

Curtins Consulting Ltd										Page 1																																																																																																																																																																																																																																															
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(mins)</th><th>Base Flow (l/s)</th><th>k (mm)</th><th>HYD SECT</th><th>DIA (mm)</th><th>Section Type</th></tr><tr><td>1.000</td><td>6.743</td><td>0.200</td><td>33.7</td><td>0.002</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>1.001</td><td>25.047</td><td>0.313</td><td>80.0</td><td>0.006</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>2.000</td><td>11.246</td><td>0.313</td><td>35.9</td><td>0.017</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>1.002</td><td>26.098</td><td>0.261</td><td>100.0</td><td>0.015</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td></tr><tr><td>3.000</td><td>11.238</td><td>0.112</td><td>100.0</td><td>0.027</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>1.003</td><td>6.785</td><td>0.040</td><td>169.6</td><td>0.014</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td></tr><tr><td>4.000</td><td>9.619</td><td>0.096</td><td>100.0</td><td>0.000</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>1.004</td><td>1.986</td><td>0.040</td><td>49.6</td><td>0.000</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>225</td><td>Pipe/Conduit</td></tr><tr><td>5.000</td><td>24.381</td><td>0.244</td><td>100.0</td><td>0.012</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>5.001</td><td>15.353</td><td>0.095</td><td>161.6</td><td>0.021</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>6.000</td><td>3.527</td><td>0.064</td><td>55.3</td><td>0.002</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>6.001</td><td>15.591</td><td>0.318</td><td>49.1</td><td>0.008</td><td>5.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr><tr><td>6.002</td><td>14.174</td><td>0.457</td><td>31.0</td><td>0.002</td><td>0.00</td><td>0.0</td><td>0.600</td><td>o</td><td>150</td><td>Pipe/Conduit</td></tr></table> Network Results Table <table><tr><th>PN</th><th>US/IL (m)</th><th>Σ I.Area (ha)</th><th>Σ Base Flow (l/s)</th><th>Vel (m/s)</th><th>Cap (l/s)</th></tr><tr><td>1.000</td><td>87.200</td><td>0.002</td><td>0.0</td><td>1.74</td><td>30.7</td></tr><tr><td>1.001</td><td>87.000</td><td>0.008</td><td>0.0</td><td>1.12</td><td>19.9</td></tr><tr><td>2.000</td><td>87.000</td><td>0.017</td><td>0.0</td><td>1.68</td><td>29.8</td></tr><tr><td>1.002</td><td>86.687</td><td>0.040</td><td>0.0</td><td>1.31</td><td>52.0</td></tr><tr><td>3.000</td><td>86.370</td><td>0.027</td><td>0.0</td><td>1.00</td><td>17.8</td></tr><tr><td>1.003</td><td>85.830</td><td>0.081</td><td>0.0</td><td>1.00</td><td>39.8</td></tr><tr><td>4.000</td><td>86.850</td><td>0.000</td><td>0.0</td><td>1.00</td><td>17.8</td></tr><tr><td>1.004</td><td>85.790</td><td>0.081</td><td>0.0</td><td>1.86</td><td>74.0</td></tr><tr><td>5.000</td><td>87.600</td><td>0.012</td><td>0.0</td><td>1.00</td><td>17.8</td></tr><tr><td>5.001</td><td>87.356</td><td>0.033</td><td>0.0</td><td>0.79</td><td>13.9</td></tr><tr><td>6.000</td><td>88.040</td><td>0.002</td><td>0.0</td><td>1.36</td><td>24.0</td></tr><tr><td>6.001</td><td>87.976</td><td>0.010</td><td>0.0</td><td>1.44</td><td>25.4</td></tr><tr><td>6.002</td><td>87.659</td><td>0.012</td><td>0.0</td><td>1.81</td><td>32.1</td></tr></table>												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	1.000	6.743	0.200	33.7	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit	1.001	25.047	0.313	80.0	0.006	0.00	0.0	0.600	o	150	Pipe/Conduit	2.000	11.246	0.313	35.9	0.017	5.00	0.0	0.600	o	150	Pipe/Conduit	1.002	26.098	0.261	100.0	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	3.000	11.238	0.112	100.0	0.027	5.00	0.0	0.600	o	150	Pipe/Conduit	1.003	6.785	0.040	169.6	0.014	0.00	0.0	0.600	o	225	Pipe/Conduit	4.000	9.619	0.096	100.0	0.000	5.00	0.0	0.600	o	150	Pipe/Conduit	1.004	1.986	0.040	49.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	5.000	24.381	0.244	100.0	0.012	5.00	0.0	0.600	o	150	Pipe/Conduit	5.001	15.353	0.095	161.6	0.021	0.00	0.0	0.600	o	150	Pipe/Conduit	6.000	3.527	0.064	55.3	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit	6.001	15.591	0.318	49.1	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	6.002	14.174	0.457	31.0	0.002	0.00	0.0	0.600	o	150	Pipe/Conduit	PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)	1.000	87.200	0.002	0.0	1.74	30.7	1.001	87.000	0.008	0.0	1.12	19.9	2.000	87.000	0.017	0.0	1.68	29.8	1.002	86.687	0.040	0.0	1.31	52.0	3.000	86.370	0.027	0.0	1.00	17.8	1.003	85.830	0.081	0.0	1.00	39.8	4.000	86.850	0.000	0.0	1.00	17.8	1.004	85.790	0.081	0.0	1.86	74.0	5.000	87.600	0.012	0.0	1.00	17.8	5.001	87.356	0.033	0.0	0.79	13.9	6.000	88.040	0.002	0.0	1.36	24.0	6.001	87.976	0.010	0.0	1.44	25.4	6.002	87.659	0.012	0.0	1.81	32.1
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																																																																																																																																																																																																																																															
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Existing Network Details for Storm

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
5.002	7.996	0.331	24.2	0.023	0.00	0.0	0.600	o	225	Pipe/Conduit
5.003	11.777	0.218	54.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
5.004	13.201	0.050	264.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
7.000	21.692	0.512	42.4	0.020	5.00	0.0	0.600	o	150	Pipe/Conduit
8.000	27.496	0.352	78.1	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit
7.001	15.977	0.160	99.9	0.010	0.00	0.0	0.600	o	225	Pipe/Conduit
7.002	3.828	0.028	136.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit
9.000	8.451	0.106	80.0	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit
9.001	15.008	0.188	80.0	0.005	5.00	0.0	0.600	o	150	Pipe/Conduit
10.000	8.176	0.174	47.0	0.012	5.00	0.0	0.600	o	150	Pipe/Conduit
9.002	12.368	0.465	26.6	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit
11.000	7.228	0.089	81.2	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit
9.003	3.496	0.037	94.3	0.002	0.00	0.0	0.600	o	150	Pipe/Conduit
9.004	10.182	0.100	101.8	0.030	0.00	0.0	0.600	o	150	Pipe/Conduit

Network Results Table

PN	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Vel (m/s)	Cap (l/s)
5.002	87.186	0.068	0.0	2.67	106.3
5.003	86.855	0.068	0.0	1.78	70.9
5.004	85.800	0.068	0.0	0.80	31.8
7.000	86.450	0.020	0.0	1.55	27.4
8.000	86.290	0.008	0.0	1.14	20.1
7.001	85.938	0.038	0.0	1.31	52.0
7.002	85.778	0.038	0.0	1.12	44.4
9.000	86.870	0.002	0.0	1.12	19.9
9.001	86.764	0.007	0.0	1.12	19.9
10.000	86.750	0.012	0.0	1.47	26.0
9.002	86.576	0.023	0.0	1.96	34.6
11.000	86.200	0.009	0.0	1.12	19.7
9.003	86.111	0.035	0.0	1.03	18.3
9.004	85.850	0.065	0.0	1.00	17.6

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Oldham Road
Newton Heath
Site 2 - East



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Existing Network Details for Storm

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
1.005	22.571	0.060	376.2	0.054	0.00	0.0	0.600	o	225	Pipe/Conduit
1.006	19.402	0.270	71.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit
1.007	9.573	1.530	6.3	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit

Network Results Table

PN	US/IL (m)	E I.Area (ha)	E Base Flow (l/s)	Vel (m/s)	Cap (l/s)
1.005	85.750	0.306	0.0	0.67	26.6
1.006	85.690	0.306	0.0	1.19	21.0
1.007	85.420	0.306	0.0	6.32	447.0

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o	150	29	88.250	87.200	0.900	Open Manhole	600
1.001	o	150	30	88.250	87.000	1.100	Open Manhole	600
2.000	o	150	31	88.050	87.000	0.900	Open Manhole	600
1.002	o	225	32	88.050	86.687	1.138	Open Manhole	1500
3.000	o	150	33	87.420	86.370	0.900	Open Manhole	600
1.003	o	225	34	87.440	85.830	1.385	Open Manhole	1500
4.000	o	150	34A	87.900	86.850	0.900	Open Manhole	600
1.004	o	225	34B	87.420	85.790	1.405	Open Manhole	1500
5.000	o	150	45	88.950	87.600	1.200	Open Manhole	600
5.001	o	150	46	88.600	87.356	1.094	Open Manhole	600
6.000	o	150	47	89.090	88.040	0.900	Open Manhole	600
6.001	o	150	48	89.090	87.976	0.964	Open Manhole	600
6.002	o	150	49	88.790	87.659	0.981	Open Manhole	600

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	6.743	33.7	30	88.250	87.000	1.100	Open Manhole	600
1.001	25.047	80.0	32	88.050	86.687	1.213	Open Manhole	1500
2.000	11.246	35.9	32	88.050	86.687	1.213	Open Manhole	1500
1.002	26.098	100.0	34	87.440	86.426	0.789	Open Manhole	1500
3.000	11.238	100.0	34	87.440	86.258	1.032	Open Manhole	1500
1.003	6.785	169.6	34B	87.420	85.790	1.405	Open Manhole	1500
4.000	9.619	100.0	34B	87.420	86.754	0.516	Open Manhole	1500
1.004	1.986	49.6	TANK	88.000	85.750	2.025	Open Manhole	1500
5.000	24.381	100.0	46	88.600	87.356	1.094	Open Manhole	600
5.001	15.353	161.6	50	88.400	87.261	0.989	Open Manhole	600
6.000	3.527	55.3	48	89.090	87.976	0.964	Open Manhole	600
6.001	15.591	49.1	49	88.790	87.659	0.982	Open Manhole	600
6.002	14.174	31.0	50	88.400	87.202	1.048	Open Manhole	600

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PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.003	o	150	43	87.700	86.111	1.439	Open Manhole	600
9.004	o	150	44	87.700	85.850	1.700	Open Manhole	1200
1.005	o	225	TANK	88.000	85.750	2.025	Open Manhole	1500
1.006	o	150	FCC2	88.200	85.690	2.360	Open Manhole	1500
1.007	o	300	C2	88.400	85.420	2.680	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
9.003	3.496	94.3	44	87.700	86.074	1.476	Open Manhole	1200
9.004	10.182	101.8	TANK	88.000	85.750	2.100	Open Manhole	1500
1.005	22.571	376.2	FCC2	88.200	85.690	2.285	Open Manhole	1500
1.006	19.402	71.9	C2	88.400	85.420	2.830	Open Manhole	1500
1.007	9.573	6.3		88.300	83.890	4.110	Open Manhole	0

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Date 10/02/2022 14:02	Designed by AH	
File Site 2 proposed drainag...	Checked by CD	
Innovyze	Network 2019.1	
<u>Online Controls for Storm</u> <u>Orifice Manhole: FCC2, DS/PN: 1.006, Volume (m³): 5.3</u> Diameter (m) 0.081 Discharge Coefficient 0.600 Invert Level (m) 85.690		
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Storage Structures for Storm Cellular Storage Manhole: TANK, DS/PN: 1.005 Invert Level (m) 85.750 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.00000 <table><thead><tr><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Inf. Area (m²)</th></tr></thead><tbody><tr><td>0.000</td><td>100.0</td><td>0.0</td><td>0.801</td><td>0.0</td><td>0.0</td></tr><tr><td>0.800</td><td>100.0</td><td>0.0</td><td></td><td></td><td></td></tr></tbody></table>			Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)	0.000	100.0	0.0	0.801	0.0	0.0	0.800	100.0	0.0			
Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)															
0.000	100.0	0.0	0.801	0.0	0.0															
0.800	100.0	0.0																		
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Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Surcharged Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (m³)					
1.000	29	-0.134	0.000	0.02		0.6	OK	
1.001	30	-0.113	0.000	0.13		2.5	OK	
2.000	31	-0.107	0.000	0.18		4.9	OK	
1.002	32	-0.149	0.000	0.25		11.9	OK	
3.000	33	-0.075	0.000	0.50		7.9	OK	
1.003	34	0.177	0.000	0.26		7.9	SURCHARGED	
4.000	34A	-0.150	0.000	0.00		0.0	OK	
1.004	34B	0.214	0.000	0.25		7.4	SURCHARGED	
5.000	45	-0.104	0.000	0.20		3.3	OK	
5.001	46	-0.050	0.000	0.76		9.8	OK	
6.000	47	-0.130	0.000	0.04		0.7	OK	
6.001	48	-0.115	0.000	0.12		2.9	OK	
6.002	49	-0.115	0.000	0.12		3.6	OK	
5.002	50	-0.148	0.000	0.25		20.6	OK	
5.003	51	-0.134	0.000	0.34		20.4	OK	
5.004	52	0.207	0.000	0.24		6.7	SURCHARGED	
7.000	35	-0.102	0.000	0.22		5.7	OK	
8.000	36	-0.115	0.000	0.12		2.3	OK	
7.001	37	0.069	0.000	0.07		3.3	SURCHARGED	
7.002	37A	0.225	0.000	0.09		2.6	SURCHARGED	
9.000	38	-0.132	0.000	0.03		0.6	OK	
9.001	39	-0.117	0.000	0.11		2.0	OK	

