100	+30%	1/15 Summer				191.563	3.128	0.000	0.04
1.002	SW1.2	1440 Winter	100	+30%					186.951	-0.059	0.000	0.00
1.003	SW1.3	1440 Winter	100	+30%	100/1440 Winter				186.950	0.060	0.000	0.00
1.004	SW1.4	1440 Winter	100	+30%	100/960 Winter				186.950	0.118	0.000	0.00
3.000	SW3.0	1440 Winter	100	+30%	100/960 Winter				186.950	0.129	0.000	0.00
1.005	SW1.5	1440 Winter	100	+30%	100/600 Winter				186.950	0.225	0.000	0.00
1.006	SW1.6	1440 Winter	100	+30%	30/120 Summer				186.950	1.335	0.000	0.02
1.007	SW1.7 FC	1440 Winter	100	+30%	1/15 Summer				186.950	1.960	0.000	0.10

PN	US/MH Name	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
1.000	SW1.0		83.7		OK
2.000	SW2.0		5.8	SURCHARGED	
2.001	SW2.1		15.0	FLOOD RISK	
1.001	SW1.1 FC		5.8	FLOOD RISK	
1.002	SW1.2		5.1	OK	
1.003	SW1.3		6.9	SURCHARGED	
1.004	SW1.4		7.0	SURCHARGED	
3.000	SW3.0		1.0	SURCHARGED	
1.005	SW1.5		12.5	SURCHARGED	
1.006	SW1.6		8.3	SURCHARGED	
1.007	SW1.7 FC		5.1	SURCHARGED	

Rainfall Hyetograph for 15 minute 100 year Winter I+30%
for Pipe 1.000 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	26.193	3	49.783	5	102.006	7	234.899	9	234.899	11	102.006	13	49.783	15	26.193
2	47.798	4	63.020	6	165.041	8	272.853	10	165.041	12	63.020	14	47.799		

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Rainfall Hyetograph for 360 minute 100 year Winter I+30%
for Pipe 2.000 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.538	46	7.298	91	10.614	136	25.877	181	41.405	226	25.877	271	9.903	316	7.298
2	0.538	47	7.296	92	10.614	137	26.203	182	41.405	227	25.555	272	9.903	317	7.298
3	0.538	48	7.286	93	10.614	138	27.505	183	41.405	228	24.266	273	9.903	318	7.296
4	1.164	49	7.286	94	10.938	139	27.505	184	41.178	229	24.266	274	9.657	319	7.296
5	2.102	50	7.286	95	11.423	140	27.505	185	40.839	230	24.266	275	9.288	320	7.296
6	2.102	51	7.280	96	11.423	141	28.483	186	40.839	231	23.317	276	9.288	321	7.276
7	2.102	52	7.276	97	11.423	142	29.134	187	40.839	232	22.685	277	9.288	322	7.262
8	3.136	53	7.276	98	12.148	143	29.134	188	40.215	233	22.685	278	8.871	323	7.262
9	3.394	54	7.276	99	12.329	144	29.134	189	40.059	234	22.685	279	8.767	324	7.262
10	3.394	55	7.282	100	12.329	145	30.750	190	40.059	235	21.146	280	8.767	325	7.179
11	3.605	56	7.282	101	12.530	146	30.750	191	39.866	236	21.146	281	8.681	326	7.179
12	4.445	57	7.282	102	13.332	147	30.750	192	39.094	237	21.146	282	8.336	327	7.179
13	4.445	58	7.297	103	13.332	148	31.383	193	39.094	238	20.551	283	8.336	328	7.118
14	4.445	59	7.319	104	13.332	149	32.333	194	39.094	239	19.660	284	8.336	329	7.026
15	4.948	60	7.319	105	13.990	150	32.333	195	38.418	240	19.660	285	8.129	330	7.026
16	5.283	61	7.319	106	14.428	151	32.333	196	37.968	241	19.660	286	7.990	331	7.026
17	5.283	62	7.381	107	14.428	152	33.560	197	37.968	242	18.522	287	7.990	332	6.831
18	5.283	63	7.397	108	14.428	153	33.867	198	37.968	243	18.237	288	7.990	333	6.783
19	5.935	64	7.397	109	15.615	154	33.867	199	36.706	244	18.237	289	7.724	334	6.783
20	5.935	65	7.423	110	15.615	155	34.160	200	36.706	245	17.967	290	7.724	335	6.712
21	5.935	66	7.529	111	15.615	156	35.332	201	36.706	246	16.887	291	7.724	336	6.427
22	6.132	67	7.529	112	16.124	157	35.332	202	36.156	247	16.887	292	7.646	337	6.427
23	6.427	68	7.529	113	16.887	158	35.332	203	35.332	248	16.887	293	7.529	338	6.427
24	6.427	69	7.646	114	16.887	159	36.156	204	35.332	249	16.124	294	7.529	339	6.132
25	6.427	70	7.724	115	16.887	160	36.706	205	35.332	250	15.615	295	7.529	340	5.935
26	6.712	71	7.724	116	17.967	161	36.706	206	34.160	251	15.615	296	7.423	341	5.935
27	6.783	72	7.724	117	18.237	162	36.706	207	33.867	252	15.615	297	7.397	342	5.935
28	6.783	73	7.990	118	18.237	163	37.968	208	33.867	253	14.428	298	7.397	343	5.284
29	6.831	74	7.990	119	18.522	164	37.968	209	33.560	254	14.428	299	7.381	344	5.284
30	7.026	75	7.990	120	19.660	165	37.968	210	32.333	255	14.428	300	7.319	345	5.284
31	7.026	76	8.129	121	19.660	166	38.418	211	32.333	256	13.990	301	7.319	346	4.948
32	7.026	77	8.336	122	19.660	167	39.094	212	32.333	257	13.332	302	7.319	347	4.445
33	7.118	78	8.336	123	20.551	168	39.094	213	31.383	258	13.332	303	7.297	348	4.445
34	7.179	79	8.336	124	21.146	169	39.094	214	30.750	259	13.332	304	7.282	349	4.445
35	7.179	80	8.681	125	21.146	170	39.866	215	30.750	260	12.530	305	7.282	350	3.605
36	7.179	81	8.767	126	21.146	171	40.059	216	30.750	261	12.329	306	7.282	351	3.394
37	7.262	82	8.767	127	22.685	172	40.059	217	29.134	262	12.329	307	7.276	352	3.394
38	7.262	83	8.871	128	22.685	173	40.215	218	29.134	263	12.148	308	7.276	353	3.136
39	7.262	84	9.288	129	22.685	174	40.839	219	29.134	264	11.423	309	7.276	354	2.102
40	7.276	85	9.288	130	23.317	175	40.839	220	28.482	265	11.423	310	7.280	355	2.102
41	7.296	86	9.288	131	24.266	176	40.839	221	27.505	266	11.423	311	7.286	356	2.102
42	7.296	87	9.657	132	24.266	177	41.178	222	27.505	267	10.938	312	7.286	357	1.164
43	7.296	88	9.903	133	24.266	178	41.405	223	27.505	268	10.614	313	7.286	358	0.538
44	7.298	89	9.903	134	25.555	179	41.405	224	26.203	269	10.614	314	7.296	359	0.538
45	7.298	90	9.903	135	25.877	180	41.405	225	25.877	270	10.614	315	7.298	360	0.538

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Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.538	46	7.298	91	10.614	136	25.877	181	41.405	226	25.877	271	9.903	316	7.298
2	0.538	47	7.296	92	10.614	137	26.203	182	41.405	227	25.555	272	9.903	317	7.298
3	0.538	48	7.286	93	10.614	138	27.505	183	41.405	228	24.266	273	9.903	318	7.296
4	1.164	49	7.286	94	10.938	139	27.505	184	41.178	229	24.266	274	9.657	319	7.296
5	2.102	50	7.286	95	11.423	140	27.505	185	40.839	230	24.266	275	9.288	320	7.296
6	2.102	51	7.280	96	11.423	141	28.483	186	40.839	231	23.317	276	9.288	321	7.276
7	2.102	52	7.276	97	11.423	142	29.134	187	40.839	232	22.685	277	9.288	322	7.262
8	3.136	53	7.276	98	12.148	143	29.134	188	40.215	233	22.685	278	8.871	323	7.262
9	3.394	54	7.276	99	12.329	144	29.134	189	40.059	234	22.685	279	8.767	324	7.262
10	3.394	55	7.282	100	12.329	145	30.750	190	40.059	235	21.146	280	8.767	325	7.179
11	3.605	56	7.282	101	12.530	146	30.750	191	39.866	236	21.146	281	8.681	326	7.179
12	4.445	57	7.282	102	13.332	147	30.750	192	39.094	237	21.146	282	8.336	327	7.179
13	4.445	58	7.297	103	13.332	148	31.383	193	39.094	238	20.551	283	8.336	328	7.118
14	4.445	59	7.319	104	13.332	149	32.333	194	39.094	239	19.660	284	8.336	329	7.026
15	4.948	60	7.319	105	13.990	150	32.333	195	38.418	240	19.660	285	8.129	330	7.026
16	5.283	61	7.319	106	14.428	151	32.333	196	37.968	241	19.660	286	7.990	331	7.026
17	5.283	62	7.381	107	14.428	152	33.560	197	37.968	242	18.522	287	7.990	332	6.831
18	5.283	63	7.397	108	14.428	153	33.867	198	37.968	243	18.237	288	7.990	333	6.783
19	5.935	64	7.397	109	15.615	154	33.867	199	36.706	244	18.237	289	7.724	334	6.783
20	5.935	65	7.423	110	15.615	155	34.160	200	36.706	245	17.967	290	7.724	335	6.712
21	5.935	66	7.529	111	15.615	156	35.332	201	36.706	246	16.887	291	7.724	336	6.427
22	6.132	67	7.529	112	16.124	157	35.332	202	36.156	247	16.887	292	7.646	337	6.427
23	6.427	68	7.529	113	16.887	158	35.332	203	35.332	248	16.887	293	7.529	338	6.427
24	6.427	69	7.646	114	16.887	159	36.156	204	35.332	249	16.124	294	7.529	339	6.132
25	6.427	70	7.724	115	16.887	160	36.706	205	35.332	250	15.615	295	7.529	340	5.935
26	6.712	71	7.724	116	17.967	161	36.706	206	34.160	251	15.615	296	7.423	341	5.935
27	6.783	72	7.724	117	18.237	162	36.706	207	33.867	252	15.615	297	7.397	342	5.935
28	6.783	73	7.990	118	18.237	163	37.968	208	33.867	253	14.428	298	7.397	343	5.284
29	6.831	74	7.990	119	18.522	164	37.968	209	33.560	254	14.428	299	7.381	344	5.284
30	7.026	75	7.990	120	19.660	165	37.968	210	32.333	255	14.428	300	7.319	345	5.284
31	7.026	76	8.129	121	19.660	166	38.418	211	32.333	256	13.990	301	7.319	346	4.948
32	7.026	77	8.336	122	19.660	167	39.094	212	32.333	257	13.332	302	7.319	347	4.445
33	7.118	78	8.336	123	20.551	168	39.094	213	31.383	258	13.332	303	7.297	348	4.445
34	7.179	79	8.336	124	21.146	169	39.094	214	30.750	259	13.332	304	7.282	349	4.445
35	7.179	80	8.681	125	21.146	170	39.866	215	30.750	260	12.530	305	7.282	350	3.605
36	7.179	81	8.767	126	21.146	171	40.059	216	30.750	261	12.329	306	7.282	351	3.394
37	7.262	82	8.767	127	22.685	172	40.059	217	29.134	262	12.329	307	7.276	352	3.394
38	7.262	83	8.871	128	22.685	173	40.215	218	29.134	263	12.148	308	7.276	353	3.136
39	7.262	84	9.288	129	22.685	174	40.839	219	29.134	264	11.423	309	7.276	354	2.102
40	7.276	85	9.288	130	23.317	175	40.839	220	28.482	265	11.423	310	7.280	355	2.102
41	7.296	86	9.288	131	24.266	176	40.839	221	27.505	266	11.423	311	7.286	356	2.102
42	7.296	87	9.657	132	24.266	177	41.178	222	27.505	267	10.938	312	7.286	357	1.164
43	7.296	88	9.903	133	24.266	178	41.405	223	27.505	268	10.614	313	7.286	358	0.538
44	7.298	89	9.903	134	25.555	179	41.405	224	26.203	269	10.614	314	7.296	359	0.538
45	7.298	90	9.903	135	25.877	180	41.405	225	25.877	270	10.614	315	7.298	360	0.538

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
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Designed by VB
Checked by AW

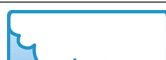


Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 360 minute 100 year Winter I+30%
for Pipe 1.001 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.538	46	7.298	91	10.614	136	25.877	181	41.405	226	25.877	271	9.903	316	7.298
2	0.538	47	7.296	92	10.614	137	26.203	182	41.405	227	25.555	272	9.903	317	7.298
3	0.538	48	7.286	93	10.614	138	27.505	183	41.405	228	24.266	273	9.903	318	7.296
4	1.164	49	7.286	94	10.938	139	27.505	184	41.178	229	24.266	274	9.657	319	7.296
5	2.102	50	7.286	95	11.423	140	27.505	185	40.839	230	24.266	275	9.288	320	7.296
6	2.102	51	7.280	96	11.423	141	28.483	186	40.839	231	23.317	276	9.288	321	7.276
7	2.102	52	7.276	97	11.423	142	29.134	187	40.839	232	22.685	277	9.288	322	7.262
8	3.136	53	7.276	98	12.148	143	29.134	188	40.215	233	22.685	278	8.871	323	7.262
9	3.394	54	7.276	99	12.329	144	29.134	189	40.059	234	22.685	279	8.767	324	7.262
10	3.394	55	7.282	100	12.329	145	30.750	190	40.059	235	21.146	280	8.767	325	7.179
11	3.605	56	7.282	101	12.530	146	30.750	191	39.866	236	21.146	281	8.681	326	7.179
12	4.445	57	7.282	102	13.332	147	30.750	192	39.094	237	21.146	282	8.336	327	7.179
13	4.445	58	7.297	103	13.332	148	31.383	193	39.094	238	20.551	283	8.336	328	7.118
14	4.445	59	7.319	104	13.332	149	32.333	194	39.094	239	19.660	284	8.336	329	7.026
15	4.948	60	7.319	105	13.990	150	32.333	195	38.418	240	19.660	285	8.129	330	7.026
16	5.283	61	7.319	106	14.428	151	32.333	196	37.968	241	19.660	286	7.990	331	7.026
17	5.283	62	7.381	107	14.428	152	33.560	197	37.968	242	18.522	287	7.990	332	6.831
18	5.283	63	7.397	108	14.428	153	33.867	198	37.968	243	18.237	288	7.990	333	6.783
19	5.935	64	7.397	109	15.615	154	33.867	199	36.706	244	18.237	289	7.724	334	6.783
20	5.935	65	7.423	110	15.615	155	34.160	200	36.706	245	17.967	290	7.724	335	6.712
21	5.935	66	7.529	111	15.615	156	35.332	201	36.706	246	16.887	291	7.724	336	6.427
22	6.132	67	7.529	112	16.124	157	35.332	202	36.156	247	16.887	292	7.646	337	6.427
23	6.427	68	7.529	113	16.887	158	35.332	203	35.332	248	16.887	293	7.529	338	6.427
24	6.427	69	7.646	114	16.887	159	36.156	204	35.332	249	16.124	294	7.529	339	6.132
25	6.427	70	7.724	115	16.887	160	36.706	205	35.332	250	15.615	295	7.529	340	5.935
26	6.712	71	7.724	116	17.967	161	36.706	206	34.160	251	15.615	296	7.423	341	5.935
27	6.783	72	7.724	117	18.237	162	36.706	207	33.867	252	15.615	297	7.397	342	5.935
28	6.783	73	7.990	118	18.237	163	37.968	208	33.867	253	14.428	298	7.397	343	5.284
29	6.831	74	7.990	119	18.522	164	37.968	209	33.560	254	14.428	299	7.381	344	5.284
30	7.026	75	7.990	120	19.660	165	37.968	210	32.333	255	14.428	300	7.319	345	5.284
31	7.026	76	8.129	121	19.660	166	38.418	211	32.333	256	13.990	301	7.319	346	4.948
32	7.026	77	8.336	122	19.660	167	39.094	212	32.333	257	13.332	302	7.319	347	4.445
33	7.118	78	8.336	123	20.551	168	39.094	213	31.383	258	13.332	303	7.297	348	4.445
34	7.179	79	8.336	124	21.146	169	39.094	214	30.750	259	13.332	304	7.282	349	4.445
35	7.179	80	8.681	125	21.146	170	39.866	215	30.750	260	12.530	305	7.282	350	3.605
36	7.179	81	8.767	126	21.146	171	40.059	216	30.750	261	12.329	306	7.282	351	3.394
37	7.262	82	8.767	127	22.685	172	40.059	217	29.134	262	12.329	307	7.276	352	3.394
38	7.262	83	8.871	128	22.685	173	40.215	218	29.134	263	12.148	308	7.276	353	3.136
39	7.262	84	9.288	129	22.685	174	40.839	219	29.134	264	11.423	309	7.276	354	2.102
40	7.276	85	9.288	130	23.317	175	40.839	220	28.482	265	11.423	310	7.280	355	2.102
41	7.296	86	9.288	131	24.266	176	40.839	221	27.505	266	11.423	311	7.286	356	2.102
42	7.296	87	9.657	132	24.266	177	41.178	222	27.505	267	10.938	312	7.286	357	1.164
43	7.296	88	9.903	133	24.266	178	41.405	223	27.505	268	10.614	313	7.286	358	0.538
44	7.298	89	9.903	134	25.555	179	41.405	224	26.203	269	10.614	314	7.296	359	0.538
45	7.298	90	9.903	135	25.877	180	41.405	225	25.877	270	10.614	315	7.298	360	0.538

Dudleys Structural and Civil Engineers		Page 9
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.002 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Dudleys Structural and Civil Engineers		Page 10
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.002 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

Dudleys Structural and Civil Engineers		Page 11
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.002 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.003 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Dudleys Structural and Civil Engineers		Page 13
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage Network 2017.1.1		

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.003 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
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Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.003 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Suite 3 Tithe House
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Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.004 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

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Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.004 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

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Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
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Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 3.000 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Dudleys Structural and Civil Engineers		Page 19
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 3.000 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 3.000 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Dudleys Structural and Civil Engineers		Page 21
Suite 3 Tithe House 35 Town Street Horsforth Leeds West Yorkshire LS18 5LJ		
Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.005 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
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Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.005 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

Suite 3 Tithe House
35 Town Street Horsforth
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Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.005 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Suite 3 Tithe House
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Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.006 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

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Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.006 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

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Date 14/06/2017 10:25 File 170525 SW VB REVIEW.MDX	Designed by VB Checked by AW	
Micro Drainage	Network 2017.1.1	

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.006 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.007 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1	0.201	73	2.219	145	2.715	217	2.722	289	2.987	361	3.968	433	5.837	505	8.480
2	0.201	74	2.219	146	2.715	218	2.722	290	2.987	362	3.968	434	5.837	506	8.480
3	0.201	75	2.219	147	2.715	219	2.722	291	2.987	363	3.968	435	5.837	507	8.480
4	0.201	76	2.219	148	2.715	220	2.722	292	2.987	364	3.968	436	5.837	508	8.480
5	0.201	77	2.219	149	2.715	221	2.722	293	2.987	365	3.968	437	5.837	509	8.480
6	0.201	78	2.219	150	2.715	222	2.722	294	2.987	366	3.968	438	5.837	510	8.480
7	0.201	79	2.219	151	2.715	223	2.722	295	2.987	367	3.968	439	5.837	511	8.480
8	0.201	80	2.219	152	2.715	224	2.722	296	2.987	368	3.968	440	5.837	512	8.480
9	0.201	81	2.219	153	2.715	225	2.722	297	2.987	369	3.968	441	5.837	513	8.480
10	0.201	82	2.219	154	2.715	226	2.722	298	2.987	370	3.968	442	5.837	514	8.480
11	0.201	83	2.219	155	2.715	227	2.722	299	2.987	371	3.968	443	5.837	515	8.480
12	0.201	84	2.219	156	2.715	228	2.722	300	2.987	372	3.968	444	5.837	516	8.480
13	0.201	85	2.219	157	2.715	229	2.722	301	2.987	373	3.968	445	5.837	517	8.480
14	0.201	86	2.219	158	2.715	230	2.722	302	2.987	374	3.968	446	5.837	518	8.480
15	0.552	87	2.329	159	2.723	231	2.731	303	3.065	375	4.149	447	6.123	519	8.835
16	0.786	88	2.403	160	2.728	232	2.736	304	3.116	376	4.270	448	6.313	520	9.071
17	0.786	89	2.403	161	2.728	233	2.736	305	3.116	377	4.270	449	6.313	521	9.071
18	0.786	90	2.403	162	2.728	234	2.736	306	3.116	378	4.270	450	6.313	522	9.071
19	0.786	91	2.403	163	2.728	235	2.736	307	3.116	379	4.270	451	6.313	523	9.071
20	0.786	92	2.403	164	2.728	236	2.736	308	3.116	380	4.270	452	6.313	524	9.071
21	0.786	93	2.403	165	2.728	237	2.736	309	3.116	381	4.270	453	6.313	525	9.071
22	0.786	94	2.403	166	2.728	238	2.736	310	3.116	382	4.270	454	6.313	526	9.071
23	0.786	95	2.403	167	2.728	239	2.736	311	3.116	383	4.270	455	6.313	527	9.071
24	0.786	96	2.403	168	2.728	240	2.736	312	3.116	384	4.270	456	6.313	528	9.071
25	0.786	97	2.403	169	2.728	241	2.736	313	3.116	385	4.270	457	6.313	529	9.071
26	0.786	98	2.403	170	2.728	242	2.736	314	3.116	386	4.270	458	6.313	530	9.071
27	0.786	99	2.403	171	2.728	243	2.736	315	3.116	387	4.270	459	6.313	531	9.071
28	0.786	100	2.403	172	2.728	244	2.736	316	3.116	388	4.270	460	6.313	532	9.071
29	0.882	101	2.429	173	2.728	245	2.742	317	3.149	389	4.338	461	6.414	533	9.192
30	1.269	102	2.536	174	2.728	246	2.765	318	3.277	390	4.609	462	6.818	534	9.674
31	1.269	103	2.536	175	2.728	247	2.765	319	3.277	391	4.609	463	6.818	535	9.674
32	1.269	104	2.536	176	2.728	248	2.765	320	3.277	392	4.609	464	6.818	536	9.674
33	1.269	105	2.536	177	2.728	249	2.765	321	3.277	393	4.609	465	6.818	537	9.674
34	1.269	106	2.536	178	2.728	250	2.765	322	3.277	394	4.609	466	6.818	538	9.674
35	1.269	107	2.536	179	2.728	251	2.765	323	3.277	395	4.609	467	6.818	539	9.674
36	1.269	108	2.536	180	2.728	252	2.765	324	3.277	396	4.609	468	6.818	540	9.674
37	1.269	109	2.536	181	2.728	253	2.765	325	3.277	397	4.609	469	6.818	541	9.674
38	1.269	110	2.536	182	2.728	254	2.765	326	3.277	398	4.609	470	6.818	542	9.674
39	1.269	111	2.536	183	2.728	255	2.765	327	3.277	399	4.609	471	6.818	543	9.674
40	1.269	112	2.536	184	2.728	256	2.765	328	3.277	400	4.609	472	6.818	544	9.674
41	1.269	113	2.536	185	2.728	257	2.765	329	3.277	401	4.609	473	6.818	545	9.674
42	1.269	114	2.536	186	2.728	258	2.765	330	3.277	402	4.609	474	6.818	546	9.674
43	1.269	115	2.536	187	2.728	259	2.765	331	3.277	403	4.609	475	6.818	547	9.674
44	1.583	116	2.608	188	2.725	260	2.805	332	3.433	404	4.909	476	7.243	548	10.161
45	1.662	117	2.627	189	2.724	261	2.815	333	3.472	405	4.984	477	7.350	549	10.282
46	1.662	118	2.627	190	2.724	262	2.815	334	3.472	406	4.984	478	7.350	550	10.282
47	1.662	119	2.627	191	2.724	263	2.815	335	3.472	407	4.984	479	7.350	551	10.282
48	1.662	120	2.627	192	2.724	264	2.815	336	3.472	408	4.984	480	7.350	552	10.282
49	1.662	121	2.627	193	2.724	265	2.815	337	3.472	409	4.984	481	7.350	553	10.282
50	1.662	122	2.627	194	2.724	266	2.815	338	3.472	410	4.984	482	7.350	554	10.282
51	1.662	123	2.627	195	2.724	267	2.815	339	3.472	411	4.984	483	7.350	555	10.282
52	1.662	124	2.627	196	2.724	268	2.815	340	3.472	412	4.984	484	7.350	556	10.282
53	1.662	125	2.627	197	2.724	269	2.815	341	3.472	413	4.984	485	7.350	557	10.282
54	1.662	126	2.627	198	2.724	270	2.815	342	3.472	414	4.984	486	7.350	558	10.282
55	1.662	127	2.627	199	2.724	271	2.815	343	3.472	415	4.984	487	7.350	559	10.282
56	1.662	128	2.627	200	2.724	272	2.815	344	3.472	416	4.984	488	7.350	560	10.282
57	1.662	129	2.627	201	2.724	273	2.815	345	3.472	417	4.984	489	7.350	561	10.282
58	1.787	130	2.649	202	2.722	274	2.844	346	3.564	418	5.148	490	7.572	562	10.526
59	1.975	131	2.684	203	2.720	275	2.887	347	3.702	419	5.394	491	7.905	563	10.891
60	1.975	132	2.684	204	2.720	276	2.887	348	3.702	420	5.394	492	7.905	564	10.891
61	1.975	133	2.684	205	2.720	277	2.887	349	3.702	421	5.394	493	7.905	565	10.891
62	1.975	134	2.684	206	2.720	278	2.887	350	3.702	422	5.394	494	7.905	566	10.891
63	1.975	135	2.684	207	2.720	279	2.887	351	3.702	423	5.394	495	7.905	567	10.891
64	1.975	136	2.684	208	2.720	280	2.887	352	3.702	424	5.394	496	7.905	568	10.891
65	1.975	137	2.684	209	2.720	281	2.887	353	3.702	425	5.394	497	7.905	569	10.891
66	1.975	138	2.684	210	2.720	282	2.887	354	3.702	426	5.394	498	7.905	570	10.891
67	1.975	139	2.684	211	2.720	283	2.887	355	3.702	427	5.394	499	7.905	571	10.891
68	1.975	140	2.684	212	2.720	284	2.887	356	3.702	428	5.394	500	7.905	572	10.891
69	1.975	141	2.684	213	2.720	285	2.887	357	3.702	429	5.394	501	7.905	573	10.891
70	1.975	142	2.684	214	2.720	286	2.887	358	3.702	430	5.394	502	7.905	574	10.891
71	1.975	143	2.684	215	2.720	287	2.887	359	3.702	431	5.394	503	7.905	575	10.891
72	1.975	144	2.684	216	2.720	288	2.887	360	3.702	432	5.394	504	7.905	576	10.891

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.007 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
577	11.495	649	14.194	721	15.479	793	13.722	865	10.891	937	7.905	1009	5.394	1081	3.702
578	11.495	650	14.194	722	15.479	794	13.722	866	10.891	938	7.905	1010	5.394	1082	3.702
579	11.495	651	14.194	723	15.479	795	13.722	867	10.891	939	7.905	1011	5.394	1083	3.702
580	11.495	652	14.194	724	15.479	796	13.722	868	10.891	940	7.905	1012	5.394	1084	3.702
581	11.495	653	14.194	725	15.479	797	13.722	869	10.891	941	7.905	1013	5.394	1085	3.702
582	11.495	654	14.194	726	15.479	798	13.722	870	10.891	942	7.905	1014	5.394	1086	3.702
583	11.495	655	14.194	727	15.479	799	13.722	871	10.891	943	7.905	1015	5.394	1087	3.702
584	11.495	656	14.194	728	15.479	800	13.722	872	10.891	944	7.905	1016	5.394	1088	3.702
585	11.495	657	14.194	729	15.479	801	13.722	873	10.891	945	7.905	1017	5.394	1089	3.702
586	11.495	658	14.194	730	15.479	802	13.722	874	10.891	946	7.905	1018	5.394	1090	3.702
587	11.495	659	14.194	731	15.479	803	13.722	875	10.891	947	7.905	1019	5.394	1091	3.702
588	11.495	660	14.194	732	15.479	804	13.722	876	10.891	948	7.905	1020	5.394	1092	3.702
589	11.495	661	14.194	733	15.479	805	13.722	877	10.891	949	7.905	1021	5.394	1093	3.702
590	11.495	662	14.194	734	15.479	806	13.722	878	10.891	950	7.905	1022	5.394	1094	3.702
591	11.851	663	14.446	735	15.352	807	13.414	879	10.526	951	7.572	1023	5.148	1095	3.564
592	12.087	664	14.615	736	15.267	808	13.208	880	10.282	952	7.350	1024	4.984	1096	3.472
593	12.087	665	14.615	737	15.267	809	13.208	881	10.282	953	7.350	1025	4.984	1097	3.472
594	12.087	666	14.615	738	15.267	810	13.208	882	10.282	954	7.350	1026	4.984	1098	3.472
595	12.087	667	14.615	739	15.267	811	13.208	883	10.282	955	7.350	1027	4.984	1099	3.472
596	12.087	668	14.615	740	15.267	812	13.208	884	10.282	956	7.350	1028	4.984	1100	3.472
597	12.087	669	14.615	741	15.267	813	13.208	885	10.282	957	7.350	1029	4.984	1101	3.472
598	12.087	670	14.615	742	15.267	814	13.208	886	10.282	958	7.350	1030	4.984	1102	3.472
599	12.087	671	14.615	743	15.267	815	13.208	887	10.282	959	7.350	1031	4.984	1103	3.472
600	12.087	672	14.615	744	15.267	816	13.208	888	10.282	960	7.350	1032	4.984	1104	3.472
601	12.087	673	14.615	745	15.267	817	13.208	889	10.282	961	7.350	1033	4.984	1105	3.472
602	12.087	674	14.615	746	15.267	818	13.208	890	10.282	962	7.350	1034	4.984	1106	3.472
603	12.087	675	14.615	747	15.267	819	13.208	891	10.282	963	7.350	1035	4.984	1107	3.472
604	12.087	676	14.615	748	15.267	820	13.208	892	10.282	964	7.350	1036	4.984	1108	3.472
605	12.202	677	14.687	749	15.209	821	13.099	893	10.161	965	7.243	1037	4.909	1109	3.433
606	12.661	678	14.976	750	14.976	822	12.661	894	9.674	966	6.818	1038	4.609	1110	3.278
607	12.661	679	14.976	751	14.976	823	12.661	895	9.674	967	6.818	1039	4.609	1111	3.278
608	12.661	680	14.976	752	14.976	824	12.661	896	9.674	968	6.818	1040	4.609	1112	3.278
609	12.661	681	14.976	753	14.976	825	12.661	897	9.674	969	6.818	1041	4.609	1113	3.278
610	12.661	682	14.976	754	14.976	826	12.661	898	9.674	970	6.818	1042	4.609	1114	3.278
611	12.661	683	14.976	755	14.976	827	12.661	899	9.674	971	6.818	1043	4.609	1115	3.278
612	12.661	684	14.976	756	14.976	828	12.661	900	9.674	972	6.818	1044	4.609	1116	3.278
613	12.661	685	14.976	757	14.976	829	12.661	901	9.674	973	6.818	1045	4.609	1117	3.278
614	12.661	686	14.976	758	14.976	830	12.661	902	9.674	974	6.818	1046	4.609	1118	3.278
615	12.661	687	14.976	759	14.976	831	12.661	903	9.674	975	6.818	1047	4.609	1119	3.278
616	12.661	688	14.976	760	14.976	832	12.661	904	9.674	976	6.818	1048	4.609	1120	3.278
617	12.661	689	14.976	761	14.976	833	12.661	905	9.674	977	6.818	1049	4.609	1121	3.278
618	12.661	690	14.976	762	14.976	834	12.661	906	9.674	978	6.818	1050	4.609	1122	3.278
619	12.661	691	14.976	763	14.976	835	12.661	907	9.674	979	6.818	1051	4.609	1123	3.278
620	13.099	692	15.209	764	14.687	836	12.202	908	9.192	980	6.414	1052	4.338	1124	3.149
621	13.208	693	15.267	765	14.615	837	12.087	909	9.071	981	6.313	1053	4.270	1125	3.116
622	13.208	694	15.267	766	14.615	838	12.087	910	9.071	982	6.313	1054	4.270	1126	3.116
623	13.208	695	15.267	767	14.615	839	12.087	911	9.071	983	6.313	1055	4.270	1127	3.116
624	13.208	696	15.267	768	14.615	840	12.087	912	9.071	984	6.313	1056	4.270	1128	3.116
625	13.208	697	15.267	769	14.615	841	12.087	913	9.071	985	6.313	1057	4.270	1129	3.116
626	13.208	698	15.267	770	14.615	842	12.087	914	9.071	986	6.313	1058	4.270	1130	3.116
627	13.208	699	15.267	771	14.615	843	12.087	915	9.071	987	6.313	1059	4.270	1131	3.116
628	13.208	700	15.267	772	14.615	844	12.087	916	9.071	988	6.313	1060	4.270	1132	3.116
629	13.208	701	15.267	773	14.615	845	12.087	917	9.071	989	6.313	1061	4.270	1133	3.116
630	13.208	702	15.267	774	14.615	846	12.087	918	9.071	990	6.313	1062	4.270	1134	3.116
631	13.208	703	15.267	775	14.615	847	12.087	919	9.071	991	6.313	1063	4.270	1135	3.116
632	13.208	704	15.267	776	14.615	848	12.087	920	9.071	992	6.313	1064	4.270	1136	3.116
633	13.208	705	15.267	777	14.615	849	12.087	921	9.071	993	6.313	1065	4.270	1137	3.116
634	13.414	706	15.352	778	14.446	850	11.851	922	8.835	994	6.123	1066	4.149	1138	3.065
635	13.722	707	15.479	779	14.194	851	11.495	923	8.480	995	5.837	1067	3.968	1139	2.987
636	13.722	708	15.479	780	14.194	852	11.495	924	8.480	996	5.837	1068	3.968	1140	2.987
637	13.722	709	15.479	781	14.194	853	11.495	925	8.480	997	5.837	1069	3.968	1141	2.987
638	13.722	710	15.479	782	14.194	854	11.495	926	8.480	998	5.837	1070	3.968	1142	2.987
639	13.722	711	15.479	783	14.194	855	11.495	927	8.480	999	5.837	1071	3.968	1143	2.987
640	13.722	712	15.479	784	14.194	856	11.495	928	8.480	1000	5.837	1072	3.968	1144	2.987
641	13.722	713	15.479	785	14.194	857	11.495	929	8.480	1001	5.837	1073	3.968	1145	2.987
642	13.722	714	15.479	786	14.194	858	11.495	930	8.480	1002	5.837	1074	3.968	1146	2.987
643	13.722	715	15.479	787	14.194	859	11.495	931	8.480	1003	5.837	1075	3.968	1147	2.987
644	13.722	716	15.479	788	14.194	860	11.495	932	8.480	1004	5.837	1076	3.968	1148	2.987
645	13.722	717	15.479	789	14.194	861	11.495	933	8.480	1005	5.837	1077	3.968	1149	2.987
646	13.722	718	15.479	790	14.194	862	11.495	934	8.480	1006	5.837	1078	3.968	1150	2.987
647	13.722	719	15.479	791	14.194	863	11.495	935	8.480	1007	5.837	1079	3.968	1151	2.987
648	13.722	720	15.479	792	14.194	864	11.495	936	8.480	1008	5.837	1080	3.968	1152	2.987

Suite 3 Tithe House
35 Town Street Horsforth
Leeds West Yorkshire LS18 5LJ

Date 14/06/2017 10:25
File 170525 SW VB REVIEW.MDX

Designed by VB
Checked by AW



Micro Drainage

Network 2017.1.1

Rainfall Hyetograph for 1440 minute 100 year Winter I+30%
for Pipe 1.007 (Storm)

Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)	Time (mins)	Rain (mm/hr)
1153	2.887	1189	2.765	1225	2.720	1261	2.728	1297	2.684	1333	2.536	1369	1.975	1405	1.269
1154	2.887	1190	2.765	1226	2.720	1262	2.728	1298	2.684	1334	2.536	1370	1.975	1406	1.269
1155	2.887	1191	2.765	1227	2.720	1263	2.728	1299	2.684	1335	2.536	1371	1.975	1407	1.269
1156	2.887	1192	2.765	1228	2.720	1264	2.728	1300	2.684	1336	2.536	1372	1.975	1408	1.269
1157	2.887	1193	2.765	1229	2.720	1265	2.728	1301	2.684	1337	2.536	1373	1.975	1409	1.269
1158	2.887	1194	2.765	1230	2.720	1266	2.728	1302	2.684	1338	2.536	1374	1.975	1410	1.269
1159	2.887	1195	2.765	1231	2.720	1267	2.728	1303	2.684	1339	2.536	1375	1.975	1411	1.269
1160	2.887	1196	2.742	1232	2.720	1268	2.728	1304	2.684	1340	2.429	1376	1.975	1412	0.882
1161	2.887	1197	2.736	1233	2.720	1269	2.728	1305	2.684	1341	2.403	1377	1.975	1413	0.786
1162	2.887	1198	2.736	1234	2.720	1270	2.728	1306	2.684	1342	2.403	1378	1.975	1414	0.786
1163	2.887	1199	2.736	1235	2.720	1271	2.728	1307	2.684	1343	2.403	1379	1.975	1415	0.786
1164	2.887	1200	2.736	1236	2.720	1272	2.728	1308	2.684	1344	2.403	1380	1.975	1416	0.786
1165	2.887	1201	2.736	1237	2.720	1273	2.728	1309	2.684	1345	2.403	1381	1.975	1417	0.786
1166	2.887	1202	2.736	1238	2.720	1274	2.728	1310	2.684	1346	2.403	1382	1.975	1418	0.786
1167	2.844	1203	2.736	1239	2.722	1275	2.728	1311	2.649	1347	2.403	1383	1.787	1419	0.786
1168	2.815	1204	2.736	1240	2.724	1276	2.728	1312	2.627	1348	2.403	1384	1.662	1420	0.786
1169	2.815	1205	2.736	1241	2.724	1277	2.728	1313	2.627	1349	2.403	1385	1.662	1421	0.786
1170	2.815	1206	2.736	1242	2.724	1278	2.728	1314	2.627	1350	2.403	1386	1.662	1422	0.786
1171	2.815	1207	2.736	1243	2.724	1279	2.728	1315	2.627	1351	2.403	1387	1.662	1423	0.786
1172	2.815	1208	2.736	1244	2.724	1280	2.728	1316	2.627	1352	2.403	1388	1.662	1424	0.786
1173	2.815	1209	2.736	1245	2.724	1281	2.728	1317	2.627	1353	2.403	1389	1.662	1425	0.786
1174	2.815	1210	2.731	1246	2.724	1282	2.723	1318	2.627	1354	2.329	1390	1.662	1426	0.552
1175	2.815	1211	2.722	1247	2.724	1283	2.715	1319	2.627	1355	2.219	1391	1.662	1427	0.201
1176	2.815	1212	2.722	1248	2.724	1284	2.715	1320	2.627	1356	2.219	1392	1.662	1428	0.201
1177	2.815	1213	2.722	1249	2.724	1285	2.715	1321	2.627	1357	2.219	1393	1.662	1429	0.201
1178	2.815	1214	2.722	1250	2.724	1286	2.715	1322	2.627	1358	2.219	1394	1.662	1430	0.201
1179	2.815	1215	2.722	1251	2.724	1287	2.715	1323	2.627	1359	2.219	1395	1.662	1431	0.201
1180	2.815	1216	2.722	1252	2.724	1288	2.715	1324	2.627	1360	2.219	1396	1.662	1432	0.201
1181	2.805	1217	2.722	1253	2.725	1289	2.715	1325	2.608	1361	2.219	1397	1.583	1433	0.201
1182	2.765	1218	2.722	1254	2.728	1290	2.715	1326	2.536	1362	2.219	1398	1.269	1434	0.201
1183	2.765	1219	2.722	1255	2.728	1291	2.715	1327	2.536	1363	2.219	1399	1.269	1435	0.201
1184	2.765	1220	2.722	1256	2.728	1292	2.715	1328	2.536	1364	2.219	1400	1.269	1436	0.201
1185	2.765	1221	2.722	1257	2.728	1293	2.715	1329	2.536	1365	2.219	1401	1.269	1437	0.201
1186	2.765	1222	2.722	1258	2.728	1294	2.715	1330	2.536	1366	2.219	1402	1.269	1438	0.201
1187	2.765	1223	2.722	1259	2.728	1295	2.715	1331	2.536	1367	2.219	1403	1.269	1439	0.201
1188	2.765	1224	2.722	1260	2.728	1296	2.715	1332	2.536	1368	2.219	1404	1.269	1440	0.201