

Project Title: Water Lane, Angmering

Project No/ Document Reference: A290-TN007

Date: 26 April 2021

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DRAINAGE – CONDITIONS DISCHARGE

1. Introduction

Please find below further information regarding conditions discharge following email comments (13 March 2021) from Laura Gibbons, Engineer, on behalf of Adur & Worthing Councils. This response refers to Application Reference A/109/20/RES. We also refer you to the idom merebrook, Flood Risk Assessment, Ref: FRA-19495-16-139 Rev R2 approved at outline planning (A/99/17/OUT) and which we adhere to throughout.

2. Comments

The format follows your comments (blue and red) contained in your aforementioned email:

1. *Calculation printouts do not include pipeline schedule printouts of upstream and downstream manholes. This combined with layouts not showing pipe numbers makes it very time consuming to review. I therefore have not reviewed the calculations. Please supply further calculation printouts and include pipe numbers on plan. Please see comments below (24 onwards)*

All calculations are provided again and amended as per your comments. All pipe numbers have been included on all plans.

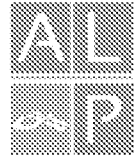
2. *Please can you provide a dwg of your drainage area plans. As we are working from home and have no access to plotters we cannot do spot checks of impermeable areas without this.*

A .dwg is included in the submission.

3. *Please can you provide an update on the additional groundwater monitoring that has been completed.*

The groundwater monitoring has been completed and is being issued to you for approval. However initial investigation have shown the drainage design does not change.

4. *Grilles should be cranked (45 degrees) and not vertical. Okay, point closed*
5. *I note that the headwall details include a biodegradable erosion control blanket. What is the design life of this, will it be sufficient? Okay, point closed*



6. *Please clearly state invert levels of proposed basins on basin plans on the construction detail drawing.
Okay, point closed*
7. *Please clearly state side slopes on basin cross sections. Please also state side slopes on the northern basin plan drawing. Okay, point closed*
8. *I note that the northern basin is to have some sides where the top of bank level exceeds existing/ proposed surrounding ground level. Please detail the top width of the bund that is being proposed, along with side slopes on the dry side of these embankments. Okay, point closed*
9. *Layout plans must detail proposed falls of all pipes along with pipe diameter. Okay, thank you.*
10. *Please confirm groundwater level adjacent to the cellular attenuation tank in the car park, near SN1.
Okay, point closed*
11. *The construction detail of the cellular attenuation tank in the car park appears to have a permeable membrane around the tank and then an impermeable membrane around the sand. Please confirm if it is proposed to allow infiltration or not here. Okay, point closed*
12. *The small permeable paving area appears to have diffuser blocks located outside of the permeable sub-base. Please confirm where these are intended to connect, show invert levels of the diffuser blocks on plan, and provide a construction detail which clearly shows how they link to the surface water drainage design. Okay, point closed*
13. *The invert level of the permeable paving construction detail is different to that stated on plan. Okay, point closed*
14. *The permeable paving construction detail needs to provide further detail on the surface course, and any layers below this. Okay, point closed*
15. *Please detail swale invert levels, top of bank levels, side slopes, and any bed slope on drainage layout plans.*

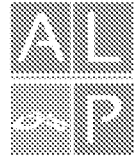
This has been noted and included on the drawings.

16. *The construction detail of the cellular soakaway needs to show the permeable liner around the crates, not around the sand to ensure the correct separation of material.*

This has been noted and included on the drawings.

17. *Invert level and depth of soakaway crates is inconsistent between surface water drainage layouts and construction detail drawings.*

This has been noted and included on the drawings.



18. *It appears that incoming pipe invert levels into the soakaway are at the base of the infiltrating structure. Incoming invert levels to infiltrating structures must be set above the 1 in 10 year plus cc event water level.*

As provided in our emails we state we apply to all design criteria wrt the 1:10 level and freeboard. However, you have queried this and also our calculations. To clarify we have provided two sets of calculations as requested and as per all other schemes and all previous submissions. The first set is the full design for all storms up to the 1:100 year plus climate change. This has been used to set all design criteria in accordance with industry standards including the 1:10 level and the freeboard. The design has then been tested to include Urban Creep in accordance with industry standard and ADC request. This is the second set of calculations. This proves the design still works if, in the future, further impermeable area is added, albeit there is minimal encroachment above the 1:10 level and in to the freeboard. We believe it is these calculations you are commenting on as to above the 1 in 10 and freeboard constraints.

We have provided one set of calculations including all constraints with urban creep allowance setting the 1:10 level meaning the site is very over engineered.

19. *Please detail incoming pipe invert levels on the central swales. Please include invert level of swale on plan*

This has been noted and included on the drawings, as previously.

20. *Catchpits must be provided upstream of all connections into infiltrating structures. Okay, point closed*

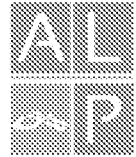
21. *Construction details are required of the proposed headwall to watercourse, channel drains, catchpits, gulleys.*

This has been noted and included on the drawings.

22. *The hydrobrake construction detail drawings should be site specific and show invert level, cover level, and incoming and outgoing pipe diameters. Hydrobrake unit reference and invert level is different between calculations and detail. Detail shows the hydrobrake set in a weir wall, the hydrobrake invert plus design head gives a level of 13.2mAOD, it is unclear how you are going to achieve 100mm free clearance between the top of weir wall and base of slab when you have a cover level of 13.50mAOD, require a minimum of two courses of engineering bricks and cover slab depth is 250mm. There clearly isn't enough space. Consider removing weir wall. If weir wall is retained we will need to see that the weir level is above the 1 in 100 year plus cc event water level and that it is physically possible to build.*

This has been noted and included on the drawings. The weir wall has been removed with a further manhole downstream for inspection and maintenance.

23. *Where connections are being made to pipelines rather than direct to manholes – add note 'all connections to be made using oblique 45 degree junctions'. Okay, point closed.*



24. Northern calculations review comments.

- a. It is not clear from printouts what the input differences are between the first set of results and second, as no input details have been provided for the second set of results.*
- b. Maximum basin water level in the 1 in 100 year plus 40% cc event is 13.236, resulting in insufficient freeboard being provided. Please ensure a minimum of 300mm of freeboard is provided.*

With respect to the two sets of calculations as sated we show the main design calculations and then the test for resilience by including Urban Creep, etc. As stated at your request we now include just one set of calculations with all design criteria included.

There is no requirement for 300mm of freeboard just that freeboard is provided. However, we have provided 300mm as requested

25. Northern swale calculation comments:

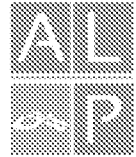
- a. It is not clear from printouts what the input differences are between the first set of results and second, as no input details have been provided for the second set of results.*
- b. A low factor of safety has been applied. Infiltration rates are applied to the base and sides, the swale drains an area in excess of 1000m², and a CV of 0.75 is used, therefore a FoS of 6.5 should be applied.*
- c. Appears that incoming invert level may be below the 1 in 10 year plus cc water level.*
- d. Layouts are missing detail on pipe diameters, falls and invert levels.*
- e. Swale invert and cover level not stated on plan.*

With respect to the two sets of calculations as sated we show the main design calculations and then the test for resilience by including Urban Creep, etc. As stated at your request we now include just one set of calculations with all design criteria included.

As provided in our emails we do not believe a FoS over 2 is required. However, as we use FEH rainfall a factor of safety of 5 has been applied. Where FEH is not applicable, i.e. for 15 or 30 minute storms, we have used FSR with a Cv of 0.75 and a factor of 6.5 is applied in accordance with your Policy.

There is sufficient storage below the incoming pipe so the 1:10 plus cc is not above the incoming invert level.

Pipe diameters, falls and invert levels are on all adoptable pipes. We, and all consultants, do not detail private 100mm pipes as they are all 100mm, unless stated otherwise, and laid at a gradient of not less



than 1:100 in accordance with Building regs. This is covered by notes on our drawing. However, all pipes have invert levels on them and can be checked for compliance.

Invert and cover levels are provided.

26. Southern swale calculation comments:

- a. It is not clear from printouts what the input differences are between the first set of results and second, as no input details have been provided for the second set of results.*
- b. A low factor of safety has been applied. Infiltration rates are applied to the base and sides, the swale drains an area in excess of 1000m², and a CV of 0.75 is used, therefore a FoS of 6.5 should be applied.*
- c. The invert level of the swale is inconsistent between calculations and layouts.*
- d. Appears that incoming invert level may be below the 1 in 10 year plus cc water level.*
- e. Layouts are missing detail on pipe diameters, falls and invert levels.*
- f. Swale invert and cover level not stated on plan.*

With respect to the two sets of calculations as sated we show the main design calculations and then the test for resilience by including Urban Creep, etc. As stated at your request we now include just one set of calculations with all design criteria included.

As provided in our emails we do not believe a FoS over 2 is required. However, as we use FEH rainfall a factor of safety of 5 has been applied. Where FEH is not applicable, i.e. for 15 or 30 minute storms, we have used FSR with a Cv of 0.75 and a factor of 6.5 is applied in accordance with your Policy.

All calculations and drawings match.

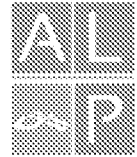
There is sufficient storage below the incoming pipe so the 1:10 plus cc is not above the incoming invert level.

Pipe diameters, falls and invert levels are on all adoptable pipes. We, and all consultants, do not detail private 100mm pipes as they are all 100mm, unless stated otherwise, and laid at a gradient of not less than 1:100 in accordance with Building regs. This is covered by notes on our drawing. However, all pipes have invert levels on them and can be checked for compliance.

Invert and cover levels are provided.

27. Western Infiltration Crate calculation comments:

- a. It is not clear from printouts what the input differences are between the first set of results and second, as no input details have been provided for the second set of results.*



- b. A low factor of safety has been applied. Infiltration rates are applied to the base and sides, the tank drains an area in excess of 100m², and a CV of 0.75 is used, therefore a FoS of 4 should be applied.*
- c. Appears that incoming invert level may be below the 1 in 10 year plus cc water level.*
- d. Layouts are missing detail on pipe diameters, falls and invert levels.*
- e. Flooding is occurring in the 1 in 100 year plus cc event (on one of the sets of results), the modelled cover level appears to be far in excess of cover levels on the upstream network, flooding will occur sooner than that reported in calculations*

With respect to the two sets of calculations as sated we show the main design calculations and then the test for resilience by including Urban Creep, etc. As stated at your request we now include just one set of calculations with all design criteria included.

As provided in our emails we do not believe a FoS over 2 is required. However, as we use FEH rainfall a factor of safety of 3 has been applied. Where FEH is not applicable, i.e. for 15 or 30 minute storms, we have used FSR with a Cv of 0.75 and a factor of 4 is applied in accordance with your Policy.

There is sufficient storage below the incoming pipe so the 1:10 plus cc is not above the incoming invert level.

Pipe diameters, falls and invert levels are on all adoptable pipes. We, and all consultants, do not detail private 100mm pipes as they are all 100mm, unless stated otherwise, and laid at a gradient of not less than 1:100 in accordance with Building regs. This is covered by notes on our drawing. However, all pipes have invert levels on them and can be checked for compliance.

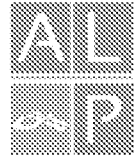
All calculations and drawings match with any flooding dealt with by overland flow.

28. *Calculations are missing for the western cellular infiltration and swale system.*

All calculations have been provided

29. Southern area calculations comments:

- a. It is not clear from printouts what the input differences are between the first set of results and second, as no input details have been provided for the second set of results.*
- b. Flooding at gullies would occur at several nodes on this network. Gully levels are lower than water levels at nearest nodes in several locations where just “flood risk” is specified on calculation results. Please review, and consider modelling gully cover levels in order to establish flooding extents and volumes.*
- c. Invert levels are not labelled on inlets to southern basin.*



- d. A low factor of safety has been applied to the southern network infiltration basin. Infiltration rates are applied to the base and sides, the basin drains an area in excess of 1000m², and a CV of 0.75 is used, therefore a FoS of 6.5 should be applied.
- e. Size of infiltration sub-base is not shown on plan, construction detail drawings implies that the sub-base area is consistent with the base of the basin, however the calculations indicate that the sub-base has a larger area.

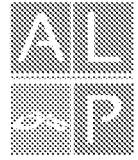
With respect to the two sets of calculations as sated we show the main design calculations and then the test for resilience by including Urban Creep, etc. As stated at your request we now include just one set of calculations with all design criteria included.

All gully cover levels have been checked with respect to adjacent nodes and are below the modelled water level so no flooding out of gullies will occur if it does not say flooding in the calculations.

Invert levels of inlets into the southern basin are labelled on drawings.

As provided in our emails we do not believe a FoS over 2 is required. However, as we use FEH rainfall a factor of safety of 5 has been applied. Where FEH is not applicable, i.e. for 15 or 30 minute storms, we have used FSR with a Cv of 0.75 and a factor of 6.5 is applied in accordance with your Policy.

The size of the 1:10 sub-base has been included on the drawings.



Appendix 1 - Supplementary Information

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	1.000
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.028	5.00	16.394	1200	507641.336	104723.993	2.444
2	0.040	5.00	16.136	1200	507631.708	104722.863	2.246
3	0.023	5.00	16.554	600	507621.042	104706.180	0.954
4	0.010	5.00	16.143	1200	507618.383	104712.694	2.354
5	0.030	5.00	16.106	600	507601.117	104712.260	1.956
6	0.023	5.00	15.674	1200	507607.826	104720.578	1.855
7	0.043	5.00	16.154	1200	507612.603	104710.334	2.478
8	0.021	5.00	16.597	600	507606.341	104702.119	1.447
9			16.476		507612.139	104701.894	2.836
10	0.026	5.00	17.463	600	507618.488	104673.857	1.613
11	0.030	5.00	17.322	600	507605.362	104674.717	1.772
12			17.271	1200	507610.622	104674.293	3.748
13			17.439	1200	507610.229	104667.156	3.946
14	0.021	5.00	18.778	600	507606.997	104609.263	1.578
15	0.024	5.00	18.706	1200	507612.993	104608.461	1.700
16	0.015	5.00	18.442	600	507609.456	104634.447	2.032
17			18.295	1200	507617.048	104638.785	2.473
18			18.138	1200	507615.079	104645.832	3.048
19	0.008	5.00	18.152	600	507615.304	104652.381	1.302
20	0.010	5.00	17.926	1200	507610.036	104652.569	3.677
21			17.716	1200	507603.830	104656.445	4.274
22	0.037	5.00	17.489	600	507593.727	104652.114	1.939
23	0.010	5.00	17.540	600	507593.818	104662.551	1.290
24	0.019	5.00	17.376	1200	507593.652	104657.914	3.976
25	0.009	5.00	17.420	600	507561.823	104605.338	1.170
26			17.258	1200	507558.115	104607.580	1.395
27	0.022	5.00	17.242	600	507553.083	104617.522	1.162
28	0.004	5.00	17.334	600	507563.811	104612.972	0.734
29	0.038	5.00	17.085	1200	507559.235	104616.772	1.392
30	0.010	5.00	17.120	600	507558.147	104625.492	1.270
31	0.015	5.00	17.018	600	507572.168	104625.966	1.018
32	0.029	5.00	16.765	1200	507568.345	104629.849	1.571
33	0.001	5.00	16.443	600	507562.215	104650.883	1.193
34		5.00	16.582	600	507573.196	104648.968	0.732
35			16.359	1200	507569.096	104651.224	2.349
36			16.393	1350	507568.800	104657.591	3.170
37	0.019	5.00	15.943	600	507552.988	104653.237	1.093
38	0.049	5.00	15.824	1350	507554.450	104657.960	2.646
39	0.002	5.00	15.299	1350	507542.989	104664.309	2.162
40	0.033	5.00	14.877	600	507527.372	104657.442	1.127
41	0.013	5.00	14.698	1350	507528.116	104663.714	1.607
42	0.013	5.00	14.512	600	507516.583	104659.538	1.062
43	0.016	5.00	14.296	1350	507517.351	104666.008	1.575
44			13.500	1350	507517.742	104686.139	1.384
47A	0.004	5.00	18.463	600	507592.907	104580.058	1.063
45	0.009	5.00	18.261	600	507579.819	104582.938	1.111
46	0.035	5.00	18.172	600	507578.259	104571.333	1.462
47	0.047	5.00	18.032	1200	507578.886	104576.022	1.425
48	0.009	5.00	17.917	600	507562.462	104584.225	1.217
49	0.014	5.00	17.630	600	507547.802	104585.894	1.230
50	0.019	5.00	17.718	600	507549.431	104575.429	1.218
51			17.521	1200	507548.711	104580.057	1.393
52	0.014	5.00	17.418	600	507533.400	104584.011	1.268

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
53	0.018	5.00	17.449	600	507534.975	104573.772	1.149
54	0.025	5.00	17.272	1200	507534.199	104577.798	1.500
55	0.019	5.00	17.244	600	507509.502	104567.351	1.044
56	0.017	5.00	16.839	1200	507508.538	104572.850	1.507
57	0.009	5.00	17.643	600	507512.929	104545.716	1.143
58	0.026	5.00	17.536	600	507498.659	104543.462	1.336
59	0.055	5.00	17.432	1200	507503.025	104544.151	1.557
60	0.020	5.00	17.251	600	507495.770	104561.751	1.151
61	0.019	5.00	16.868	1200	507498.735	104571.301	1.627
62	0.020	5.00	16.867	600	507507.385	104580.459	1.737
63	0.021	5.00	16.701	600	507493.753	104577.812	1.351
64	0.017	5.00	16.498	1200	507497.276	104580.534	1.638
65	0.020	5.00	15.762	600	507508.403	104605.000	1.162
66	0.028	5.00	15.647	600	507492.475	104604.134	0.917
67	0.038	5.00	15.518	1350	507497.623	104605.395	1.575
68	0.015	5.00	15.228	600	507504.832	104621.085	1.128
69	0.024	5.00	14.970	600	507489.055	104620.304	1.370
70			14.802	1350	507493.445	104622.452	1.604
71	0.020	5.00	14.781	600	507500.392	104633.289	2.402
72	0.032	5.00	14.309	1350	507487.730	104634.130	2.282
73	0.054	5.00	13.925	1350	507488.700	104651.793	1.953
74	0.077	5.00	13.879	1200	507476.020	104653.812	1.604
75	0.023	5.00	13.561	1350	507481.029	104662.790	1.706
76			13.600	1350	507487.121	104677.527	1.777
77	0.034	5.00	14.752	600	507560.910	104689.140	1.152
78	0.020	5.00	14.678	1200	507554.257	104691.140	1.425
79	0.031	5.00	14.599	600	507558.578	104703.380	1.149
80	0.023	5.00	14.399	1200	507551.152	104701.054	1.540
81			13.500	1200	507533.931	104695.660	1.384
82_IN	0.123	5.00	13.500		507491.700	104690.559	1.700
82			13.500	1350	507488.730	104694.011	1.862
82A			13.055	1200	507487.246	104695.735	1.621
82_OUT			12.000		507478.465	104706.267	1.800

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	5.694	0.600	13.950	13.890	0.060	161.6	225	5.16	50.0
1.001	2	4	16.762	0.600	13.890	13.789	0.101	166.0	225	5.43	50.0
2.000	3	4	7.036	0.600	15.600	13.864	1.736	4.1	150	5.02	50.0
1.002	4	7	6.343	0.600	13.789	13.751	0.038	164.3	225	5.54	50.0
3.000	5	7	11.646	0.600	14.150	13.826	0.324	35.9	150	5.12	50.0
4.000	6	7	11.309	0.600	13.819	13.751	0.068	166.2	225	5.19	50.0
1.003	7	9	8.459	0.600	13.676	13.640	0.036	234.9	300	5.67	50.0
5.000	8	9	5.892	0.600	15.150	13.799	1.360	4.9	150	5.02	50.0
1.004	9	12	27.643	0.600	13.640	13.523	0.117	236.9	300	6.13	50.0
6.000	10	12	7.878	0.600	15.850	13.679	2.177	5.6	150	5.02	50.0
7.000	11	12	5.279	0.600	15.550	13.679	1.877	2.8	150	5.03	50.0
1.005	12	13	7.148	0.600	13.523	13.493	0.030	238.3	300	6.24	50.0
1.006	13	21	12.477	0.600	13.523	13.472	0.051	244.4	300	6.45	50.0
8.000	14	15	6.049	0.600	17.200	17.103	0.097	62.4	150	5.09	50.0
8.001	15	17	30.594	0.600	17.006	15.822	1.184	25.9	225	5.28	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)
1.000	1.026	40.8	5.1	2.219	2.021	0.028	0.0
1.001	1.012	40.2	12.3	2.021	2.129	0.068	0.0
2.000	5.041	89.1	4.2	0.804	2.129	0.023	0.0
1.002	1.017	40.4	18.3	2.129	2.178	0.101	0.0
3.000	1.684	29.8	5.4	1.806	2.178	0.030	0.0
4.000	1.011	40.2	4.2	1.630	2.178	0.023	0.0
1.003	1.022	72.2	35.6	2.178	2.536	0.197	0.0
5.000	4.913	86.8	3.8	1.297	2.536	0.021	0.0
1.004	1.018	72.0	39.4	2.536	3.448	0.218	0.0
6.000	5.335	94.3	4.7	1.463	3.448	0.026	0.0
7.000	6.055	107.0	5.4	1.622	3.448	0.030	0.0
1.005	1.014	71.7	49.5	3.448	3.646	0.274	0.0
1.006	1.001	70.7	49.5	3.616	3.944	0.274	0.0
8.000	1.275	22.5	3.8	1.428	1.453	0.021	0.0
8.001	2.584	102.7	8.1	1.475	2.248	0.045	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
9.000	16	17	8.744	0.600	16.410	15.897	0.513	17.0	150	3.06	50.0
8.002	17	18	7.317	0.600	15.822	15.090	0.732	10.0	225	3.31	50.0
8.003	18	20	8.315	0.600	15.090	14.249	0.841	10.0	225	3.34	50.0
10.000	19	20	5.271	0.600	16.850	16.324	0.526	2.1	150	3.01	50.0
8.004	20	21	7.317	0.600	14.249	13.517	0.732	10.0	225	3.37	50.0
1.007	21	24	10.283	0.600	13.442	13.400	0.042	244.8	300	6.62	50.0
11.000	22	24	5.890	0.600	15.550	13.550	2.000	2.9	150	3.02	50.0
12.000	23	24	4.840	0.600	16.250	13.550	2.700	1.7	150	3.01	50.0
1.008	24	36	24.854	0.600	13.400	13.287	0.113	241.3	300	7.03	50.0
13.000	25	26	4.333	0.600	16.250	15.938	0.312	13.9	150	3.03	50.0
13.001	26	29	9.260	0.600	15.863	15.693	0.170	34.3	225	3.11	50.0
14.000	27	29	6.198	0.600	16.080	15.768	0.312	19.9	150	3.05	50.0
15.000	28	29	5.948	0.600	16.600	15.768	0.832	7.1	150	3.03	50.0
13.002	29	32	15.537	0.600	15.693	15.194	0.499	31.9	225	3.25	50.0
16.000	30	32	11.090	0.600	15.850	15.269	0.581	19.1	150	3.08	50.0
17.000	31	32	5.449	0.600	16.000	15.269	0.731	7.5	150	3.02	50.0
13.003	32	35	21.398	0.600	15.194	14.010	1.184	18.1	225	3.34	50.0
18.000	33	35	6.869	0.600	15.250	14.085	1.165	5.9	150	3.03	50.0
19.000	34	35	4.680	0.600	15.850	14.085	1.765	2.7	150	3.01	50.0
13.004	35	36	6.374	0.600	14.010	13.373	0.637	10.0	225	3.37	50.0
1.009	36	38	14.535	0.600	13.223	13.178	0.045	319.0	375	7.27	50.0
20.000	37	38	4.944	0.600	14.850	13.403	1.447	3.4	150	3.02	50.0
1.010	38	39	13.162	0.600	13.178	13.137	0.041	319.6	375	7.49	50.0
1.011	39	41	14.893	0.600	13.137	13.091	0.046	323.6	375	7.74	50.0
21.000	40	41	6.316	0.600	13.750	13.316	0.434	14.6	150	3.04	50.0
1.012	41	43	11.007	0.600	13.091	12.722	0.369	29.8	375	7.79	50.0
22.000	42	43	6.515	0.600	13.450	12.946	0.504	12.9	150	3.04	50.0
116	43	44	20.135	0.600	12.721	12.116	0.605	33.3	375	7.90	50.0
23.000	47A	47	14.590	0.600	17.400	16.682	0.718	20.3	150	3.11	50.0
24.000	45	47	6.979	0.600	17.150	16.682	0.468	14.9	150	3.04	50.0
25.000	46	47	4.731	0.600	16.710	16.682	0.028	169.0	150	3.10	50.0
23.001	47	51	30.444	0.600	16.607	16.108	0.499	63.6	225	3.42	50.0
26.000	48	51	14.369	0.600	16.700	16.203	0.497	28.9	150	3.13	50.0
27.000	49	51	5.907	0.600	16.400	16.203	0.197	30.0	150	3.05	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
9.000	2.451	43.3	2.7	1.882	2.248	0.015	0.0
8.002	4.162	165.5	10.8	2.248	2.823	0.060	0.0
8.003	4.160	165.4	10.8	2.823	3.452	0.060	0.0
10.000	7.030	124.2	1.4	1.152	3.452	0.008	0.0
8.004	4.162	165.5	14.1	3.452	3.974	0.078	0.0
1.007	1.000	70.7	63.6	3.974	3.676	0.352	0.0
11.000	5.961	105.3	6.7	1.789	3.676	0.037	0.0
12.000	7.748	136.9	1.8	1.140	3.676	0.010	0.0
1.008	1.008	71.2	75.5	3.676	2.796	0.418	0.0
13.000	2.717	48.0	1.6	1.020	1.170	0.009	0.0
13.001	1.776	70.6	1.6	1.170	1.167	0.009	0.0
14.000	2.270	40.1	4.0	1.012	1.167	0.022	0.0
15.000	3.792	67.0	0.7	0.584	1.167	0.004	0.0
13.002	2.323	92.4	13.2	1.167	1.346	0.073	0.0
16.000	2.316	40.9	1.8	1.120	1.346	0.010	0.0
17.000	3.713	65.6	2.7	0.868	1.346	0.015	0.0
13.003	3.093	123.0	22.9	1.346	2.124	0.127	0.0
18.000	4.171	73.7	0.2	1.043	2.124	0.001	0.0
19.000	6.236	110.2	0.0	0.582	2.124	0.000	0.0
13.004	4.160	165.4	23.1	2.124	2.795	0.128	0.0
1.009	1.009	111.4	98.7	2.795	2.271	0.546	0.0
20.000	5.491	97.0	3.4	0.943	2.271	0.019	0.0
1.010	1.008	111.3	110.9	2.271	1.787	0.614	0.0
1.011	1.002	110.6	111.3	1.787	1.232	0.616	0.0
21.000	2.654	46.9	6.0	0.977	1.232	0.033	0.0
1.012	3.328	367.5	119.6	1.232	1.199	0.662	0.0
22.000	2.817	49.8	2.3	0.912	1.200	0.013	0.0
116	3.150	347.9	124.9	1.200	1.009	0.691	0.0
23.000	2.244	39.7	0.7	0.913	1.200	0.004	0.0
24.000	2.622	46.3	1.6	0.961	1.200	0.009	0.0
25.000	0.770	13.6	6.3	1.312	1.200	0.035	0.0
23.001	1.643	65.3	17.2	1.200	1.168	0.095	0.0
26.000	1.879	33.2	1.6	1.067	1.168	0.009	0.0
27.000	1.845	32.6	2.5	1.080	1.168	0.014	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
28.000	50	51	4.684	0.600	16.500	16.203	0.297	15.8	150	5.03	50.0
23.002	51	54	14.697	0.600	16.128	15.847	0.281	52.3	225	5.35	50.0
29.000	52	54	6.268	0.600	16.150	15.922	0.228	27.5	150	5.05	50.0
30.000	53	54	4.100	0.600	16.300	15.922	0.378	10.8	150	5.02	50.0
23.003	54	56	26.134	0.600	15.772	15.332	0.440	59.4	300	5.77	50.0
31.000	55	56	5.583	0.600	16.200	15.492	0.708	7.8	150	5.03	50.0
23.004	56	61	9.925	0.600	15.332	15.241	0.091	109.1	300	5.88	50.0
32.000	57	59	10.027	0.600	16.500	15.950	0.550	18.2	150	5.07	50.0
33.000	58	59	4.420	0.600	16.200	15.950	0.250	17.7	150	5.03	50.0
32.001	59	61	27.497	0.600	15.875	15.316	0.559	49.2	225	5.32	50.0
34.000	60	61	10.000	0.600	16.100	15.391	0.709	14.1	150	5.06	50.0
23.005	61	64	9.348	0.600	15.241	14.860	0.381	24.5	300	5.92	50.0
35.000	62	64	10.109	0.600	15.130	15.010	0.120	84.2	150	5.15	50.0
36.000	63	64	4.452	0.600	15.350	15.010	0.340	13.1	150	5.03	50.0
23.006	64	67	24.863	0.600	14.860	14.018	0.842	29.5	300	6.07	50.0
37.000	65	67	10.787	0.600	14.600	14.169	0.432	25.0	150	5.09	50.0
38.000	66	67	5.360	0.600	14.730	14.169	0.562	9.4	150	5.03	50.0
23.007	67	70	17.561	0.600	13.943	13.227	0.716	24.5	375	6.15	50.0
39.000	68	70	11.469	0.600	14.100	13.423	0.677	16.9	150	5.08	50.0
40.000	69	70	4.887	0.600	13.600	13.423	0.177	27.5	150	5.04	50.0
23.008	70	72	13.901	0.600	13.198	12.027	1.171	11.1	375	6.19	50.0
41.000	71	72	12.690	0.600	12.379	12.252	0.127	99.9	150	5.21	50.0
23.009	72	73	17.690	0.600	12.027	11.972	0.055	321.6	375	6.46	50.0
23.010	73	75	13.408	0.600	11.972	11.930	0.042	319.2	375	6.70	50.0
42.000	74	75	10.291	0.600	12.275	12.080	0.195	52.7	225	5.99	50.0
23.011	75	76	15.947	0.600	11.855	11.620	0.232	499.3	450	7.00	50.0
43.000	77	78	6.947	0.600	13.600	13.328	0.272	25.5	150	5.06	50.0
43.001	78	80	10.383	0.600	13.253	12.859	0.394	26.4	225	5.13	50.0
44.000	79	80	7.982	0.600	13.450	12.994	0.456	15.1	150	5.05	50.0
43.002	80	81	19.046	0.600	12.859	12.116	0.743	24.3	225	5.28	50.0
43.003	82_IN	82	4.554	0.600	11.800	11.638	0.162	29.1	450	6.12	50.0
1.016	82	82A	2.275	0.600	11.638	11.434	0.204	11.2	150	6.13	50.0
1.017	82A	82_OUT	13.712	0.600	11.434	10.200	1.234	11.1	150	6.21	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
28.000	2.549	45.0	3.4	1.068	1.168	0.019	0.0
23.002	1.813	72.1	24.8	1.168	1.200	0.137	0.0
29.000	1.928	34.1	2.5	1.118	1.200	0.014	0.0
30.000	3.076	54.4	3.3	0.999	1.200	0.018	0.0
23.003	2.043	144.4	35.1	1.200	1.207	0.194	0.0
31.000	3.636	64.2	3.4	0.894	1.207	0.019	0.0
23.004	1.505	106.4	41.6	1.207	1.327	0.230	0.0
32.000	2.370	41.9	1.6	0.993	1.332	0.009	0.0
33.000	2.407	42.5	4.7	1.186	1.332	0.026	0.0
32.001	1.870	74.3	16.3	1.332	1.327	0.090	0.0
34.000	2.696	47.6	3.6	1.001	1.327	0.020	0.0
23.005	3.187	225.3	64.9	1.327	1.338	0.359	0.0
35.000	1.096	19.4	3.6	1.587	1.338	0.020	0.0
36.000	2.799	49.5	3.8	1.201	1.338	0.021	0.0
23.006	2.904	205.2	75.4	1.338	1.200	0.417	0.0
37.000	2.023	35.8	3.6	1.012	1.200	0.020	0.0
38.000	3.300	58.3	5.1	0.767	1.200	0.028	0.0
23.007	3.671	405.5	90.9	1.200	1.200	0.503	0.0
39.000	2.459	43.5	2.7	0.978	1.229	0.015	0.0
40.000	1.923	34.0	4.3	1.220	1.229	0.024	0.0
23.008	5.463	603.3	97.9	1.229	1.907	0.542	0.0
41.000	1.005	17.8	3.6	2.252	1.907	0.020	0.0
23.009	1.005	111.0	107.3	1.907	1.578	0.594	0.0
23.010	1.008	111.4	117.1	1.578	1.256	0.648	0.0
42.000	1.805	71.8	13.9	1.379	1.256	0.077	0.0
23.011	0.904	143.7	135.2	1.256	1.327	0.748	0.0
43.000	2.000	35.3	6.1	1.002	1.200	0.034	0.0
43.001	2.558	101.7	9.8	1.200	1.315	0.054	0.0
44.000	2.607	46.1	5.6	0.999	1.315	0.031	0.0
43.002	2.666	106.0	19.5	1.315	1.159	0.108	0.0
43.003	3.845	611.6	301.8	1.250	1.412	1.670	0.0
1.016	3.034	53.6	301.8	1.712	1.471	1.670	0.0
1.017	3.039	53.7	301.8	1.471	1.650	1.670	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
23.012	76	82_IN	12.858	0.600	11.823	11.800	0.023	559.1	450	7.35	50.0
1.014	44	82_IN	24.678	0.600	12.116	11.800	0.316	79.1	375	8.10	50.0
43.003_1	81	82_IN	41.253	0.600	12.116	11.800	0.316	130.6	225	5.84	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)
23.012	0.853	135.6	135.2	1.327	1.250	0.748	0.0
1.014	2.052	226.6	124.9	1.009	1.325	0.691	0.0
43.003_1	1.142	45.4	19.5	1.159	1.475	0.108	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	9.694	101.6	225	PH1	16.394	13.950	2.219	16.136	13.899	2.021
1.001	16.782	106.0	225	PH1	16.136	13.890	2.021	16.143	13.789	2.129
2.000	7.036	4.1	150	PH1	16.554	15.600	0.804	16.143	13.864	2.129
1.002	6.243	164.3	225	PH1	16.143	13.789	2.129	16.154	13.751	2.178
3.000	11.646	35.9	150	PH1	16.106	14.150	1.806	16.154	13.826	2.178
4.000	11.503	166.2	225	PH1	15.674	13.819	1.630	16.154	13.751	2.178
1.003	5.453	234.8	300	PH1	16.154	13.676	2.178	16.476	13.640	2.536
5.000	5.802	4.3	150	PH1	16.597	15.150	1.297	16.476	13.750	2.536
1.004	27.643	234.3	300	PH1	16.476	13.640	2.536	17.271	13.523	3.448
6.000	7.878	3.6	150	PH1	17.463	15.850	1.463	17.271	13.473	3.448
7.000	5.277	2.9	150	PH1	17.322	15.550	1.622	17.271	13.473	3.448
1.005	7.348	238.3	300	PH1	17.271	13.523	3.448	17.439	13.483	3.646
1.006	12.477	244.6	300	PH1	17.439	13.523	3.616	17.716	13.472	3.944
8.000	6.049	62.4	150	PH1	18.778	17.200	1.428	18.706	17.103	1.453
8.001	36.584	25.8	225	PH1	18.706	17.006	1.475	18.295	15.822	2.248
9.000	5.744	17.0	150	PH1	18.442	16.410	1.882	18.295	15.897	2.248
8.002	7.317	10.0	225	PH1	18.295	15.822	2.248	18.138	15.496	2.823
8.003	8.415	10.0	225	PH1	18.138	15.090	2.823	17.926	14.249	3.452
10.000	5.271	2.1	150	PH1	18.152	16.850	1.152	17.926	14.324	3.452
8.004	7.317	10.0	225	PH1	17.926	14.249	3.452	17.716	13.517	3.974
1.007	10.283	244.8	300	PH1	17.716	13.442	3.974	17.376	13.460	3.676
11.000	5.800	2.9	150	PH1	17.489	15.550	1.789	17.376	13.550	3.676
12.000	6.640	1.7	150	PH1	17.540	16.250	1.140	17.376	13.550	3.676
1.008	24.854	241.3	300	PH1	17.376	13.400	3.676	16.393	13.287	2.796
13.000	4.303	13.9	150	PH1	17.420	16.250	1.020	17.258	15.936	1.170
13.001	9.269	94.5	225	PH1	17.258	15.863	1.170	17.085	15.493	1.167
14.000	6.198	13.9	150	PH1	17.242	16.080	1.012	17.085	15.768	1.167

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable
2.000	3	600	Manhole	Adoptable	4	1200	Manhole	Adoptable
1.002	4	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
3.000	5	600	Manhole	Adoptable	7	1200	Manhole	Adoptable
4.000	6	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
1.003	7	1200	Manhole	Adoptable	9		Junction	
5.000	8	600	Manhole	Adoptable	9		Junction	
1.004	9		Junction		12	1200	Manhole	Adoptable
6.000	10	600	Manhole	Adoptable	12	1200	Manhole	Adoptable
7.000	11	600	Manhole	Adoptable	12	1200	Manhole	Adoptable
1.005	12	1200	Manhole	Adoptable	13	1200	Manhole	Adoptable
1.006	13	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
8.000	14	600	Manhole	Adoptable	15	1200	Manhole	Adoptable
8.001	15	1200	Manhole	Adoptable	17	1200	Manhole	Adoptable
9.000	16	600	Manhole	Adoptable	17	1200	Manhole	Adoptable
8.002	17	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
8.003	18	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
10.000	19	600	Manhole	Adoptable	20	1200	Manhole	Adoptable
8.004	20	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
1.007	21	1200	Manhole	Adoptable	24	1200	Manhole	Adoptable
11.000	22	600	Manhole	Adoptable	24	1200	Manhole	Adoptable
12.000	23	600	Manhole	Adoptable	24	1200	Manhole	Adoptable
1.008	24	1200	Manhole	Adoptable	36	1350	Manhole	Adoptable
13.000	25	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
13.001	26	1200	Manhole	Adoptable	29	1200	Manhole	Adoptable
14.000	27	600	Manhole	Adoptable	29	1200	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
15.000	5.348	7.1	150	PH1	17.334	16.600	0.584	17.085	15.768	1.167
13.002	15.937	31.9	225	PH1	17.085	15.693	1.167	16.765	15.194	1.346
16.000	11.090	19.1	150	PH1	17.120	15.850	1.120	16.765	15.249	1.346
17.000	5.448	7.5	150	PH1	17.018	16.000	0.868	16.765	15.269	1.346
13.003	21.398	18.1	225	PH1	16.765	15.194	1.346	16.359	14.810	2.124
18.000	6.848	5.3	150	PH1	16.443	15.250	1.043	16.359	14.985	2.124
19.000	4.688	2.7	150	PH1	16.582	15.850	0.582	16.359	14.985	2.124
13.004	6.374	15.0	225	PH1	16.359	14.010	2.124	16.393	13.375	2.795
1.009	14.355	319.0	375	PH1	16.393	13.223	2.795	15.824	13.178	2.271
20.000	4.944	3.4	150	PH1	15.943	14.850	0.943	15.824	13.493	2.271
1.010	13.192	319.6	375	PH1	15.824	13.178	2.271	15.299	12.137	1.787
1.011	14.885	323.6	375	PH1	15.299	13.137	1.787	14.698	13.091	1.232
21.000	6.316	14.6	150	PH1	14.877	13.750	0.977	14.698	13.316	1.232
1.012	11.007	29.8	375	PH1	14.698	13.091	1.232	14.296	12.722	1.199
22.000	6.515	12.3	150	PH1	14.512	13.450	0.912	14.296	12.546	1.200
116	20.135	33.3	375	PH1	14.296	12.721	1.200	13.500	12.116	1.009
23.000	14.590	30.3	150	PH1	18.463	17.400	0.913	18.032	16.682	1.200
24.000	6.979	14.9	150	PH1	18.261	17.150	0.961	18.032	16.882	1.200
25.000	4.731	159.0	150	PH1	18.172	16.710	1.312	18.032	16.882	1.200
23.001	30.444	63.6	225	PH1	18.032	16.607	1.200	17.521	16.128	1.168
26.000	14.369	28.3	150	PH1	17.917	16.700	1.067	17.521	16.203	1.168
27.000	5.907	30.0	150	PH1	17.630	16.400	1.080	17.521	16.203	1.168
28.000	4.684	15.8	150	PH1	17.718	16.500	1.068	17.521	16.203	1.168
23.002	14.687	52.3	225	PH1	17.521	16.128	1.168	17.272	15.847	1.200
29.000	6.264	27.5	150	PH1	17.418	16.150	1.118	17.272	15.922	1.200
30.000	4.190	10.8	150	PH1	17.449	16.300	0.999	17.272	15.922	1.200
23.003	26.134	59.4	300	PH1	17.272	15.772	1.200	16.839	15.352	1.207
31.000	5.593	7.8	150	PH1	17.244	16.200	0.894	16.839	15.482	1.207
23.004	9.825	109.1	300	PH1	16.839	15.332	1.207	16.868	15.241	1.327
32.000	10.827	18.2	150	PH1	17.643	16.500	0.993	17.432	15.550	1.332
33.000	4.430	17.7	150	PH1	17.536	16.200	1.186	17.432	15.550	1.332
32.001	27.487	49.2	225	PH1	17.432	15.875	1.332	16.868	15.116	1.327
34.000	10.000	14.1	150	PH1	17.251	16.100	1.001	16.868	15.391	1.327
23.005	9.348	24.5	300	PH1	16.868	15.241	1.327	16.498	14.860	1.338
35.000	10.368	84.2	150	PH1	16.867	15.130	1.587	16.498	15.010	1.338

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
15.000	28	600	Manhole	Adoptable	29	1200	Manhole	Adoptable
13.002	29	1200	Manhole	Adoptable	32	1200	Manhole	Adoptable
16.000	30	600	Manhole	Adoptable	32	1200	Manhole	Adoptable
17.000	31	600	Manhole	Adoptable	32	1200	Manhole	Adoptable
13.003	32	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
18.000	33	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
19.000	34	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
13.004	35	1200	Manhole	Adoptable	36	1350	Manhole	Adoptable
1.009	36	1350	Manhole	Adoptable	38	1350	Manhole	Adoptable
20.000	37	600	Manhole	Adoptable	38	1350	Manhole	Adoptable
1.010	38	1350	Manhole	Adoptable	39	1350	Manhole	Adoptable
1.011	39	1350	Manhole	Adoptable	41	1350	Manhole	Adoptable
21.000	40	600	Manhole	Adoptable	41	1350	Manhole	Adoptable
1.012	41	1350	Manhole	Adoptable	43	1350	Manhole	Adoptable
22.000	42	600	Manhole	Adoptable	43	1350	Manhole	Adoptable
116	43	1350	Manhole	Adoptable	44	1350	Manhole	Adoptable
23.000	47A	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
24.000	45	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
25.000	46	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
23.001	47	1200	Manhole	Adoptable	51	1200	Manhole	Adoptable
26.000	48	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
27.000	49	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
28.000	50	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
23.002	51	1200	Manhole	Adoptable	54	1200	Manhole	Adoptable
29.000	52	600	Manhole	Adoptable	54	1200	Manhole	Adoptable
30.000	53	600	Manhole	Adoptable	54	1200	Manhole	Adoptable
23.003	54	1200	Manhole	Adoptable	56	1200	Manhole	Adoptable
31.000	55	600	Manhole	Adoptable	56	1200	Manhole	Adoptable
23.004	56	1200	Manhole	Adoptable	61	1200	Manhole	Adoptable
32.000	57	600	Manhole	Adoptable	59	1200	Manhole	Adoptable
33.000	58	600	Manhole	Adoptable	59	1200	Manhole	Adoptable
32.001	59	1200	Manhole	Adoptable	61	1200	Manhole	Adoptable
34.000	60	600	Manhole	Adoptable	61	1200	Manhole	Adoptable
23.005	61	1200	Manhole	Adoptable	64	1200	Manhole	Adoptable
35.000	62	600	Manhole	Adoptable	64	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
36.000	4.442	13.1	150	PH1	16.701	15.350	1.201	16.498	15.010	1.338
23.006	24.883	29.3	300	PH1	16.498	14.860	1.338	15.518	14.018	1.200
37.000	10.787	23.0	150	PH1	15.762	14.600	1.012	15.518	14.168	1.200
38.000	5.300	9.8	150	PH1	15.647	14.730	0.767	15.518	14.168	1.200
23.007	17.881	24.5	375	PH1	15.518	13.943	1.200	14.802	13.427	1.200
39.000	13.469	10.9	150	PH1	15.228	14.100	0.978	14.802	13.423	1.229
40.000	4.987	27.8	150	PH1	14.970	13.600	1.220	14.802	13.423	1.229
23.008	13.001	11.1	375	PH1	14.802	13.198	1.229	14.309	12.027	1.907
41.000	12.890	39.3	150	PH1	14.781	12.379	2.252	14.309	12.252	1.907
23.009	17.890	321.6	375	PH1	14.309	12.027	1.907	13.925	11.972	1.578
23.010	13.408	319.2	375	PH1	13.925	11.972	1.578	13.561	11.930	1.256
42.000	10.281	52.7	225	PH1	13.879	12.275	1.379	13.561	12.080	1.256
23.011	13.947	498.3	450	PH1	13.561	11.855	1.256	13.600	11.828	1.327
43.000	6.947	25.5	150	PH1	14.752	13.600	1.002	14.678	13.328	1.200
43.001	10.389	26.4	225	PH1	14.678	13.253	1.200	14.399	12.859	1.315
44.000	7.792	15.1	150	PH1	14.599	13.450	0.999	14.399	12.834	1.315
43.002	10.046	24.3	225	PH1	14.399	12.859	1.315	13.500	12.116	1.159
43.003	4.554	28.1	450	PH1	13.500	11.800	1.250	13.500	11.638	1.412
1.016	2.275	11.2	150	PH1	13.500	11.638	1.712	13.055	11.434	1.471
1.017	13.712	11.1	150	PH1	13.055	11.434	1.471	12.000	10.200	1.650
23.012	12.859	559.1	450	PH1	13.600	11.823	1.327	13.500	11.800	1.250
1.018	28.678	78.1	375	PH1	13.500	12.116	1.009	13.500	11.800	1.325
43.003_1	41.383	130.6	225	PH1	13.500	12.116	1.159	13.500	11.800	1.475

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
36.000	63	600	Manhole	Adoptable	64	1200	Manhole	Adoptable
23.006	64	1200	Manhole	Adoptable	67	1350	Manhole	Adoptable
37.000	65	600	Manhole	Adoptable	67	1350	Manhole	Adoptable
38.000	66	600	Manhole	Adoptable	67	1350	Manhole	Adoptable
23.007	67	1350	Manhole	Adoptable	70	1350	Manhole	Adoptable
39.000	68	600	Manhole	Adoptable	70	1350	Manhole	Adoptable
40.000	69	600	Manhole	Adoptable	70	1350	Manhole	Adoptable
23.008	70	1350	Manhole	Adoptable	72	1350	Manhole	Adoptable
41.000	71	600	Manhole	Adoptable	72	1350	Manhole	Adoptable
23.009	72	1350	Manhole	Adoptable	73	1350	Manhole	Adoptable
23.010	73	1350	Manhole	Adoptable	75	1350	Manhole	Adoptable
42.000	74	1200	Manhole	Adoptable	75	1350	Manhole	Adoptable
23.011	75	1350	Manhole	Adoptable	76	1350	Manhole	Adoptable
43.000	77	600	Manhole	Adoptable	78	1200	Manhole	Adoptable
43.001	78	1200	Manhole	Adoptable	80	1200	Manhole	Adoptable
44.000	79	600	Manhole	Adoptable	80	1200	Manhole	Adoptable
43.002	80	1200	Manhole	Adoptable	81	1200	Manhole	Adoptable
43.003	82_IN		Junction		82	1350	Manhole	Adoptable
1.016	82	1350	Manhole	Adoptable	82A	1200	Manhole	Adoptable
1.017	82A	1200	Manhole	Adoptable	82_OUT		Manhole	Adoptable
23.012	76	1350	Manhole	Adoptable	82_IN		Junction	
1.018	44	1350	Manhole	Adoptable	82_IN		Junction	
43.003_1	81	1200	Manhole	Adoptable	82_IN		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	507641.336	104723.993	16.394	2.444	1200				
							0	1.000	13.950
2	507631.708	104722.863	16.136	2.246	1200		1	1.000	13.830
							0	1.001	13.890
3	507621.042	104706.180	16.554	0.954	600				
							0	2.000	15.600
4	507618.383	104712.694	16.143	2.354	1200		1	2.000	15.604
							2	1.001	13.789
							0	1.002	13.789



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
5	507601.117	104712.260	16.106	1.956	600				
						0	3.000	14.150	150
6	507607.826	104720.578	15.674	1.855	1200				
						0	4.000	13.915	225
7	507612.603	104710.334	16.154	2.478	1200		1 2 3 0	4.000 3.000 1.002 1.003	225 225 150 225
8	507606.341	104702.119	16.597	1.447	600				
						0	5.000	15.150	150
9	507612.139	104701.894	16.476	2.836			1 2 0	5.000 1.003 1.004	150 300 300
10	507618.488	104673.857	17.463	1.613	600				
						0	6.000	15.950	150
11	507605.362	104674.717	17.322	1.772	600				
						0	7.000	15.550	150
12	507610.622	104674.293	17.271	3.748	1200		1 2 3 0	7.000 6.000 1.004 1.005	150 150 300 300
13	507610.229	104667.156	17.439	3.946	1200		1 0	1.005 1.006	300 300
14	507606.997	104609.263	18.778	1.578	600				
						0	8.000	17.200	150
15	507612.993	104608.461	18.706	1.700	1200		1 0	8.000 8.001	150 225
16	507609.456	104634.447	18.442	2.032	600				
						0	9.000	16.410	150
17	507617.048	104638.785	18.295	2.473	1200		1 2 0	9.000 8.001 8.002	150 225 225
18	507615.079	104645.832	18.138	3.048	1200		1 0	8.002 8.003	225 225
19	507615.304	104652.381	18.152	1.302	600				
						0	10.000	16.850	150
20	507610.036	104652.569	17.926	3.677	1200		1 2 0	10.000 8.003 8.004	150 225 225
21	507603.830	104656.445	17.716	4.274	1200		1 2 0	8.004 1.006 1.007	225 300 300
22	507593.727	104652.114	17.489	1.939	600				
						0	11.000	15.550	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
23	507593.818	104662.551	17.540	1.290	600		0	12.000	16.250	150
24	507593.652	104657.914	17.376	3.976	1200		1	12.000	13.550	150
							2	11.000	13.550	150
							3	1.007	13.400	300
							0	1.008	13.400	300
25	507561.823	104605.338	17.420	1.170	600		0	13.000	16.250	150
26	507558.115	104607.580	17.258	1.395	1200		1	13.000	15.950	150
							0	13.001	15.860	225
27	507553.083	104617.522	17.242	1.162	600		0	14.000	16.000	150
28	507563.811	104612.972	17.334	0.734	600		0	15.000	16.000	150
							1	15.000	15.750	150
							2	14.000	15.750	150
							3	13.001	15.693	225
29	507559.235	104616.772	17.085	1.392	1200		0	13.002	15.693	225
30	507558.147	104625.492	17.120	1.270	600		0	16.000	15.850	150
31	507572.168	104625.966	17.018	1.018	600		0	17.000	16.000	150
32	507568.345	104629.849	16.765	1.571	1200		1	17.000	15.250	150
							2	16.000	15.250	150
							3	13.002	15.194	225
							0	13.003	15.194	225
33	507562.215	104650.883	16.443	1.193	600		0	18.000	15.250	150
34	507573.196	104648.968	16.582	0.732	600		0	19.000	15.850	150
35	507569.096	104651.224	16.359	2.349	1200		1	19.000	14.000	150
							2	18.000	14.000	150
							3	13.003	14.010	225
							0	13.004	14.010	225
36	507568.800	104657.591	16.393	3.170	1350		1	13.004	13.375	225
							2	1.008	13.297	300
							0	1.009	13.223	375
37	507552.988	104653.237	15.943	1.093	600		0	20.000	14.850	150
38	507554.450	104657.960	15.824	2.646	1350		1	20.000	13.400	150
							2	1.009	13.170	375
							0	1.010	13.170	375
39	507542.989	104664.309	15.299	2.162	1350		1	1.010	13.137	375
							0	1.011	13.137	375
40	507527.372	104657.442	14.877	1.127	600		0	21.000	13.750	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
41	507528.116	104663.714	14.698	1.607	1350		1	21.000	13.318 150
							2	1.011	13.081 375
							0	1.012	13.081 375
42	507516.583	104659.538	14.512	1.062	600				
43	507517.351	104666.008	14.296	1.575	1350		0	22.000	13.450 150
							1	22.000	12.948 150
							2	1.012	12.722 375
44	507517.742	104686.139	13.500	1.384	1350		0	116	12.721 375
							1	116	12.116 375
47A	507592.907	104580.058	18.463	1.063	600		0	1.014	12.116 375
							0	23.000	17.400 150
45	507579.819	104582.938	18.261	1.111	600		0	24.000	17.150 150
							0	25.000	16.710 150
46	507578.259	104571.333	18.172	1.462	600				
							0	25.000	16.710 150
							1	25.000	16.892 150
							2	24.000	16.682 150
47	507578.886	104576.022	18.032	1.425	1200		3	23.000	16.682 150
							0	23.001	16.687 225
							0	26.000	16.790 150
							0	27.000	16.400 150
48	507562.462	104584.225	17.917	1.217	600				
							0	27.000	16.400 150
49	507547.802	104585.894	17.630	1.230	600		0	28.000	16.500 150
							0	28.000	16.500 150
50	507549.431	104575.429	17.718	1.218	600				
							0	28.000	16.500 150
							1	28.000	16.203 150
							2	27.000	16.203 150
							3	26.000	16.203 150
51	507548.711	104580.057	17.521	1.393	1200		4	23.001	16.128 225
							0	23.002	16.128 225
							0	29.000	16.150 150
							0	30.000	16.300 150
52	507533.400	104584.011	17.418	1.268	600				
							0	30.000	16.300 150
							1	30.000	15.922 150
							2	29.000	15.922 150
53	507534.975	104573.772	17.449	1.149	600		3	23.002	15.947 225
							0	23.003	15.772 300
							0	31.000	16.300 150
							0	31.000	15.482 150
54	507534.199	104577.798	17.272	1.500	1200		2	23.003	15.322 300
							0	23.004	15.332 300
							0	32.000	16.500 150
55	507509.502	104567.351	17.244	1.044	600				
56	507508.538	104572.850	16.839	1.507	1200				
							0	23.004	15.332 300
							0	32.000	16.500 150
57	507512.929	104545.716	17.643	1.143	600				
57	507512.929	104545.716	17.643	1.143	600				
							0	32.000	16.500 150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
58	507498.659	104543.462	17.536	1.336	600					
						0	33.000	16.260	150	
59	507503.025	104544.151	17.432	1.557	1200		1	33.000	15.950	150
						2	32.000	15.950	150	
						0	32.001	15.975	225	
60	507495.770	104561.751	17.251	1.151	600					
						0	34.000	16.160	150	
61	507498.735	104571.301	16.868	1.627	1200		1	34.000	15.391	150
						2	32.001	15.310	225	
						3	23.004	15.241	300	
						0	23.005	15.241	300	
62	507507.385	104580.459	16.867	1.737	600					
						0	35.000	15.130	150	
63	507493.753	104577.812	16.701	1.351	600					
						0	36.000	15.350	150	
64	507497.276	104580.534	16.498	1.638	1200		1	36.000	15.010	150
						2	35.000	15.010	150	
						3	23.005	14.860	300	
						0	23.006	14.860	300	
65	507508.403	104605.000	15.762	1.162	600					
						0	37.000	14.600	150	
66	507492.475	104604.134	15.647	0.917	600					
						0	38.000	14.730	150	
67	507497.623	104605.395	15.518	1.575	1350		1	38.000	14.160	150
						2	37.000	14.160	150	
						3	23.006	14.010	300	
						0	23.007	13.940	375	
68	507504.832	104621.085	15.228	1.128	600					
						0	39.000	14.100	150	
69	507489.055	104620.304	14.970	1.370	600					
						0	40.000	13.600	150	
70	507493.445	104622.452	14.802	1.604	1350		1	40.000	13.420	150
						2	39.000	13.420	150	
						3	23.007	13.220	375	
						0	23.008	13.198	375	
71	507500.392	104633.289	14.781	2.402	600					
						0	41.000	12.379	150	
72	507487.730	104634.130	14.309	2.282	1350		1	41.000	12.252	150
						2	23.008	12.027	375	
						0	23.009	12.027	375	
73	507488.700	104651.793	13.925	1.953	1350		1	23.009	11.972	375
						0	23.010	11.972	375	
74	507476.020	104653.812	13.879	1.604	1200					
						0	42.000	12.275	225	
75	507481.029	104662.790	13.561	1.706	1350		1	42.000	12.080	225
						2	23.010	11.930	375	
						0	23.011	11.855	450	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
76	507487.121	104677.527	13.600	1.777	1350		1 23.011	11.823	450
							0 23.012	11.823	450
77	507560.910	104689.140	14.752	1.152	600				
							0 43.000	13.600	150
78	507554.257	104691.140	14.678	1.425	1200		1 43.000	13.528	150
							0 43.001	13.253	225
79	507558.578	104703.380	14.599	1.149	600				
							0 44.000	13.450	150
80	507551.152	104701.054	14.399	1.540	1200		1 44.000	12.994	150
							2 43.001	12.859	225
							0 43.002	12.859	225
81	507533.931	104695.660	13.500	1.384	1200		1 43.002	12.116	225
							0 43.003	12.116	225
82_IN	507491.700	104690.559	13.500	1.700			1 43.003	11.800	225
							2 23.012	11.800	450
							3 1.014	11.800	375
							0 43.003	11.800	450
82	507488.730	104694.011	13.500	1.862	1350		1 43.003	11.638	450
							0 1.016	11.638	150
82A	507487.246	104695.735	13.055	1.621	1200		1 1.016	11.434	150
							0 1.017	11.434	150
82_OUT	507478.465	104706.267	12.000	1.800			1 1.017	10.200	150

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	x		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 82 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	5.8
Replaces Downstream Link	x	Product Code	FPM-SB1-01560-00580-1100
Invert Level (m)	11.638	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.562	Min Node Diameter (mm)	1200

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	13.950
Safety Factor	5.0	Time to half empty (mins)	12



Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	68.0	0.0	0.400	68.0	0.0	0.401	0.0	0.0

Node 82 IN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	11.800
Safety Factor	5.0	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	626.5	0.0	0.700	940.5	0.0	1.400	1290.7	0.0	2.100	0.0	0.0
0.100	669.1	0.0	0.800	988.3	0.0	1.500	1343.7	0.0	2.200	0.0	0.0
0.200	712.5	0.0	0.900	1036.9	0.0	1.600	1397.4	0.0	2.300	0.0	0.0
0.300	756.7	0.0	1.000	1086.2	0.0	1.700	1451.8	0.0	2.400	0.0	0.0
0.400	801.5	0.0	1.100	1136.2	0.0	1.701	0.0	0.0	2.500	0.0	0.0
0.500	847.1	0.0	1.200	1187.0	0.0	1.900	0.0	0.0			
0.600	893.5	0.0	1.300	1238.5	0.0	2.000	0.0	0.0			

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	37	13.995	0.044	5.9	2.9351	0.0000	OK
60 minute summer	2	34	13.970	0.080	11.0	0.1185	0.0000	OK
60 minute summer	3	33	15.624	0.024	4.8	0.0180	0.0000	OK
60 minute summer	4	34	13.906	0.117	17.8	0.1417	0.0000	OK
60 minute summer	5	33	14.199	0.049	6.3	0.0288	0.0000	OK
60 minute summer	6	33	13.871	0.052	4.8	0.0719	0.0000	OK
60 minute summer	7	35	13.864	0.188	37.7	0.2784	0.0000	OK
60 minute summer	8	32	15.173	0.023	4.4	0.0135	0.0000	OK
60 minute summer	9	35	13.850	0.210	41.5	0.0000	0.0000	OK
60 minute summer	10	33	15.874	0.024	5.5	0.0148	0.0000	OK
60 minute summer	11	33	15.574	0.024	6.3	0.0152	0.0000	OK
60 minute summer	12	34	13.824	0.301	50.9	0.3405	0.0000	SURCHARGED
60 minute summer	13	34	13.798	0.305	50.1	0.3450	0.0000	OK
60 minute summer	14	33	17.248	0.048	4.4	0.0264	0.0000	OK
60 minute summer	15	33	17.053	0.047	9.4	0.0663	0.0000	OK
60 minute summer	16	33	16.439	0.028	3.2	0.0123	0.0000	OK
60 minute summer	17	33	15.866	0.044	12.6	0.0501	0.0000	OK
60 minute summer	18	33	15.133	0.043	12.6	0.0487	0.0000	OK
60 minute summer	19	33	16.863	0.013	1.7	0.0052	0.0000	OK
60 minute summer	20	33	14.297	0.048	16.4	0.0565	0.0000	OK
60 minute summer	21	34	13.767	0.325	65.0	0.3671	0.0000	SURCHARGED
60 minute summer	22	33	15.577	0.027	7.8	0.0181	0.0000	OK
60 minute summer	23	33	16.262	0.012	2.1	0.0055	0.0000	OK
60 minute summer	24	34	13.710	0.310	77.8	0.3800	0.0000	SURCHARGED
60 minute summer	25	33	16.271	0.021	1.9	0.0093	0.0000	OK
60 minute summer	26	33	15.888	0.025	1.9	0.0287	0.0000	OK
60 minute summer	27	33	16.116	0.036	4.6	0.0240	0.0000	OK
60 minute summer	28	33	16.612	0.012	0.8	0.0046	0.0000	OK
60 minute summer	29	33	15.755	0.062	15.3	0.1042	0.0000	OK
60 minute summer	30	33	15.874	0.024	2.1	0.0104	0.0000	OK
60 minute summer	31	33	16.023	0.023	3.2	0.0136	0.0000	OK
60 minute summer	32	33	15.270	0.076	26.7	0.1141	0.0000	OK
60 minute summer	33	34	15.256	0.006	0.2	0.0018	0.0000	OK
60 minute summer	34	1	15.850	0.000	0.0	0.0000	0.0000	OK
60 minute summer	35	33	14.071	0.061	26.9	0.0691	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	1	1.000	2	3.5	0.476	0.087	0.0848	
60 minute summer	2	1.001	4	11.0	0.667	0.273	0.2792	
60 minute summer	3	2.000	4	4.8	2.490	0.054	0.0200	
60 minute summer	4	1.002	7	17.6	0.931	0.436	0.1270	
60 minute summer	5	3.000	7	6.3	1.303	0.212	0.0563	
60 minute summer	6	4.000	7	4.8	0.553	0.119	0.1490	
60 minute summer	7	1.003	9	37.1	0.918	0.514	0.4198	
60 minute summer	8	5.000	9	4.4	2.548	0.051	0.0236	
60 minute summer	9	1.004	12	39.4	0.755	0.548	1.7019	
60 minute summer	10	6.000	12	5.5	2.486	0.058	0.0764	
60 minute summer	11	7.000	12	6.3	2.822	0.059	0.0512	
60 minute summer	12	1.005	13	50.1	0.752	0.699	0.5032	
60 minute summer	13	1.006	21	50.7	0.818	0.717	0.8595	
60 minute summer	14	8.000	15	4.4	0.949	0.195	0.0281	
60 minute summer	15	8.001	17	9.4	1.637	0.091	0.1758	
60 minute summer	16	9.000	17	3.2	1.407	0.074	0.0199	
60 minute summer	17	8.002	18	12.6	2.335	0.076	0.0395	
60 minute summer	18	8.003	20	12.6	2.212	0.076	0.0480	
60 minute summer	19	10.000	20	1.7	2.487	0.014	0.0036	
60 minute summer	20	8.004	21	16.4	1.663	0.099	0.1679	
60 minute summer	21	1.007	24	65.5	0.930	0.926	0.7241	
60 minute summer	22	11.000	24	7.8	2.947	0.074	0.0574	
60 minute summer	23	12.000	24	2.1	2.337	0.015	0.0424	
60 minute summer	24	1.008	36	77.7	1.152	1.092	1.7083	
60 minute summer	25	13.000	26	1.9	1.285	0.040	0.0064	
60 minute summer	26	13.001	29	1.9	0.351	0.027	0.0526	
60 minute summer	27	14.000	29	4.6	1.458	0.115	0.0196	
60 minute summer	28	15.000	29	0.8	1.269	0.012	0.0038	
60 minute summer	29	13.002	32	15.3	1.482	0.166	0.1649	
60 minute summer	30	16.000	32	2.1	1.204	0.051	0.0194	
60 minute summer	31	17.000	32	3.2	1.876	0.049	0.0093	
60 minute summer	32	13.003	35	26.7	2.612	0.217	0.2192	
60 minute summer	33	18.000	35	0.2	0.905	0.003	0.0015	
60 minute summer	34	19.000	35	0.0	0.000	0.000	0.0000	
60 minute summer	35	13.004	36	26.9	2.373	0.163	0.1439	

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	36	34	13.568	0.345	103.8	0.4943	0.0000	OK
60 minute summer	37	33	14.871	0.021	4.0	0.0130	0.0000	OK
60 minute summer	38	34	13.508	0.330	117.5	0.5942	0.0000	OK
60 minute summer	39	34	13.410	0.273	118.0	0.3965	0.0000	OK
60 minute summer	40	33	13.791	0.041	6.9	0.0360	0.0000	OK
60 minute summer	41	34	13.268	0.177	127.3	0.2812	0.0000	OK
60 minute summer	42	33	13.475	0.025	2.7	0.0130	0.0000	OK
60 minute summer	43	34	12.892	0.171	133.1	0.2796	0.0000	OK
600 minute winter	44	585	12.507	0.391	21.3	0.5598	0.0000	SURCHARGED
60 minute summer	47A	34	17.415	0.015	0.8	0.0054	0.0000	OK
60 minute summer	45	33	17.171	0.021	1.9	0.0095	0.0000	OK
60 minute summer	46	33	16.797	0.087	7.4	0.0661	0.0000	OK
60 minute summer	47	33	16.692	0.085	20.0	0.1520	0.0000	OK
60 minute summer	48	33	16.724	0.024	1.9	0.0105	0.0000	OK
60 minute summer	49	32	16.432	0.032	2.9	0.0161	0.0000	OK
60 minute summer	50	32	16.532	0.032	4.0	0.0191	0.0000	OK
60 minute summer	51	33	16.234	0.106	28.8	0.1202	0.0000	OK
60 minute summer	52	33	16.181	0.031	2.9	0.0156	0.0000	OK
60 minute summer	53	33	16.329	0.029	3.8	0.0170	0.0000	OK
60 minute summer	54	33	15.881	0.109	40.8	0.1593	0.0000	OK
60 minute summer	55	33	16.227	0.027	4.0	0.0172	0.0000	OK
60 minute summer	56	33	15.490	0.158	48.4	0.2143	0.0000	OK
60 minute summer	57	33	16.522	0.022	1.9	0.0098	0.0000	OK
60 minute summer	58	33	16.239	0.039	5.5	0.0265	0.0000	OK
60 minute summer	59	33	15.955	0.080	19.0	0.1467	0.0000	OK
60 minute summer	60	33	16.131	0.031	4.2	0.0196	0.0000	OK
60 minute summer	61	33	15.376	0.135	75.5	0.1848	0.0000	OK
60 minute summer	62	33	15.180	0.050	4.2	0.0254	0.0000	OK
60 minute summer	63	33	15.382	0.032	4.4	0.0192	0.0000	OK
60 minute summer	64	33	15.006	0.146	87.6	0.1961	0.0000	OK
60 minute summer	65	33	14.636	0.036	4.2	0.0225	0.0000	OK
60 minute summer	66	33	14.764	0.034	5.9	0.0306	0.0000	OK
60 minute summer	67	33	14.086	0.143	105.6	0.2731	0.0000	OK
60 minute summer	68	33	14.128	0.028	3.2	0.0155	0.0000	OK
60 minute summer	69	33	13.642	0.042	5.0	0.0266	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	36	1.009	38	103.9	0.994	0.932	1.4995	
60 minute summer	37	20.000	38	4.0	2.402	0.041	0.0360	
60 minute summer	38	1.010	39	117.6	1.238	1.056	1.2368	
60 minute summer	39	1.011	41	118.0	1.711	1.067	1.0200	
60 minute summer	40	21.000	41	6.9	1.821	0.147	0.0239	
60 minute summer	41	1.012	43	127.3	2.560	0.346	0.5475	
60 minute summer	42	22.000	43	2.7	1.471	0.054	0.0120	
60 minute summer	43	116	44	133.1	2.316	0.383	1.1573	
600 minute winter	44	1.014	82_IN	21.1	1.099	0.093	2.7219	
60 minute summer	47A	23.000	47	0.8	0.886	0.020	0.0132	
60 minute summer	45	24.000	47	1.9	1.266	0.041	0.0105	
60 minute summer	46	25.000	47	7.4	0.745	0.544	0.0470	
60 minute summer	47	23.001	51	20.0	1.246	0.306	0.4892	
60 minute summer	48	26.000	51	1.9	0.964	0.057	0.0325	
60 minute summer	49	27.000	51	2.9	1.104	0.089	0.0158	
60 minute summer	50	28.000	51	4.0	1.508	0.089	0.0126	
60 minute summer	51	23.002	54	28.8	1.641	0.399	0.2576	
60 minute summer	52	29.000	54	2.9	1.144	0.085	0.0159	
60 minute summer	53	30.000	54	3.8	1.698	0.070	0.0092	
60 minute summer	54	23.003	56	40.8	1.348	0.282	0.7922	
60 minute summer	55	31.000	56	4.0	1.965	0.062	0.0114	
60 minute summer	56	23.004	61	48.3	1.415	0.454	0.3395	
60 minute summer	57	32.000	59	1.9	1.186	0.045	0.0161	
60 minute summer	58	33.000	59	5.5	1.571	0.129	0.0155	
60 minute summer	59	32.001	61	19.0	1.543	0.256	0.3384	
60 minute summer	60	34.000	61	4.2	1.631	0.088	0.0257	
60 minute summer	61	23.005	64	75.4	2.322	0.335	0.3038	
60 minute summer	62	35.000	64	4.2	0.854	0.217	0.0497	
60 minute summer	63	36.000	64	4.4	1.656	0.089	0.0118	
60 minute summer	64	23.006	67	87.5	2.691	0.426	0.8085	
60 minute summer	65	37.000	67	4.2	1.330	0.117	0.0341	
60 minute summer	66	38.000	67	5.9	2.035	0.101	0.0154	
60 minute summer	67	23.007	70	105.5	2.933	0.260	0.6317	
60 minute summer	68	39.000	70	3.2	1.417	0.074	0.0259	
60 minute summer	69	40.000	70	5.0	1.308	0.147	0.0187	

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	70	33	13.307	0.109	113.7	0.1559	0.0000	OK
600 minute winter	71	585	12.507	0.128	0.6	0.0576	0.0000	OK
600 minute winter	72	585	12.507	0.480	18.5	0.8222	0.0000	SURCHARGED
600 minute winter	73	585	12.507	0.535	19.8	1.0619	0.0000	SURCHARGED
600 minute winter	74	585	12.507	0.232	2.4	0.4856	0.0000	SURCHARGED
600 minute winter	75	585	12.507	0.652	22.5	1.1094	0.0000	SURCHARGED
600 minute winter	76	600	12.507	0.684	22.1	0.9791	0.0000	SURCHARGED
60 minute summer	77	33	13.649	0.049	7.1	0.0426	0.0000	OK
60 minute summer	78	33	13.303	0.050	11.3	0.0713	0.0000	OK
60 minute summer	79	33	13.490	0.040	6.5	0.0329	0.0000	OK
60 minute summer	80	33	12.929	0.070	22.6	0.1005	0.0000	OK
600 minute winter	81	585	12.507	0.391	3.4	0.4425	0.0000	SURCHARGED
600 minute winter	82_IN	600	12.507	0.707	51.2	554.2214	0.0000	SURCHARGED
480 minute winter	82	472	12.513	0.875	51.6	1.2521	0.0000	SURCHARGED
8640 minute summer	82A	5280	11.468	0.034	5.8	0.0387	0.0000	OK
8640 minute summer	82_OUT	5280	10.233	0.033	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	70	23.008	72	113.6	1.498	0.188	0.8895	
600 minute winter	71	41.000	72	0.6	0.465	0.034	0.2135	
600 minute winter	72	23.009	73	18.1	0.629	0.163	1.9512	
600 minute winter	73	23.010	75	19.4	0.698	0.174	1.4789	
600 minute winter	74	42.000	75	2.4	0.794	0.033	0.4089	
600 minute winter	75	23.011	76	22.1	0.457	0.154	2.5267	
600 minute winter	76	23.012	82_IN	21.8	0.845	0.161	2.0374	
60 minute summer	77	43.000	78	7.1	1.497	0.201	0.0330	
60 minute summer	78	43.001	80	11.3	1.322	0.111	0.0894	
60 minute summer	79	44.000	80	6.5	1.783	0.141	0.0284	
60 minute summer	80	43.002	81	22.6	1.520	0.213	0.2713	
600 minute winter	81	43.003_1	82_IN	3.2	0.615	0.070	1.6419	
600 minute winter	82_IN	43.003	82	43.0	0.741	0.070	0.7216	
480 minute winter	82	1.016	82A	5.8	1.794	0.108	0.0074	
8640 minute summer	82A	1.017	82_OUT	5.8	1.957	0.108	0.0406	992.2

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	37	14.599	0.649	66.5	26.7545	0.0000	SURCHARGED
60 minute summer	2	37	14.582	0.692	55.0	1.0288	0.0000	SURCHARGED
60 minute summer	3	33	15.635	0.035	10.5	0.0265	0.0000	OK
60 minute summer	4	38	14.537	0.748	42.7	0.9100	0.0000	SURCHARGED
60 minute summer	5	34	14.574	0.424	13.7	0.2498	0.0000	SURCHARGED
60 minute summer	6	37	14.509	0.690	10.5	0.9516	0.0000	SURCHARGED
60 minute summer	7	38	14.504	0.828	53.8	1.2238	0.0000	SURCHARGED
60 minute summer	8	33	15.184	0.034	9.6	0.0192	0.0000	OK
60 minute summer	9	34	14.495	0.855	58.2	0.0000	0.0000	SURCHARGED
60 minute summer	10	33	15.886	0.036	11.9	0.0216	0.0000	OK
60 minute summer	11	33	15.586	0.036	13.7	0.0222	0.0000	OK
60 minute summer	12	34	14.475	0.952	72.0	1.0771	0.0000	SURCHARGED
60 minute summer	13	34	14.447	0.954	74.1	1.0790	0.0000	SURCHARGED
60 minute summer	14	33	17.276	0.076	9.6	0.0415	0.0000	OK
60 minute summer	15	33	17.076	0.070	20.6	0.0988	0.0000	OK
60 minute summer	16	33	16.453	0.043	6.9	0.0183	0.0000	OK
60 minute summer	17	33	15.890	0.068	27.5	0.0771	0.0000	OK
60 minute summer	18	33	15.152	0.062	27.5	0.0699	0.0000	OK
60 minute summer	19	31	16.868	0.018	3.7	0.0073	0.0000	OK
60 minute summer	20	34	14.447	0.198	35.8	0.2348	0.0000	OK
60 minute summer	21	34	14.408	0.966	94.4	1.0921	0.0000	SURCHARGED
60 minute summer	22	33	15.590	0.040	16.9	0.0266	0.0000	OK
60 minute summer	23	33	16.268	0.018	4.6	0.0079	0.0000	OK
60 minute summer	24	34	14.313	0.913	111.9	1.1201	0.0000	SURCHARGED
60 minute summer	25	33	16.282	0.032	4.1	0.0138	0.0000	OK
60 minute summer	26	33	15.900	0.037	4.1	0.0415	0.0000	OK
60 minute summer	27	33	16.136	0.056	10.1	0.0370	0.0000	OK
60 minute summer	28	33	16.617	0.017	1.8	0.0067	0.0000	OK
60 minute summer	29	33	15.791	0.098	33.4	0.1637	0.0000	OK
60 minute summer	30	33	15.885	0.035	4.6	0.0154	0.0000	OK
60 minute summer	31	33	16.035	0.035	6.9	0.0201	0.0000	OK
60 minute summer	32	32	15.304	0.110	58.2	0.1653	0.0000	OK
60 minute summer	33	33	15.259	0.009	0.5	0.0027	0.0000	OK
60 minute summer	34	1	15.850	0.000	0.0	0.0000	0.0000	OK
60 minute summer	35	33	14.161	0.151	58.8	0.1706	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	1	1.000	2	39.8	1.001	0.989	0.3855	
60 minute summer	2	1.001	4	10.5	2.465	0.118	0.0727	
60 minute summer	3	2.000	4	43.5	1.159	1.077	0.2483	
60 minute summer	4	1.002	7	12.6	1.336	0.424	0.2050	
60 minute summer	5	3.000	7	9.5	0.552	0.236	0.4495	
60 minute summer	6	4.000	7	55.5	0.936	0.768	0.5953	
60 minute summer	7	1.003	9	9.6	2.537	0.111	0.0596	
60 minute summer	8	5.000	9	60.1	0.853	0.835	1.9466	
60 minute summer	9	1.004	12	11.9	2.442	0.126	0.0820	
60 minute summer	10	6.000	12	13.7	2.778	0.128	0.0549	
60 minute summer	11	7.000	12	74.1	1.053	1.034	0.5034	
60 minute summer	12	1.005	13	75.9	1.078	1.073	0.8786	
60 minute summer	13	1.006	21	9.6	1.151	0.426	0.0505	
60 minute summer	14	8.000	15	20.6	1.998	0.201	0.3155	
60 minute summer	15	8.001	17	6.9	1.739	0.159	0.0347	
60 minute summer	16	9.000	17	27.5	2.902	0.166	0.0694	
60 minute summer	17	8.002	18	27.5	2.556	0.166	0.1921	
60 minute summer	18	8.003	20	3.7	3.064	0.030	0.0436	
60 minute summer	19	10.000	20	33.6	1.669	0.203	0.2811	
60 minute summer	20	8.004	21	96.0	1.363	1.357	0.7241	
60 minute summer	21	1.007	24	16.9	2.834	0.160	0.0620	
60 minute summer	22	11.000	24	4.6	2.276	0.034	0.0436	
60 minute summer	23	12.000	24	114.0	1.620	1.601	1.7502	
60 minute summer	24	1.008	36	4.1	1.588	0.085	0.0112	
60 minute summer	25	13.000	26	4.1	0.413	0.058	0.0958	
60 minute summer	26	13.001	29	10.1	1.786	0.252	0.0351	
60 minute summer	27	14.000	29	1.8	1.563	0.027	0.0082	
60 minute summer	28	15.000	29	33.4	1.882	0.361	0.2841	
60 minute summer	29	13.002	32	4.6	1.503	0.112	0.0345	
60 minute summer	30	16.000	32	6.9	2.284	0.105	0.0168	
60 minute summer	31	17.000	32	58.3	2.886	0.474	0.5056	
60 minute summer	32	13.003	35	0.5	1.012	0.007	0.0322	
60 minute summer	33	18.000	35	0.0	0.000	0.000	0.0209	
60 minute summer	34	19.000	35	58.3	2.306	0.352	0.2169	
60 minute summer	35	13.004	36					

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	36	34	13.991	0.768	167.4	1.0993	0.0000	SURCHARGED
60 minute summer	37	33	14.880	0.030	8.7	0.0190	0.0000	OK
60 minute summer	38	34	13.829	0.651	196.9	1.1739	0.0000	SURCHARGED
60 minute summer	39	34	13.618	0.481	198.0	0.6978	0.0000	SURCHARGED
60 minute summer	40	33	13.815	0.065	15.1	0.0562	0.0000	OK
60 minute summer	41	34	13.353	0.262	218.0	0.4166	0.0000	OK
60 minute summer	42	32	13.487	0.037	5.9	0.0194	0.0000	OK
960 minute winter	43	945	13.143	0.422	28.7	0.6897	0.0000	SURCHARGED
960 minute winter	44	945	13.143	1.027	28.7	1.4693	0.0000	SURCHARGED
60 minute summer	47A	33	17.422	0.022	1.8	0.0078	0.0000	OK
60 minute summer	45	33	17.180	0.030	4.1	0.0134	0.0000	OK
60 minute summer	46	33	16.868	0.158	16.0	0.1207	0.0000	SURCHARGED
60 minute summer	47	33	16.744	0.137	43.4	0.2447	0.0000	OK
60 minute summer	48	33	16.736	0.036	4.1	0.0154	0.0000	OK
60 minute summer	49	33	16.445	0.045	6.4	0.0230	0.0000	OK
60 minute summer	50	33	16.545	0.045	8.7	0.0266	0.0000	OK
60 minute summer	51	33	16.313	0.185	62.6	0.2094	0.0000	OK
60 minute summer	52	33	16.197	0.047	6.4	0.0238	0.0000	OK
60 minute summer	53	33	16.343	0.043	8.2	0.0258	0.0000	OK
60 minute summer	54	32	15.951	0.179	88.4	0.2614	0.0000	OK
60 minute summer	55	33	16.237	0.037	8.7	0.0241	0.0000	OK
60 minute summer	56	33	15.646	0.314	105.2	0.4256	0.0000	SURCHARGED
60 minute summer	57	33	16.532	0.032	4.1	0.0140	0.0000	OK
60 minute summer	58	33	16.261	0.061	11.9	0.0413	0.0000	OK
60 minute summer	59	32	15.995	0.120	41.1	0.2207	0.0000	OK
60 minute summer	60	33	16.144	0.044	9.1	0.0280	0.0000	OK
60 minute summer	61	33	15.487	0.246	163.9	0.3357	0.0000	OK
60 minute summer	62	32	15.208	0.078	9.1	0.0398	0.0000	OK
60 minute summer	63	33	15.395	0.045	9.6	0.0266	0.0000	OK
60 minute summer	64	33	15.127	0.267	190.0	0.3572	0.0000	OK
60 minute summer	65	33	14.654	0.054	9.1	0.0341	0.0000	OK
60 minute summer	66	33	14.783	0.053	12.8	0.0469	0.0000	OK
60 minute summer	67	34	14.226	0.283	227.8	0.5425	0.0000	OK
60 minute summer	68	33	14.140	0.040	6.9	0.0222	0.0000	OK
60 minute summer	69	35	13.932	0.332	11.0	0.2104	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	36	1.009	38	167.5	1.519	1.504	1.5833	
60 minute summer	37	20.000	38	8.7	2.377	0.090	0.0497	
60 minute summer	38	1.010	39	197.1	1.787	1.771	1.4451	
60 minute summer	39	1.011	41	198.1	1.896	1.791	1.4316	
60 minute summer	40	21.000	41	15.1	2.215	0.322	0.0431	
60 minute summer	41	1.012	43	218.0	2.696	0.593	0.9643	
60 minute summer	42	22.000	43	5.9	1.824	0.119	0.0381	
960 minute winter	43	116	44	28.7	1.457	0.082	2.2208	
960 minute winter	44	1.014	82_IN	28.5	1.113	0.126	2.7219	
60 minute summer	47A	23.000	47	1.8	0.927	0.045	0.0612	
60 minute summer	45	24.000	47	4.1	1.364	0.088	0.0326	
60 minute summer	46	25.000	47	16.0	0.945	1.176	0.0766	
60 minute summer	47	23.001	51	43.4	1.435	0.665	0.9161	
60 minute summer	48	26.000	51	4.1	0.962	0.123	0.1225	
60 minute summer	49	27.000	51	6.4	1.100	0.196	0.0541	
60 minute summer	50	28.000	51	8.7	1.492	0.193	0.0428	
60 minute summer	51	23.002	54	62.4	1.911	0.866	0.4786	
60 minute summer	52	29.000	54	6.4	1.413	0.188	0.0284	
60 minute summer	53	30.000	54	8.2	2.076	0.151	0.0162	
60 minute summer	54	23.003	56	88.7	1.491	0.614	1.4719	
60 minute summer	55	31.000	56	8.7	2.081	0.135	0.0587	
60 minute summer	56	23.004	61	105.0	1.596	0.987	0.6562	
60 minute summer	57	32.000	59	4.1	1.363	0.098	0.0359	
60 minute summer	58	33.000	59	11.9	1.899	0.280	0.0277	
60 minute summer	59	32.001	61	41.2	1.693	0.554	0.7398	
60 minute summer	60	34.000	61	9.1	1.844	0.191	0.0813	
60 minute summer	61	23.005	64	163.5	2.556	0.726	0.5983	
60 minute summer	62	35.000	64	9.2	0.989	0.474	0.1188	
60 minute summer	63	36.000	64	9.6	1.860	0.194	0.0426	
60 minute summer	64	23.006	67	188.5	3.083	0.919	1.5214	
60 minute summer	65	37.000	67	9.1	1.637	0.255	0.0634	
60 minute summer	66	38.000	67	12.8	2.482	0.219	0.0300	
60 minute summer	67	23.007	70	224.7	3.280	0.554	1.7533	
60 minute summer	68	39.000	70	6.9	1.719	0.159	0.1229	
60 minute summer	69	40.000	70	11.5	1.561	0.337	0.0860	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.73%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	70	34	13.906	0.708	240.5	1.0135	0.0000	SURCHARGED
60 minute summer	71	35	13.650	1.271	9.1	0.5706	0.0000	SURCHARGED
60 minute summer	72	35	13.613	1.586	258.9	2.7155	0.0000	SURCHARGED
60 minute summer	73	35	13.185	1.213	280.3	2.4069	0.0000	SURCHARGED
960 minute winter	74	945	13.143	0.868	3.2	1.8145	0.0000	SURCHARGED
960 minute winter	75	945	13.143	1.288	30.6	2.1905	0.0000	SURCHARGED
960 minute winter	76	945	13.143	1.320	30.5	1.8886	0.0000	SURCHARGED
60 minute summer	77	33	13.677	0.077	15.5	0.0675	0.0000	OK
60 minute summer	78	32	13.329	0.076	24.6	0.1076	0.0000	OK
60 minute summer	79	33	13.512	0.062	14.2	0.0510	0.0000	OK
960 minute winter	80	945	13.143	0.284	4.5	0.4058	0.0000	SURCHARGED
960 minute winter	81	945	13.143	1.027	4.5	1.1613	0.0000	SURCHARGED
960 minute winter	82_IN	945	13.143	1.343	74.2	1254.2020	0.0000	SURCHARGED
1440 minute winter	82	1410	13.149	1.511	52.0	2.1617	0.0000	SURCHARGED
10080 minute winter	82A	10140	11.468	0.034	5.8	0.0387	0.0000	OK
5760 minute winter	82_OUT	2400	10.233	0.033	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
60 minute summer	70	23.008	72	237.5	2.154	0.394	1.4340	
60 minute summer	71	41.000	72	9.2	0.718	0.518	0.2234	
60 minute summer	72	23.009	73	256.9	2.330	2.316	1.9512	
60 minute summer	73	23.010	75	278.3	2.524	2.499	1.4789	
960 minute winter	74	42.000	75	3.1	0.746	0.043	0.4089	
960 minute winter	75	23.011	76	30.5	0.434	0.212	2.5267	
960 minute winter	76	23.012	82_IN	30.4	0.854	0.224	2.0374	
60 minute summer	77	43.000	78	15.5	1.809	0.439	0.0595	
60 minute summer	78	43.001	80	24.6	1.583	0.242	0.1786	
60 minute summer	79	44.000	80	14.2	2.179	0.308	0.0507	
960 minute winter	80	43.002	81	4.5	0.826	0.042	0.7177	
960 minute winter	81	43.003_1	82_IN	4.4	0.625	0.096	1.6419	
960 minute winter	82_IN	43.003	82	67.0	0.764	0.110	0.7216	
1440 minute winter	82	1.016	82A	5.8	1.791	0.108	0.0074	
10080 minute winter	82A	1.017	82_OUT	5.8	1.957	0.108	0.0406	2438.5

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	1.000
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.028	5.00	16.394	1200	507641.336	104723.993	2.444
2	0.040	5.00	16.136	1200	507631.708	104722.863	2.246
3	0.023	5.00	16.554	600	507621.042	104706.180	0.954
4	0.010	5.00	16.143	1200	507618.383	104712.694	2.354
5	0.030	5.00	16.106	600	507601.117	104712.260	1.956
6	0.023	5.00	15.674	1200	507607.826	104720.578	1.855
7	0.043	5.00	16.154	1200	507612.603	104710.334	2.478
8	0.021	5.00	16.597	600	507606.341	104702.119	1.447
9			16.476		507612.139	104701.894	2.836
10	0.026	5.00	17.463	600	507618.488	104673.857	1.613
11	0.030	5.00	17.322	600	507605.362	104674.717	1.772
12			17.271	1200	507610.622	104674.293	3.748
13			17.439	1200	507610.229	104667.156	3.946
14	0.021	5.00	18.778	600	507606.997	104609.263	1.578
15	0.024	5.00	18.706	1200	507612.993	104608.461	1.700
16	0.015	5.00	18.442	600	507609.456	104634.447	2.032
17			18.295	1200	507617.048	104638.785	2.473
18			18.138	1200	507615.079	104645.832	3.048
19	0.008	5.00	18.152	600	507615.304	104652.381	1.302
20	0.010	5.00	17.926	1200	507610.036	104652.569	3.677
21			17.716	1200	507603.830	104656.445	4.274
22	0.037	5.00	17.489	600	507593.727	104652.114	1.939
23	0.010	5.00	17.540	600	507593.818	104662.551	1.290
24	0.019	5.00	17.376	1200	507593.652	104657.914	3.976
25	0.009	5.00	17.420	600	507561.823	104605.338	1.170
26			17.258	1200	507558.115	104607.580	1.395
27	0.022	5.00	17.242	600	507553.083	104617.522	1.162
28	0.004	5.00	17.334	600	507563.811	104612.972	0.734
29	0.038	5.00	17.085	1200	507559.235	104616.772	1.392
30	0.010	5.00	17.120	600	507558.147	104625.492	1.270
31	0.015	5.00	17.018	600	507572.168	104625.966	1.018
32	0.029	5.00	16.765	1200	507568.345	104629.849	1.571
33	0.001	5.00	16.443	600	507562.215	104650.883	1.193
34		5.00	16.582	600	507573.196	104648.968	0.732
35			16.359	1200	507569.096	104651.224	2.349
36			16.393	1350	507568.800	104657.591	3.170
37	0.019	5.00	15.943	600	507552.988	104653.237	1.093
38	0.049	5.00	15.824	1350	507554.450	104657.960	2.646
39	0.002	5.00	15.299	1350	507542.989	104664.309	2.162
40	0.033	5.00	14.877	600	507527.372	104657.442	1.127
41	0.013	5.00	14.698	1350	507528.116	104663.714	1.607
42	0.013	5.00	14.512	600	507516.583	104659.538	1.062
43	0.016	5.00	14.296	1350	507517.351	104666.008	1.575
44			13.500	1350	507517.742	104686.139	1.384
47A	0.004	5.00	18.463	600	507592.907	104580.058	1.063
45	0.009	5.00	18.261	600	507579.819	104582.938	1.111
46	0.035	5.00	18.172	600	507578.259	104571.333	1.462
47	0.047	5.00	18.032	1200	507578.886	104576.022	1.425
48	0.009	5.00	17.917	600	507562.462	104584.225	1.217
49	0.014	5.00	17.630	600	507547.802	104585.894	1.230
50	0.019	5.00	17.718	600	507549.431	104575.429	1.218
51			17.521	1200	507548.711	104580.057	1.393
52	0.014	5.00	17.418	600	507533.400	104584.011	1.268

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
53	0.018	5.00	17.449	600	507534.975	104573.772	1.149
54	0.025	5.00	17.272	1200	507534.199	104577.798	1.500
55	0.019	5.00	17.244	600	507509.502	104567.351	1.044
56	0.017	5.00	16.839	1200	507508.538	104572.850	1.507
57	0.009	5.00	17.643	600	507512.929	104545.716	1.143
58	0.026	5.00	17.536	600	507498.659	104543.462	1.336
59	0.055	5.00	17.432	1200	507503.025	104544.151	1.557
60	0.020	5.00	17.251	600	507495.770	104561.751	1.151
61	0.019	5.00	16.868	1200	507498.735	104571.301	1.627
62	0.020	5.00	16.867	600	507507.385	104580.459	1.737
63	0.021	5.00	16.701	600	507493.753	104577.812	1.351
64	0.017	5.00	16.498	1200	507497.276	104580.534	1.638
65	0.020	5.00	15.762	600	507508.403	104605.000	1.162
66	0.028	5.00	15.647	600	507492.475	104604.134	0.917
67	0.038	5.00	15.518	1350	507497.623	104605.395	1.575
68	0.015	5.00	15.228	600	507504.832	104621.085	1.128
69	0.024	5.00	14.970	600	507489.055	104620.304	1.370
70			14.802	1350	507493.445	104622.452	1.604
71	0.020	5.00	14.781	600	507500.392	104633.289	2.402
72	0.032	5.00	14.309	1350	507487.730	104634.130	2.282
73	0.054	5.00	13.925	1350	507488.700	104651.793	1.953
74	0.077	5.00	13.879	1200	507476.020	104653.812	1.604
75	0.023	5.00	13.561	1350	507481.029	104662.790	1.706
76			13.600	1350	507487.121	104677.527	1.777
77	0.034	5.00	14.752	600	507560.910	104689.140	1.152
78	0.020	5.00	14.678	1200	507554.257	104691.140	1.425
79	0.031	5.00	14.599	600	507558.578	104703.380	1.149
80	0.023	5.00	14.399	1200	507551.152	104701.054	1.540
81			13.500	1200	507533.931	104695.660	1.384
82_IN	0.123	5.00	13.500		507491.700	104690.559	1.700
82			13.500	1350	507488.730	104694.011	1.862
82A			13.055	1200	507487.246	104695.735	1.621
82_OUT			12.000		507478.465	104706.267	1.800

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	5.694	0.600	13.950	13.890	0.060	161.6	225	5.16	50.0
1.001	2	4	16.762	0.600	13.890	13.789	0.101	166.0	225	5.43	50.0
2.000	3	4	7.036	0.600	15.600	13.864	1.736	4.1	150	5.02	50.0
1.002	4	7	6.343	0.600	13.789	13.751	0.038	164.3	225	5.54	50.0
3.000	5	7	11.646	0.600	14.150	13.826	0.324	35.9	150	5.12	50.0
4.000	6	7	11.309	0.600	13.819	13.751	0.068	166.2	225	5.19	50.0
1.003	7	9	8.459	0.600	13.676	13.640	0.036	234.9	300	5.67	50.0
5.000	8	9	5.892	0.600	15.150	13.799	1.360	4.9	150	5.02	50.0
1.004	9	12	27.643	0.600	13.640	13.523	0.117	236.9	300	6.13	50.0
6.000	10	12	7.878	0.600	15.850	13.679	2.177	5.6	150	5.02	50.0
7.000	11	12	5.279	0.600	15.550	13.679	1.877	2.8	150	5.03	50.0
1.005	12	13	7.148	0.600	13.523	13.493	0.030	238.3	300	6.24	50.0
1.006	13	21	12.477	0.600	13.523	13.472	0.051	244.4	300	6.45	50.0
8.000	14	15	6.049	0.600	17.200	17.103	0.097	62.4	150	5.09	50.0
8.001	15	17	30.594	0.600	17.006	15.822	1.184	25.9	225	5.28	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)
1.000	1.026	40.8	5.1	2.219	2.021	0.028	0.0
1.001	1.012	40.2	12.3	2.021	2.129	0.068	0.0
2.000	5.041	89.1	4.2	0.804	2.129	0.023	0.0
1.002	1.017	40.4	18.3	2.129	2.178	0.101	0.0
3.000	1.684	29.8	5.4	1.806	2.178	0.030	0.0
4.000	1.011	40.2	4.2	1.630	2.178	0.023	0.0
1.003	1.022	72.2	35.6	2.178	2.536	0.197	0.0
5.000	4.913	86.8	3.8	1.297	2.536	0.021	0.0
1.004	1.018	72.0	39.4	2.536	3.448	0.218	0.0
6.000	5.335	94.3	4.7	1.463	3.448	0.026	0.0
7.000	6.055	107.0	5.4	1.622	3.448	0.030	0.0
1.005	1.014	71.7	49.5	3.448	3.646	0.274	0.0
1.006	1.001	70.7	49.5	3.616	3.944	0.274	0.0
8.000	1.275	22.5	3.8	1.428	1.453	0.021	0.0
8.001	2.584	102.7	8.1	1.475	2.248	0.045	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
9.000	16	17	8.744	0.600	16.410	15.897	0.513	17.0	150	3.06	50.0
8.002	17	18	7.317	0.600	15.822	15.090	0.732	10.0	225	3.31	50.0
8.003	18	20	8.315	0.600	15.090	14.249	0.841	10.0	225	3.34	50.0
10.000	19	20	5.271	0.600	16.850	16.324	0.526	2.1	150	3.01	50.0
8.004	20	21	7.317	0.600	14.249	13.517	0.732	10.0	225	3.37	50.0
1.007	21	24	10.283	0.600	13.442	13.400	0.042	244.8	300	6.62	50.0
11.000	22	24	5.890	0.600	15.550	13.550	2.000	2.0	150	3.02	50.0
12.000	23	24	4.840	0.600	16.250	13.550	2.700	1.7	150	3.01	50.0
1.008	24	36	24.854	0.600	13.400	13.287	0.113	241.3	300	7.03	50.0
13.000	25	26	4.333	0.600	16.250	15.938	0.312	13.9	150	3.03	50.0
13.001	26	29	9.260	0.600	15.863	15.693	0.170	34.3	225	3.11	50.0
14.000	27	29	6.198	0.600	16.080	15.768	0.312	19.9	150	3.05	50.0
15.000	28	29	5.948	0.600	16.600	15.768	0.832	7.1	150	3.03	50.0
13.002	29	32	15.537	0.600	15.693	15.194	0.499	31.9	225	3.23	50.0
16.000	30	32	11.090	0.600	15.850	15.269	0.581	19.1	150	3.08	50.0
17.000	31	32	5.449	0.600	16.000	15.269	0.731	7.5	150	3.02	50.0
13.003	32	35	21.398	0.600	15.194	14.010	1.184	18.1	225	3.34	50.0
18.000	33	35	6.869	0.600	15.250	14.085	1.165	5.9	150	3.03	50.0
19.000	34	35	4.680	0.600	15.850	14.085	1.765	2.7	150	3.01	50.0
13.004	35	36	6.374	0.600	14.010	13.373	0.637	10.0	225	3.37	50.0
1.009	36	38	14.535	0.600	13.223	13.178	0.045	319.0	375	7.27	50.0
20.000	37	38	4.944	0.600	14.850	13.403	1.447	3.4	150	3.02	50.0
1.010	38	39	13.162	0.600	13.178	13.137	0.041	319.6	375	7.49	50.0
1.011	39	41	14.893	0.600	13.137	13.091	0.046	323.6	375	7.74	50.0
21.000	40	41	6.316	0.600	13.750	13.316	0.434	14.6	150	3.04	50.0
1.012	41	43	11.007	0.600	13.091	12.722	0.369	29.8	375	7.79	50.0
22.000	42	43	6.515	0.600	13.450	12.946	0.504	12.9	150	3.04	50.0
116	43	44	20.135	0.600	12.721	12.116	0.605	33.3	375	7.90	50.0
23.000	47A	47	14.590	0.600	17.400	16.682	0.718	20.3	150	3.11	50.0
24.000	45	47	6.979	0.600	17.150	16.682	0.468	14.9	150	3.04	50.0
25.000	46	47	4.731	0.600	16.710	16.682	0.028	169.0	150	3.10	50.0
23.001	47	51	30.444	0.600	16.607	16.108	0.499	63.6	225	3.42	50.0
26.000	48	51	14.369	0.600	16.700	16.203	0.497	28.9	150	3.13	50.0
27.000	49	51	5.907	0.600	16.400	16.203	0.197	30.0	150	3.05	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
9.000	2.451	43.3	2.7	1.882	2.248	0.015	0.0
8.002	4.162	165.5	10.8	2.248	2.823	0.060	0.0
8.003	4.160	165.4	10.8	2.823	3.452	0.060	0.0
10.000	7.030	124.2	1.4	1.152	3.452	0.008	0.0
8.004	4.162	165.5	14.1	3.452	3.974	0.078	0.0
1.007	1.000	70.7	63.6	3.974	3.676	0.352	0.0
11.000	5.961	105.3	6.7	1.789	3.676	0.037	0.0
12.000	7.748	136.9	1.8	1.140	3.676	0.010	0.0
1.008	1.008	71.2	75.5	3.676	2.796	0.418	0.0
13.000	2.717	48.0	1.6	1.020	1.170	0.009	0.0
13.001	1.776	70.6	1.6	1.170	1.167	0.009	0.0
14.000	2.270	40.1	4.0	1.012	1.167	0.022	0.0
15.000	3.792	67.0	0.7	0.584	1.167	0.004	0.0
13.002	2.323	92.4	13.2	1.167	1.346	0.073	0.0
16.000	2.316	40.9	1.8	1.120	1.346	0.010	0.0
17.000	3.713	65.6	2.7	0.868	1.346	0.015	0.0
13.003	3.093	123.0	22.9	1.346	2.124	0.127	0.0
18.000	4.171	73.7	0.2	1.043	2.124	0.001	0.0
19.000	6.236	110.2	0.0	0.582	2.124	0.000	0.0
13.004	4.160	165.4	23.1	2.124	2.795	0.128	0.0
1.009	1.009	111.4	98.7	2.795	2.271	0.546	0.0
20.000	5.491	97.0	3.4	0.943	2.271	0.019	0.0
1.010	1.008	111.3	110.9	2.271	1.787	0.614	0.0
1.011	1.002	110.6	111.3	1.787	1.232	0.616	0.0
21.000	2.654	46.9	6.0	0.977	1.232	0.033	0.0
1.012	3.328	367.5	119.6	1.232	1.199	0.662	0.0
22.000	2.817	49.8	2.3	0.912	1.200	0.013	0.0
116	3.150	347.9	124.9	1.200	1.009	0.691	0.0
23.000	2.244	39.7	0.7	0.913	1.200	0.004	0.0
24.000	2.622	46.3	1.6	0.961	1.200	0.009	0.0
25.000	0.770	13.6	6.3	1.312	1.200	0.035	0.0
23.001	1.643	65.3	17.2	1.200	1.168	0.095	0.0
26.000	1.879	33.2	1.6	1.067	1.168	0.009	0.0
27.000	1.845	32.6	2.5	1.080	1.168	0.014	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
28.000	50	51	4.684	0.600	16.500	16.203	0.297	15.8	150	5.03	50.0
23.002	51	54	14.697	0.600	16.128	15.847	0.281	52.3	225	5.35	50.0
29.000	52	54	6.268	0.600	16.150	15.922	0.228	27.5	150	5.05	50.0
30.000	53	54	4.100	0.600	16.300	15.922	0.378	10.8	150	5.02	50.0
23.003	54	56	26.134	0.600	15.772	15.332	0.440	59.4	300	5.77	50.0
31.000	55	56	5.583	0.600	16.200	15.492	0.718	7.8	150	5.03	50.0
23.004	56	61	9.925	0.600	15.332	15.241	0.091	109.1	300	5.88	50.0
32.000	57	59	10.027	0.600	16.500	15.950	0.550	18.2	150	5.07	50.0
33.000	58	59	4.420	0.600	16.200	15.950	0.250	17.7	150	5.03	50.0
32.001	59	61	27.497	0.600	15.875	15.316	0.559	49.2	225	5.32	50.0
34.000	60	61	10.000	0.600	16.100	15.391	0.709	14.1	150	5.06	50.0
23.005	61	64	9.348	0.600	15.241	14.860	0.381	24.5	300	5.92	50.0
35.000	62	64	10.109	0.600	15.130	15.010	0.120	84.2	150	5.15	50.0
36.000	63	64	4.452	0.600	15.350	15.010	0.340	13.1	150	5.03	50.0
23.006	64	67	24.863	0.600	14.860	14.018	0.842	29.5	300	6.07	50.0
37.000	65	67	10.787	0.600	14.600	14.169	0.432	25.0	150	5.09	50.0
38.000	66	67	5.360	0.600	14.730	14.169	0.562	9.4	150	5.03	50.0
23.007	67	70	17.561	0.600	13.943	13.227	0.716	24.5	375	6.15	50.0
39.000	68	70	11.469	0.600	14.100	13.423	0.677	16.9	150	5.08	50.0
40.000	69	70	4.887	0.600	13.600	13.423	0.177	27.5	150	5.04	50.0
23.008	70	72	13.901	0.600	13.198	12.027	1.171	11.1	375	6.19	50.0
41.000	71	72	12.690	0.600	12.379	12.252	0.127	99.9	150	5.21	50.0
23.009	72	73	17.690	0.600	12.027	11.972	0.055	321.6	375	6.48	50.0
23.010	73	75	13.408	0.600	11.972	11.930	0.042	319.2	375	6.70	50.0
42.000	74	75	10.291	0.600	12.275	12.080	0.195	52.7	225	5.99	50.0
23.011	75	76	15.947	0.600	11.855	11.620	0.032	499.3	450	7.00	50.0
43.000	77	78	6.947	0.600	13.600	13.328	0.272	25.5	150	5.06	50.0
43.001	78	80	10.383	0.600	13.253	12.859	0.394	26.4	225	5.13	50.0
44.000	79	80	7.982	0.600	13.450	12.994	0.456	15.1	150	5.05	50.0
43.002	80	81	19.046	0.600	12.859	12.116	0.743	24.3	225	5.28	50.0
43.003	82_IN	82	4.554	0.600	11.800	11.638	0.162	29.1	450	8.12	50.0
1.016	82	82A	2.275	0.600	11.638	11.434	0.204	11.2	150	8.13	50.0
1.017	82A	82_OUT	13.712	0.600	11.434	10.200	1.234	11.1	150	8.21	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
28.000	2.549	45.0	3.4	1.068	1.168	0.019	0.0
23.002	1.813	72.1	24.8	1.168	1.200	0.137	0.0
29.000	1.928	34.1	2.5	1.118	1.200	0.014	0.0
30.000	3.076	54.4	3.3	0.999	1.200	0.018	0.0
23.003	2.043	144.4	35.1	1.200	1.207	0.194	0.0
31.000	3.636	64.2	3.4	0.894	1.207	0.019	0.0
23.004	1.505	106.4	41.6	1.207	1.327	0.230	0.0
32.000	2.370	41.9	1.6	0.993	1.332	0.009	0.0
33.000	2.407	42.5	4.7	1.186	1.332	0.026	0.0
32.001	1.870	74.3	16.3	1.332	1.327	0.090	0.0
34.000	2.696	47.6	3.6	1.001	1.327	0.020	0.0
23.005	3.187	225.3	64.9	1.327	1.338	0.359	0.0
35.000	1.096	19.4	3.6	1.587	1.338	0.020	0.0
36.000	2.799	49.5	3.8	1.201	1.338	0.021	0.0
23.006	2.904	205.2	75.4	1.338	1.200	0.417	0.0
37.000	2.023	35.8	3.6	1.012	1.200	0.020	0.0
38.000	3.300	58.3	5.1	0.767	1.200	0.028	0.0
23.007	3.671	405.5	90.9	1.200	1.200	0.503	0.0
39.000	2.459	43.5	2.7	0.978	1.229	0.015	0.0
40.000	1.923	34.0	4.3	1.220	1.229	0.024	0.0
23.008	5.463	603.3	97.9	1.229	1.907	0.542	0.0
41.000	1.005	17.8	3.6	2.252	1.907	0.020	0.0
23.009	1.005	111.0	107.3	1.907	1.578	0.594	0.0
23.010	1.008	111.4	117.1	1.578	1.256	0.648	0.0
42.000	1.805	71.8	13.9	1.379	1.256	0.077	0.0
23.011	0.904	143.7	135.2	1.256	1.327	0.748	0.0
43.000	2.000	35.3	6.1	1.002	1.200	0.034	0.0
43.001	2.558	101.7	9.8	1.200	1.315	0.054	0.0
44.000	2.607	46.1	5.6	0.999	1.315	0.031	0.0
43.002	2.666	106.0	19.5	1.315	1.159	0.108	0.0
43.003	3.845	611.6	301.8	1.250	1.412	1.670	0.0
1.016	3.034	53.6	301.8	1.712	1.471	1.670	0.0
1.017	3.039	53.7	301.8	1.471	1.650	1.670	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
23.012	76	82_IN	12.858	0.600	11.823	11.800	0.023	559.1	450	7.35	50.0
1.014	44	82_IN	24.678	0.600	12.116	11.800	0.316	79.1	375	8.10	50.0
43.003_1	81	82_IN	41.253	0.600	12.116	11.800	0.316	130.5	225	5.84	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)
23.012	0.853	135.6	135.2	1.327	1.250	0.748	0.0
1.014	2.052	226.6	124.9	1.009	1.325	0.691	0.0
43.003_1	1.142	45.4	19.5	1.159	1.475	0.108	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	9.694	101.5	225	PH1	16.394	13.950	2.219	16.136	13.899	2.021
1.001	16.782	105.0	225	PH1	16.136	13.890	2.021	16.143	13.789	2.129
2.000	7.036	4.1	150	PH1	16.554	15.600	0.804	16.143	13.864	2.129
1.002	6.243	164.3	225	PH1	16.143	13.789	2.129	16.154	13.751	2.178
3.000	11.646	35.9	150	PH1	16.106	14.150	1.806	16.154	13.826	2.178
4.000	11.503	166.2	225	PH1	15.674	13.819	1.630	16.154	13.751	2.178
1.003	5.453	234.8	300	PH1	16.154	13.676	2.178	16.476	13.640	2.536
5.000	5.802	4.3	150	PH1	16.597	15.150	1.297	16.476	13.750	2.536
1.004	27.643	234.3	300	PH1	16.476	13.640	2.536	17.271	13.523	3.448
6.000	7.878	3.6	150	PH1	17.463	15.850	1.463	17.271	13.473	3.448
7.000	5.277	2.9	150	PH1	17.322	15.550	1.622	17.271	13.473	3.448
1.005	7.348	238.3	300	PH1	17.271	13.523	3.448	17.439	13.483	3.646
1.006	12.477	244.6	300	PH1	17.439	13.523	3.616	17.716	13.472	3.944
8.000	6.049	62.4	150	PH1	18.778	17.200	1.428	18.706	17.103	1.453
8.001	36.584	25.8	225	PH1	18.706	17.006	1.475	18.295	15.822	2.248
9.000	5.744	17.0	150	PH1	18.442	16.410	1.882	18.295	15.897	2.248
8.002	7.317	10.0	225	PH1	18.295	15.822	2.248	18.138	15.496	2.823
8.003	8.415	10.0	225	PH1	18.138	15.090	2.823	17.926	14.249	3.452
10.000	5.271	2.1	150	PH1	18.152	16.850	1.152	17.926	14.324	3.452
8.004	7.317	10.0	225	PH1	17.926	14.249	3.452	17.716	13.517	3.974
1.007	10.283	244.8	300	PH1	17.716	13.442	3.974	17.376	13.460	3.676
11.000	5.800	2.9	150	PH1	17.489	15.550	1.789	17.376	13.550	3.676
12.000	6.640	1.7	150	PH1	17.540	16.250	1.140	17.376	13.550	3.676
1.008	24.854	241.3	300	PH1	17.376	13.400	3.676	16.393	13.287	2.796
13.000	4.303	13.9	150	PH1	17.420	16.250	1.020	17.258	15.936	1.170
13.001	9.260	94.5	225	PH1	17.258	15.863	1.170	17.085	15.493	1.167
14.000	6.198	13.9	150	PH1	17.242	16.080	1.012	17.085	15.768	1.167

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	4	1200	Manhole	Adoptable
2.000	3	600	Manhole	Adoptable	4	1200	Manhole	Adoptable
1.002	4	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
3.000	5	600	Manhole	Adoptable	7	1200	Manhole	Adoptable
4.000	6	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
1.003	7	1200	Manhole	Adoptable	9		Junction	
5.000	8	600	Manhole	Adoptable	9		Junction	
1.004	9		Junction		12	1200	Manhole	Adoptable
6.000	10	600	Manhole	Adoptable	12	1200	Manhole	Adoptable
7.000	11	600	Manhole	Adoptable	12	1200	Manhole	Adoptable
1.005	12	1200	Manhole	Adoptable	13	1200	Manhole	Adoptable
1.006	13	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
8.000	14	600	Manhole	Adoptable	15	1200	Manhole	Adoptable
8.001	15	1200	Manhole	Adoptable	17	1200	Manhole	Adoptable
9.000	16	600	Manhole	Adoptable	17	1200	Manhole	Adoptable
8.002	17	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
8.003	18	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
10.000	19	600	Manhole	Adoptable	20	1200	Manhole	Adoptable
8.004	20	1200	Manhole	Adoptable	21	1200	Manhole	Adoptable
1.007	21	1200	Manhole	Adoptable	24	1200	Manhole	Adoptable
11.000	22	600	Manhole	Adoptable	24	1200	Manhole	Adoptable
12.000	23	600	Manhole	Adoptable	24	1200	Manhole	Adoptable
1.008	24	1200	Manhole	Adoptable	36	1350	Manhole	Adoptable
13.000	25	600	Manhole	Adoptable	26	1200	Manhole	Adoptable
13.001	26	1200	Manhole	Adoptable	29	1200	Manhole	Adoptable
14.000	27	600	Manhole	Adoptable	29	1200	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
15.000	5.348	7.1	150	PH1	17.334	16.600	0.584	17.085	15.768	1.167
13.002	15.937	31.9	225	PH1	17.085	15.693	1.167	16.765	15.194	1.346
16.000	11.098	19.1	150	PH1	17.120	15.850	1.120	16.765	15.249	1.346
17.000	5.448	7.5	150	PH1	17.018	16.000	0.868	16.765	15.289	1.346
13.003	21.398	18.1	225	PH1	16.765	15.194	1.346	16.359	14.810	2.124
18.000	6.848	5.3	150	PH1	16.443	15.250	1.043	16.359	14.985	2.124
19.000	4.888	2.7	150	PH1	16.582	15.850	0.582	16.359	14.985	2.124
13.004	6.374	15.0	225	PH1	16.359	14.010	2.124	16.393	13.375	2.795
1.009	14.355	319.0	375	PH1	16.393	13.223	2.795	15.824	13.178	2.271
20.000	4.944	3.4	150	PH1	15.943	14.850	0.943	15.824	13.493	2.271
1.010	13.192	319.6	375	PH1	15.824	13.178	2.271	15.299	12.137	1.787
1.011	14.885	323.6	375	PH1	15.299	13.137	1.787	14.698	13.091	1.232
21.000	6.316	14.6	150	PH1	14.877	13.750	0.977	14.698	13.316	1.232
1.012	11.007	29.8	375	PH1	14.698	13.091	1.232	14.296	12.722	1.199
22.000	6.515	12.3	150	PH1	14.512	13.450	0.912	14.296	12.546	1.200
116	20.135	33.3	375	PH1	14.296	12.721	1.200	13.500	12.116	1.009
23.000	14.590	30.3	150	PH1	18.463	17.400	0.913	18.032	16.682	1.200
24.000	6.979	14.9	150	PH1	18.261	17.150	0.961	18.032	16.882	1.200
25.000	4.731	159.0	150	PH1	18.172	16.710	1.312	18.032	16.882	1.200
23.001	30.444	63.6	225	PH1	18.032	16.607	1.200	17.521	16.128	1.168
26.000	14.369	28.3	150	PH1	17.917	16.700	1.067	17.521	16.203	1.168
27.000	5.907	30.0	150	PH1	17.630	16.400	1.080	17.521	16.203	1.168
28.000	4.684	15.8	150	PH1	17.718	16.500	1.068	17.521	16.203	1.168
23.002	14.687	52.3	225	PH1	17.521	16.128	1.168	17.272	15.847	1.200
29.000	6.264	27.5	150	PH1	17.418	16.150	1.118	17.272	15.922	1.200
30.000	4.190	10.8	150	PH1	17.449	16.300	0.999	17.272	15.922	1.200
23.003	26.134	59.4	300	PH1	17.272	15.772	1.200	16.839	15.352	1.207
31.000	5.593	7.8	150	PH1	17.244	16.200	0.894	16.839	15.482	1.207
23.004	9.825	109.1	300	PH1	16.839	15.332	1.207	16.868	15.241	1.327
32.000	10.827	18.2	150	PH1	17.643	16.500	0.993	17.432	15.550	1.332
33.000	4.430	17.7	150	PH1	17.536	16.200	1.186	17.432	15.950	1.332
32.001	27.487	49.2	225	PH1	17.432	15.875	1.332	16.868	15.316	1.327
34.000	10.000	14.1	150	PH1	17.251	16.100	1.001	16.868	15.391	1.327
23.005	9.348	24.5	300	PH1	16.868	15.241	1.327	16.498	14.860	1.338
35.000	10.398	84.2	150	PH1	16.867	15.130	1.587	16.498	15.010	1.338

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
15.000	28	600	Manhole	Adoptable	29	1200	Manhole	Adoptable
13.002	29	1200	Manhole	Adoptable	32	1200	Manhole	Adoptable
16.000	30	600	Manhole	Adoptable	32	1200	Manhole	Adoptable
17.000	31	600	Manhole	Adoptable	32	1200	Manhole	Adoptable
13.003	32	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
18.000	33	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
19.000	34	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
13.004	35	1200	Manhole	Adoptable	36	1350	Manhole	Adoptable
1.009	36	1350	Manhole	Adoptable	38	1350	Manhole	Adoptable
20.000	37	600	Manhole	Adoptable	38	1350	Manhole	Adoptable
1.010	38	1350	Manhole	Adoptable	39	1350	Manhole	Adoptable
1.011	39	1350	Manhole	Adoptable	41	1350	Manhole	Adoptable
21.000	40	600	Manhole	Adoptable	41	1350	Manhole	Adoptable
1.012	41	1350	Manhole	Adoptable	43	1350	Manhole	Adoptable
22.000	42	600	Manhole	Adoptable	43	1350	Manhole	Adoptable
116	43	1350	Manhole	Adoptable	44	1350	Manhole	Adoptable
23.000	47A	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
24.000	45	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
25.000	46	600	Manhole	Adoptable	47	1200	Manhole	Adoptable
23.001	47	1200	Manhole	Adoptable	51	1200	Manhole	Adoptable
26.000	48	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
27.000	49	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
28.000	50	600	Manhole	Adoptable	51	1200	Manhole	Adoptable
23.002	51	1200	Manhole	Adoptable	54	1200	Manhole	Adoptable
29.000	52	600	Manhole	Adoptable	54	1200	Manhole	Adoptable
30.000	53	600	Manhole	Adoptable	54	1200	Manhole	Adoptable
23.003	54	1200	Manhole	Adoptable	56	1200	Manhole	Adoptable
31.000	55	600	Manhole	Adoptable	56	1200	Manhole	Adoptable
23.004	56	1200	Manhole	Adoptable	61	1200	Manhole	Adoptable
32.000	57	600	Manhole	Adoptable	59	1200	Manhole	Adoptable
33.000	58	600	Manhole	Adoptable	59	1200	Manhole	Adoptable
32.001	59	1200	Manhole	Adoptable	61	1200	Manhole	Adoptable
34.000	60	600	Manhole	Adoptable	61	1200	Manhole	Adoptable
23.005	61	1200	Manhole	Adoptable	64	1200	Manhole	Adoptable
35.000	62	600	Manhole	Adoptable	64	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
36.000	4.442	13.1	150	PH1	16.701	15.350	1.201	16.498	15.010	1.338
23.006	24.883	29.3	300	PH1	16.498	14.860	1.338	15.518	14.018	1.200
37.000	10.787	23.0	150	PH1	15.762	14.600	1.012	15.518	14.168	1.200
38.000	5.300	9.8	150	PH1	15.647	14.730	0.767	15.518	14.168	1.200
23.007	17.581	24.5	375	PH1	15.518	13.943	1.200	14.802	13.427	1.200
39.000	13.469	10.9	150	PH1	15.228	14.100	0.978	14.802	13.423	1.229
40.000	4.987	27.8	150	PH1	14.970	13.600	1.220	14.802	13.423	1.229
23.008	13.001	11.1	375	PH1	14.802	13.198	1.229	14.309	12.027	1.907
41.000	12.890	39.3	150	PH1	14.781	12.379	2.252	14.309	12.252	1.907
23.009	17.890	321.6	375	PH1	14.309	12.027	1.907	13.925	11.972	1.578
23.010	13.408	319.2	375	PH1	13.925	11.972	1.578	13.561	11.930	1.256
42.000	10.281	52.7	225	PH1	13.879	12.275	1.379	13.561	12.080	1.256
23.011	13.947	498.3	450	PH1	13.561	11.855	1.256	13.600	11.823	1.327
43.000	6.947	25.5	150	PH1	14.752	13.600	1.002	14.678	13.328	1.200
43.001	10.389	26.4	225	PH1	14.678	13.253	1.200	14.399	12.859	1.315
44.000	7.792	15.1	150	PH1	14.599	13.450	0.999	14.399	12.834	1.315
43.002	10.046	24.3	225	PH1	14.399	12.859	1.315	13.500	12.116	1.159
43.003	4.554	28.1	450	PH1	13.500	11.800	1.250	13.500	11.638	1.412
1.016	2.275	11.2	150	PH1	13.500	11.638	1.712	13.055	11.434	1.471
1.017	13.712	11.1	150	PH1	13.055	11.434	1.471	12.000	10.200	1.650
23.012	12.859	559.1	450	PH1	13.600	11.823	1.327	13.500	11.800	1.250
1.018	28.678	78.1	375	PH1	13.500	12.116	1.009	13.500	11.800	1.325
43.003_1	41.383	130.6	225	PH1	13.500	12.116	1.159	13.500	11.800	1.475

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
36.000	63	600	Manhole	Adoptable	64	1200	Manhole	Adoptable
23.006	64	1200	Manhole	Adoptable	67	1350	Manhole	Adoptable
37.000	65	600	Manhole	Adoptable	67	1350	Manhole	Adoptable
38.000	66	600	Manhole	Adoptable	67	1350	Manhole	Adoptable
23.007	67	1350	Manhole	Adoptable	70	1350	Manhole	Adoptable
39.000	68	600	Manhole	Adoptable	70	1350	Manhole	Adoptable
40.000	69	600	Manhole	Adoptable	70	1350	Manhole	Adoptable
23.008	70	1350	Manhole	Adoptable	72	1350	Manhole	Adoptable
41.000	71	600	Manhole	Adoptable	72	1350	Manhole	Adoptable
23.009	72	1350	Manhole	Adoptable	73	1350	Manhole	Adoptable
23.010	73	1350	Manhole	Adoptable	75	1350	Manhole	Adoptable
42.000	74	1200	Manhole	Adoptable	75	1350	Manhole	Adoptable
23.011	75	1350	Manhole	Adoptable	76	1350	Manhole	Adoptable
43.000	77	600	Manhole	Adoptable	78	1200	Manhole	Adoptable
43.001	78	1200	Manhole	Adoptable	80	1200	Manhole	Adoptable
44.000	79	600	Manhole	Adoptable	80	1200	Manhole	Adoptable
43.002	80	1200	Manhole	Adoptable	81	1200	Manhole	Adoptable
43.003	82_IN		Junction		82	1350	Manhole	Adoptable
1.016	82	1350	Manhole	Adoptable	82A	1200	Manhole	Adoptable
1.017	82A	1200	Manhole	Adoptable	82_OUT		Manhole	Adoptable
23.012	76	1350	Manhole	Adoptable	82_IN		Junction	
1.018	44	1350	Manhole	Adoptable	82_IN		Junction	
43.003_1	81	1200	Manhole	Adoptable	82_IN		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	507641.336	104723.993	16.394	2.444	1200				
							0	1.000	13.950
2	507631.708	104722.863	16.136	2.246	1200		1	1.000	13.830
							0	1.001	13.890
3	507621.042	104706.180	16.554	0.954	600				
							0	2.000	15.600
4	507618.383	104712.694	16.143	2.354	1200		1	2.000	15.604
							2	1.001	13.789
							0	1.002	13.789



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
5	507601.117	104712.260	16.106	1.956	600					
						0	3.000	14.150	150	
6	507607.826	104720.578	15.674	1.855	1200					
						0	4.000	13.915	225	
7	507612.603	104710.334	16.154	2.478	1200		1	4.000	13.751	225
						2	3.000	13.826	150	
						3	1.002	13.751	225	
						0	1.003	13.876	300	
8	507606.341	104702.119	16.597	1.447	600					
						0	5.000	15.150	150	
9	507612.139	104701.894	16.476	2.836			1	5.000	13.780	150
						2	1.003	13.840	300	
						0	1.004	13.840	300	
10	507618.488	104673.857	17.463	1.613	600					
						0	6.000	15.850	150	
11	507605.362	104674.717	17.322	1.772	600					
						0	7.000	15.550	150	
12	507610.622	104674.293	17.271	3.748	1200		1	7.000	13.873	150
						2	6.000	13.873	150	
						3	1.004	13.823	300	
						0	1.005	13.823	300	
13	507610.229	104667.156	17.439	3.946	1200		1	1.005	13.493	300
						0	1.006	13.523	300	
14	507606.997	104609.263	18.778	1.578	600					
						0	8.000	17.200	150	
15	507612.993	104608.461	18.706	1.700	1200		1	8.000	17.103	150
						0	8.001	17.006	225	
16	507609.456	104634.447	18.442	2.032	600					
						0	9.000	16.410	150	
17	507617.048	104638.785	18.295	2.473	1200		1	9.000	15.897	150
						2	8.001	15.822	225	
						0	8.002	15.822	225	
18	507615.079	104645.832	18.138	3.048	1200		1	8.002	15.690	225
						0	8.003	15.690	225	
19	507615.304	104652.381	18.152	1.302	600					
						0	10.000	16.850	150	
20	507610.036	104652.569	17.926	3.677	1200		1	10.000	14.324	150
						2	8.003	14.249	225	
						0	8.004	14.249	225	
21	507603.830	104656.445	17.716	4.274	1200		1	8.004	13.517	225
						2	1.006	13.472	300	
						0	1.007	13.442	300	
22	507593.727	104652.114	17.489	1.939	600					
						0	11.000	15.550	150	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
23	507593.818	104662.551	17.540	1.290	600		0	12.000	16.250	150
24	507593.652	104657.914	17.376	3.976	1200		1 2 3 0	12.000 11.000 1.007 1.008	13.550 13.550 13.400 13.400	150 150 300 300
25	507561.823	104605.338	17.420	1.170	600		0	13.000	16.250	150
26	507558.115	104607.580	17.258	1.395	1200		1 0	13.000 13.001	15.950 15.960	150 225
27	507553.083	104617.522	17.242	1.162	600		0	14.000	16.000	150
28	507563.811	104612.972	17.334	0.734	600		0	15.000	16.000	150
29	507559.235	104616.772	17.085	1.392	1200		1 2 3 0	15.000 14.000 13.001 13.002	15.768 15.768 15.893 15.893	150 150 225 225
30	507558.147	104625.492	17.120	1.270	600		0	16.000	15.850	150
31	507572.168	104625.966	17.018	1.018	600		0	17.000	16.000	150
32	507568.345	104629.849	16.765	1.571	1200		1 2 3 0	17.000 16.000 13.002 13.003	15.280 15.280 15.100 15.100	150 150 225 225
33	507562.215	104650.883	16.443	1.193	600		0	18.000	15.250	150
34	507573.196	104648.968	16.582	0.732	600		0	19.000	15.850	150
35	507569.096	104651.224	16.359	2.349	1200		1 2 3 0	19.000 18.000 13.003 13.004	14.000 14.000 14.010 14.010	150 150 225 225
36	507568.800	104657.591	16.393	3.170	1350		1 2 0	13.004 1.008 1.009	13.370 13.297 13.223	225 300 375
37	507552.988	104653.237	15.943	1.093	600		0	20.000	14.850	150
38	507554.450	104657.960	15.824	2.646	1350		1 2 0	20.000 1.009 1.010	13.400 13.170 13.170	150 375 375
39	507542.989	104664.309	15.299	2.162	1350		1 0	1.010 1.011	13.137 13.137	375 375
40	507527.372	104657.442	14.877	1.127	600		0	21.000	13.750	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
41	507528.116	104663.714	14.698	1.607	1350		1	21.000	13.318 150
							2	1.011	13.081 375
							0	1.012	13.081 375
42	507516.583	104659.538	14.512	1.062	600				
43	507517.351	104666.008	14.296	1.575	1350		0	22.000	13.450 150
							1	22.000	12.948 150
							2	1.012	12.722 375
44	507517.742	104686.139	13.500	1.384	1350		0	116	12.721 375
							1	116	12.116 375
47A	507592.907	104580.058	18.463	1.063	600				
45	507579.819	104582.938	18.261	1.111	600		0	23.000	17.400 150
							0	24.000	17.150 150
46	507578.259	104571.333	18.172	1.462	600				
							0	25.000	16.710 150
47	507578.886	104576.022	18.032	1.425	1200		1	25.000	16.892 150
							2	24.000	16.682 150
							3	23.000	16.682 150
							0	23.001	16.687 225
48	507562.462	104584.225	17.917	1.217	600				
							0	26.000	16.780 150
49	507547.802	104585.894	17.630	1.230	600				
							0	27.000	16.400 150
50	507549.431	104575.429	17.718	1.218	600				
							0	28.000	16.500 150
51	507548.711	104580.057	17.521	1.393	1200		1	28.000	16.203 150
							2	27.000	16.203 150
							3	26.000	16.203 150
							4	23.001	16.128 225
							0	23.002	16.128 225
52	507533.400	104584.011	17.418	1.268	600				
							0	29.000	16.150 150
53	507534.975	104573.772	17.449	1.149	600				
							0	30.000	16.300 150
54	507534.199	104577.798	17.272	1.500	1200		1	30.000	15.922 150
							2	29.000	15.922 150
							3	23.002	15.947 225
							0	23.003	15.772 300
55	507509.502	104567.351	17.244	1.044	600				
							0	31.000	16.200 150
56	507508.538	104572.850	16.839	1.507	1200		1	31.000	15.482 150
							2	23.003	15.322 300
							0	23.004	15.332 300
57	507512.929	104545.716	17.643	1.143	600				
							0	32.000	16.500 150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
58	507498.659	104543.462	17.536	1.336	600					
						0	33.000	16.260	150	
59	507503.025	104544.151	17.432	1.557	1200		1	33.000	15.950	150
						2	32.000	15.950	150	
						0	32.001	15.975	225	
60	507495.770	104561.751	17.251	1.151	600					
						0	34.000	16.160	150	
61	507498.735	104571.301	16.868	1.627	1200		1	34.000	15.391	150
						2	32.001	15.310	225	
						3	23.004	15.241	300	
						0	23.005	15.241	300	
62	507507.385	104580.459	16.867	1.737	600					
						0	35.000	15.130	150	
63	507493.753	104577.812	16.701	1.351	600					
						0	36.000	15.350	150	
64	507497.276	104580.534	16.498	1.638	1200		1	36.000	15.010	150
						2	35.000	15.010	150	
						3	23.005	14.860	300	
						0	23.006	14.860	300	
65	507508.403	104605.000	15.762	1.162	600					
						0	37.000	14.600	150	
66	507492.475	104604.134	15.647	0.917	600					
						0	38.000	14.730	150	
67	507497.623	104605.395	15.518	1.575	1350		1	38.000	14.160	150
						2	37.000	14.160	150	
						3	23.006	14.010	300	
						0	23.007	13.940	375	
68	507504.832	104621.085	15.228	1.128	600					
						0	39.000	14.100	150	
69	507489.055	104620.304	14.970	1.370	600					
						0	40.000	13.600	150	
70	507493.445	104622.452	14.802	1.604	1350		1	40.000	13.420	150
						2	39.000	13.420	150	
						3	23.007	13.220	375	
						0	23.008	13.198	375	
71	507500.392	104633.289	14.781	2.402	600					
						0	41.000	12.379	150	
72	507487.730	104634.130	14.309	2.282	1350		1	41.000	12.252	150
						2	23.008	12.027	375	
						0	23.009	12.027	375	
73	507488.700	104651.793	13.925	1.953	1350		1	23.009	11.972	375
						0	23.010	11.972	375	
74	507476.020	104653.812	13.879	1.604	1200					
						0	42.000	12.275	225	
75	507481.029	104662.790	13.561	1.706	1350		1	42.000	12.080	225
						2	23.010	11.930	375	
						0	23.011	11.855	450	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
76	507487.121	104677.527	13.600	1.777	1350		1 23.011	11.823	450
							0 23.012	11.823	450
77	507560.910	104689.140	14.752	1.152	600		0 43.000	13.600	150
							1 43.000	13.628	150
78	507554.257	104691.140	14.678	1.425	1200		0 43.001	13.253	225
							1 43.001	13.253	225
79	507558.578	104703.380	14.599	1.149	600		0 44.000	13.450	150
							1 44.000	12.994	150
80	507551.152	104701.054	14.399	1.540	1200		2 43.001	12.859	225
							0 43.002	12.859	225
81	507533.931	104695.660	13.500	1.384	1200		1 43.002	12.116	225
							0 43.003	12.116	225
82_IN	507491.700	104690.559	13.500	1.700			1 43.003	11.800	225
							2 23.012	11.800	450
							3 1.014	11.800	375
							0 43.003	11.800	450
82	507488.730	104694.011	13.500	1.862	1350		1 43.003	11.638	450
							0 1.016	11.638	150
82A	507487.246	104695.735	13.055	1.621	1200		1 1.016	11.434	150
							0 1.017	11.434	150
82_OUT	507478.465	104706.267	12.000	1.800			1 1.017	10.200	150

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 : 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 82 Online StormBrake™ Control

Flap Valve	x	Design Flow (l/s)	5.8
Replaces Downstream Link	x	Product Code	FPM-SB1-01560-00580-1100
Invert Level (m)	11.638	Min Outlet Diameter (m)	0.150
Design Depth (m)	1.562	Min Node Diameter (mm)	1200

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.95
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	13.950
Safety Factor	6.5	Time to half empty (mins)	7



ABLEY LETCHFORD
PARTNERSHIP
Consulting Engineers

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Hungerford
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Network: STORM NORTH
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Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	68.0	0.0	0.400	68.0	0.0	0.401	0.0	0.0

Node 82 IN Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	11.800
Safety Factor	6.5	Time to half empty (mins)	0

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	626.5	0.0	0.700	940.5	0.0	1.400	1290.7	0.0	2.100	0.0	0.0
0.100	669.1	0.0	0.800	988.3	0.0	1.500	1343.7	0.0	2.200	0.0	0.0
0.200	712.5	0.0	0.900	1036.9	0.0	1.600	1397.4	0.0	2.300	0.0	0.0
0.300	756.7	0.0	1.000	1086.2	0.0	1.700	1451.8	0.0	2.400	0.0	0.0
0.400	801.5	0.0	1.100	1136.2	0.0	1.701	0.0	0.0	2.500	0.0	0.0
0.500	847.1	0.0	1.200	1187.0	0.0	1.900	0.0	0.0			
0.600	893.5	0.0	1.300	1238.5	0.0	2.000	0.0	0.0			

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	14	13.995	0.045	9.9	2.9669	0.0000	OK
15 minute winter	2	12	14.012	0.122	12.0	0.1815	0.0000	OK
15 minute winter	3	10	15.627	0.027	6.3	0.0206	0.0000	OK
15 minute winter	4	12	14.016	0.227	20.6	0.2756	0.0000	SURCHARGED
15 minute winter	5	10	14.206	0.056	8.2	0.0332	0.0000	OK
15 minute winter	6	12	13.994	0.175	6.3	0.2409	0.0000	OK
15 minute winter	7	12	14.005	0.329	45.5	0.4868	0.0000	SURCHARGED
15 minute winter	8	10	15.176	0.026	5.7	0.0149	0.0000	OK
15 minute winter	9	12	13.995	0.355	45.7	0.0000	0.0000	SURCHARGED
15 minute winter	10	10	15.878	0.028	7.1	0.0167	0.0000	OK
15 minute winter	11	10	15.578	0.028	8.2	0.0172	0.0000	OK
15 minute winter	12	12	13.948	0.425	56.2	0.4810	0.0000	SURCHARGED
15 minute winter	13	12	13.918	0.424	55.8	0.4801	0.0000	SURCHARGED
15 minute winter	14	10	17.255	0.055	5.7	0.0304	0.0000	OK
15 minute winter	15	10	17.059	0.053	12.1	0.0753	0.0000	OK
15 minute winter	16	10	16.442	0.032	4.1	0.0138	0.0000	OK
15 minute winter	17	10	15.872	0.050	16.1	0.0568	0.0000	OK
15 minute winter	18	10	15.139	0.049	16.0	0.0551	0.0000	OK
15 minute winter	19	10	16.864	0.014	2.2	0.0058	0.0000	OK
15 minute winter	20	10	14.303	0.054	20.8	0.0636	0.0000	OK
15 minute winter	21	12	13.874	0.432	69.8	0.4886	0.0000	SURCHARGED
15 minute winter	22	10	15.581	0.031	10.1	0.0206	0.0000	OK
15 minute winter	23	10	16.264	0.014	2.7	0.0061	0.0000	OK
15 minute winter	24	12	13.805	0.405	84.7	0.4965	0.0000	SURCHARGED
15 minute winter	25	10	16.274	0.024	2.5	0.0107	0.0000	OK
15 minute winter	26	10	15.892	0.029	2.5	0.0323	0.0000	OK
15 minute winter	27	10	16.122	0.042	6.0	0.0276	0.0000	OK
15 minute winter	28	10	16.614	0.014	1.1	0.0054	0.0000	OK
15 minute winter	29	10	15.764	0.071	19.9	0.1197	0.0000	OK
15 minute winter	30	10	15.877	0.027	2.7	0.0117	0.0000	OK
15 minute winter	31	10	16.027	0.027	4.1	0.0153	0.0000	OK
15 minute winter	32	10	15.281	0.087	34.3	0.1308	0.0000	OK
15 minute winter	33	11	15.257	0.007	0.3	0.0021	0.0000	OK
15 minute summer	34	1	15.850	0.000	0.0	0.0000	0.0000	OK
15 minute winter	35	10	14.079	0.069	34.3	0.0782	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	11.9	0.513	0.295	0.1269	
15 minute winter	2	1.001	4	11.9	0.638	0.295	0.5174	
15 minute winter	3	2.000	4	6.3	2.609	0.071	0.0683	
15 minute winter	4	1.002	7	19.5	0.925	0.483	0.2482	
15 minute winter	5	3.000	7	8.1	1.376	0.273	0.1343	
15 minute winter	6	4.000	7	7.5	0.556	0.187	0.4118	
15 minute winter	7	1.003	9	40.0	0.933	0.554	0.5953	
15 minute winter	8	5.000	9	5.7	2.692	0.065	0.0568	
15 minute winter	9	1.004	12	47.0	0.771	0.653	1.9466	
15 minute winter	10	6.000	12	7.1	2.613	0.075	0.0781	
15 minute winter	11	7.000	12	8.2	2.966	0.076	0.0523	
15 minute winter	12	1.005	13	55.8	0.792	0.778	0.5034	
15 minute winter	13	1.006	21	57.3	0.853	0.810	0.8786	
15 minute winter	14	8.000	15	5.6	1.010	0.251	0.0338	
15 minute winter	15	8.001	17	12.1	1.751	0.117	0.2106	
15 minute winter	16	9.000	17	4.1	1.504	0.094	0.0236	
15 minute winter	17	8.002	18	16.0	2.480	0.097	0.0472	
15 minute winter	18	8.003	20	15.9	2.353	0.096	0.0570	
15 minute winter	19	10.000	20	2.2	2.682	0.018	0.0043	
15 minute winter	20	8.004	21	20.8	1.749	0.125	0.1720	
15 minute winter	21	1.007	24	70.7	1.004	1.000	0.7241	
15 minute winter	22	11.000	24	10.1	3.117	0.096	0.0586	
15 minute winter	23	12.000	24	2.7	2.610	0.020	0.0428	
15 minute winter	24	1.008	36	86.0	1.221	1.207	1.7502	
15 minute winter	25	13.000	26	2.5	1.383	0.052	0.0078	
15 minute winter	26	13.001	29	2.4	0.373	0.035	0.0635	
15 minute winter	27	14.000	29	6.0	1.560	0.148	0.0237	
15 minute winter	28	15.000	29	1.1	1.393	0.016	0.0046	
15 minute winter	29	13.002	32	19.7	1.576	0.213	0.1993	
15 minute winter	30	16.000	32	2.7	1.290	0.066	0.0231	
15 minute winter	31	17.000	32	4.1	2.003	0.062	0.0111	
15 minute winter	32	13.003	35	34.0	2.780	0.277	0.2623	
15 minute winter	33	18.000	35	0.3	1.013	0.004	0.0020	
15 minute summer	34	19.000	35	0.0	0.000	0.000	0.0000	
15 minute winter	35	13.004	36	34.2	2.533	0.206	0.1597	

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	36	11	13.623	0.400	116.3	0.5721	0.0000	SUPCHARGED
15 minute winter	37	10	14.873	0.023	5.2	0.0148	0.0000	OK
15 minute winter	38	11	13.547	0.369	133.7	0.6654	0.0000	OK
15 minute winter	39	11	13.435	0.298	134.2	0.4321	0.0000	OK
15 minute winter	40	10	13.798	0.048	9.0	0.0416	0.0000	OK
15 minute winter	41	11	13.284	0.193	145.8	0.3071	0.0000	OK
15 minute winter	42	10	13.478	0.028	3.5	0.0148	0.0000	OK
15 minute winter	43	11	12.908	0.187	153.1	0.3065	0.0000	OK
15 minute winter	44	11	12.352	0.236	153.2	0.3373	0.0000	OK
15 minute winter	47A	10	17.417	0.017	1.1	0.0061	0.0000	OK
15 minute winter	45	10	17.174	0.024	2.5	0.0108	0.0000	OK
15 minute winter	46	10	16.812	0.102	9.5	0.0774	0.0000	OK
15 minute winter	47	10	16.705	0.098	25.7	0.1750	0.0000	OK
15 minute winter	48	10	16.728	0.028	2.5	0.0119	0.0000	OK
15 minute winter	49	10	16.435	0.035	3.8	0.0177	0.0000	OK
15 minute winter	50	10	16.535	0.035	5.2	0.0207	0.0000	OK
15 minute winter	51	10	16.251	0.123	36.9	0.1390	0.0000	OK
15 minute winter	52	10	16.186	0.036	3.8	0.0179	0.0000	OK
15 minute winter	53	10	16.333	0.033	4.9	0.0195	0.0000	OK
15 minute winter	54	10	15.897	0.125	51.6	0.1833	0.0000	OK
15 minute winter	55	10	16.230	0.030	5.2	0.0193	0.0000	OK
15 minute winter	56	11	15.516	0.184	61.0	0.2494	0.0000	OK
15 minute winter	57	10	16.525	0.025	2.5	0.0112	0.0000	OK
15 minute winter	58	10	16.245	0.045	7.1	0.0305	0.0000	OK
15 minute winter	59	10	15.966	0.091	24.5	0.1680	0.0000	OK
15 minute winter	60	10	16.135	0.035	5.4	0.0222	0.0000	OK
15 minute winter	61	11	15.399	0.158	95.0	0.2152	0.0000	OK
15 minute winter	62	10	15.187	0.057	5.4	0.0290	0.0000	OK
15 minute winter	63	10	15.387	0.037	5.7	0.0220	0.0000	OK
15 minute winter	64	11	15.030	0.170	110.3	0.2278	0.0000	OK
15 minute winter	65	10	14.641	0.041	5.4	0.0256	0.0000	OK
15 minute winter	66	10	14.769	0.039	7.6	0.0350	0.0000	OK
15 minute winter	67	11	14.107	0.164	133.1	0.3141	0.0000	OK
15 minute winter	68	10	14.132	0.032	4.1	0.0175	0.0000	OK
15 minute winter	69	10	13.648	0.048	6.5	0.0307	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	36	1.009	38	116.2	1.054	1.043	1.5804	
15 minute winter	37	20.000	38	5.2	2.416	0.053	0.0471	
15 minute winter	38	1.010	39	133.7	1.290	1.201	1.3352	
15 minute winter	39	1.011	41	133.9	1.762	1.211	1.1236	
15 minute winter	40	21.000	41	9.0	1.947	0.191	0.0291	
15 minute winter	41	1.012	43	145.7	2.611	0.396	0.6149	
15 minute winter	42	22.000	43	3.5	1.579	0.070	0.0143	
15 minute winter	43	116	44	153.2	2.395	0.440	1.2885	
15 minute winter	44	1.014	82_IN	153.6	3.221	0.678	1.5802	
15 minute winter	47A	23.000	47	1.1	0.925	0.027	0.0203	
15 minute winter	45	24.000	47	2.5	1.365	0.053	0.0126	
15 minute winter	46	25.000	47	9.4	0.794	0.691	0.0560	
15 minute winter	47	23.001	51	25.5	1.316	0.390	0.5892	
15 minute winter	48	26.000	51	2.5	0.985	0.074	0.0508	
15 minute winter	49	27.000	51	3.8	1.099	0.116	0.0234	
15 minute winter	50	28.000	51	5.2	1.496	0.115	0.0186	
15 minute winter	51	23.002	54	36.4	1.735	0.505	0.3082	
15 minute winter	52	29.000	54	3.8	1.228	0.111	0.0192	
15 minute winter	53	30.000	54	4.9	1.815	0.090	0.0110	
15 minute winter	54	23.003	56	51.5	1.411	0.356	0.9524	
15 minute winter	55	31.000	56	5.2	2.068	0.081	0.0147	
15 minute winter	56	23.004	61	61.4	1.483	0.577	0.4106	
15 minute winter	57	32.000	59	2.5	1.277	0.059	0.0193	
15 minute winter	58	33.000	59	7.1	1.674	0.166	0.0187	
15 minute winter	59	32.001	61	24.1	1.639	0.324	0.4042	
15 minute winter	60	34.000	61	5.4	1.745	0.113	0.0307	
15 minute winter	61	23.005	64	95.3	2.422	0.423	0.3680	
15 minute winter	62	35.000	64	5.3	0.908	0.275	0.0593	
15 minute winter	63	36.000	64	5.7	1.769	0.115	0.0143	
15 minute winter	64	23.006	67	111.0	2.842	0.541	0.9712	
15 minute winter	65	37.000	67	5.4	1.420	0.150	0.0407	
15 minute winter	66	38.000	67	7.6	2.171	0.130	0.0185	
15 minute winter	67	23.007	70	133.6	3.105	0.329	0.7558	
15 minute winter	68	39.000	70	4.1	1.515	0.093	0.0307	
15 minute winter	69	40.000	70	6.5	1.396	0.190	0.0227	



Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	70	11	13.326	0.128	143.6	0.1828	0.0000	OK
15 minute winter	71	11	12.632	0.253	5.4	0.1136	0.0000	SURCHARGED
15 minute winter	72	11	12.618	0.591	157.0	1.0123	0.0000	SURCHARGED
15 minute winter	73	11	12.455	0.483	171.1	0.9575	0.0000	SURCHARGED
15 minute winter	74	9	12.360	0.085	21.0	0.1785	0.0000	OK
15 minute winter	75	11	12.297	0.442	196.8	0.7512	0.0000	OK
15 minute winter	76	11	12.177	0.354	194.4	0.5065	0.0000	OK
15 minute winter	77	10	13.657	0.057	9.3	0.0495	0.0000	OK
15 minute winter	78	10	13.311	0.058	14.6	0.0813	0.0000	OK
15 minute winter	79	10	13.496	0.046	8.4	0.0378	0.0000	OK
15 minute winter	80	10	12.939	0.080	29.2	0.1145	0.0000	OK
15 minute winter	81	10	12.251	0.135	29.0	0.1531	0.0000	OK
30 minute winter	82_IN	38	12.158	0.358	351.9	252.1533	0.0000	OK
30 minute winter	82	31	12.178	0.540	69.8	0.7724	0.0000	SURCHARGED
30 minute winter	82A	209	11.468	0.034	5.8	0.0387	0.0000	OK
30 minute summer	82_OUT	131	10.233	0.033	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	70	23.008	72	143.9	1.691	0.238	0.9321	
15 minute winter	71	41.000	72	7.1	0.715	0.402	0.2234	
15 minute winter	72	23.009	73	157.3	1.427	1.418	1.9512	
15 minute winter	73	23.010	75	171.0	1.551	1.536	1.4743	
15 minute winter	74	42.000	75	20.9	1.351	0.291	0.2672	
15 minute winter	75	23.011	76	194.4	1.311	1.353	2.3242	
15 minute winter	76	23.012	82_IN	238.1	2.778	1.756	1.2663	
15 minute winter	77	43.000	78	9.2	1.598	0.261	0.0401	
15 minute winter	78	43.001	80	14.5	1.416	0.143	0.1073	
15 minute winter	79	44.000	80	8.4	1.905	0.181	0.0341	
15 minute winter	80	43.002	81	29.0	1.547	0.274	0.3392	
15 minute winter	81	43.003_1	82_IN	29.1	1.647	0.640	1.1114	
30 minute winter	82_IN	43.003	82	69.8	0.621	0.114	0.6684	
30 minute winter	82	1.016	82A	5.8	1.796	0.108	0.0074	
30 minute winter	82A	1.017	82_OUT	5.8	1.957	0.108	0.0406	89.7

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	15	14.366	0.416	84.2	26.4383	0.0000	SURCHARGED
15 minute winter	2	12	14.461	0.571	72.8	0.8484	0.0000	SURCHARGED
15 minute winter	3	10	15.639	0.039	13.0	0.0295	0.0000	OK
15 minute winter	4	12	14.652	0.863	53.9	1.0489	0.0000	SURCHARGED
15 minute winter	5	12	14.791	0.641	17.0	0.3775	0.0000	SURCHARGED
15 minute winter	6	12	14.704	0.885	15.2	1.2200	0.0000	SURCHARGED
15 minute winter	7	12	14.696	1.020	52.5	1.5075	0.0000	SURCHARGED
15 minute winter	8	10	15.187	0.037	11.9	0.0214	0.0000	OK
15 minute winter	9	12	14.694	1.054	57.4	0.0000	0.0000	SURCHARGED
15 minute winter	10	10	15.890	0.040	14.7	0.0240	0.0000	OK
15 minute winter	11	10	15.590	0.040	17.0	0.0248	0.0000	OK
15 minute winter	12	12	14.679	1.156	66.5	1.3075	0.0000	SURCHARGED
15 minute winter	13	12	14.653	1.160	69.6	1.3119	0.0000	SURCHARGED
15 minute winter	14	10	17.286	0.086	11.9	0.0474	0.0000	OK
15 minute winter	15	10	17.084	0.078	25.4	0.1101	0.0000	OK
15 minute winter	16	10	16.458	0.048	8.5	0.0204	0.0000	OK
15 minute winter	17	10	15.898	0.076	33.6	0.0863	0.0000	OK
15 minute winter	18	10	15.158	0.068	33.4	0.0772	0.0000	OK
15 minute summer	19	9	16.869	0.019	4.3	0.0079	0.0000	OK
15 minute winter	20	12	14.679	0.430	43.5	0.5094	0.0000	SURCHARGED
15 minute winter	21	12	14.614	1.172	87.5	1.3255	0.0000	SURCHARGED
15 minute winter	22	10	15.595	0.045	21.0	0.0297	0.0000	OK
15 minute winter	23	10	16.270	0.020	5.7	0.0087	0.0000	OK
15 minute winter	24	11	14.506	1.106	118.8	1.3571	0.0000	SURCHARGED
15 minute winter	25	10	16.286	0.035	5.1	0.0155	0.0000	OK
15 minute winter	26	10	15.904	0.041	5.1	0.0459	0.0000	OK
15 minute winter	27	10	16.143	0.063	12.5	0.0418	0.0000	OK
15 minute winter	28	10	16.619	0.019	2.3	0.0075	0.0000	OK
15 minute winter	29	10	15.804	0.111	41.2	0.1860	0.0000	OK
15 minute winter	30	10	15.888	0.038	5.7	0.0166	0.0000	OK
15 minute winter	31	10	16.037	0.037	8.5	0.0214	0.0000	OK
15 minute winter	32	10	15.316	0.122	71.4	0.1829	0.0000	OK
15 minute winter	33	10	15.260	0.010	0.6	0.0029	0.0000	OK
15 minute summer	34	1	15.850	0.000	0.0	0.0000	0.0000	OK
15 minute winter	35	11	14.332	0.322	71.6	0.3644	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	1	1.000	2	84.2	1.934	1.789	0.3855	
15 minute winter	2	1.001	4	72.8	1.292	1.277	0.6666	
15 minute winter	3	2.000	4	13.0	2.603	0.146	0.0745	
15 minute winter	4	1.002	7	45.5	1.172	1.124	0.2483	
15 minute winter	5	3.000	7	14.4	1.432	0.485	0.2050	
15 minute winter	6	4.000	7	11.3	0.561	0.280	0.4495	
15 minute winter	7	1.003	9	56.0	0.983	0.775	0.5953	
15 minute winter	8	5.000	9	11.9	2.578	0.137	0.0610	
15 minute winter	9	1.004	12	60.1	0.868	0.835	1.9466	
15 minute winter	10	6.000	12	14.7	2.592	0.156	0.0840	
15 minute winter	11	7.000	12	17.0	2.944	0.159	0.0563	
15 minute winter	12	1.005	13	69.6	0.988	0.971	0.5034	
15 minute winter	13	1.006	21	72.0	1.023	1.018	0.8786	
15 minute winter	14	8.000	15	11.8	1.204	0.523	0.0593	
15 minute winter	15	8.001	17	25.2	2.097	0.245	0.3677	
15 minute winter	16	9.000	17	8.4	1.834	0.195	0.0403	
15 minute winter	17	8.002	18	33.4	3.042	0.202	0.0804	
15 minute winter	18	8.003	20	33.3	2.603	0.201	0.2100	
15 minute summer	19	10.000	20	4.3	3.206	0.035	0.0496	
15 minute winter	20	8.004	21	40.2	1.939	0.243	0.2910	
15 minute winter	21	1.007	24	91.7	1.302	1.297	0.7241	
15 minute winter	22	11.000	24	21.0	3.086	0.199	0.0638	
15 minute winter	23	12.000	24	5.7	2.558	0.042	0.0441	
15 minute winter	24	1.008	36	119.6	1.699	1.680	1.7502	
15 minute winter	25	13.000	26	5.1	1.679	0.106	0.0131	
15 minute winter	26	13.001	29	5.0	0.430	0.071	0.1127	
15 minute winter	27	14.000	29	12.4	1.876	0.310	0.0411	
15 minute winter	28	15.000	29	2.3	1.562	0.034	0.0135	
15 minute winter	29	13.002	32	40.9	1.974	0.443	0.3302	
15 minute winter	30	16.000	32	5.7	1.482	0.138	0.0453	
15 minute winter	31	17.000	32	8.5	2.233	0.129	0.0220	
15 minute winter	32	13.003	35	71.0	2.932	0.577	0.6542	
15 minute winter	33	18.000	35	0.6	0.986	0.008	0.0621	
15 minute summer	34	19.000	35	0.0	0.000	0.000	0.0412	
15 minute winter	35	13.004	36	67.7	2.509	0.409	0.2535	

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	36	11	14.145	0.922	184.7	1.3198	0.0000	SURCHARGED
15 minute winter	37	10	14.884	0.034	10.8	0.0211	0.0000	OK
15 minute winter	38	11	13.949	0.771	220.1	1.3900	0.0000	SURCHARGED
15 minute winter	39	11	13.687	0.550	220.3	0.7973	0.0000	SURCHARGED
15 minute winter	40	10	13.824	0.074	18.7	0.0640	0.0000	OK
15 minute winter	41	11	13.376	0.285	244.2	0.4534	0.0000	OK
15 minute summer	42	10	13.490	0.040	7.0	0.0213	0.0000	OK
15 minute winter	43	12	13.019	0.298	259.0	0.4867	0.0000	OK
30 minute winter	44	21	12.585	0.469	227.4	0.6716	0.0000	SURCHARGED
15 minute winter	47A	10	17.424	0.024	2.3	0.0087	0.0000	OK
15 minute winter	45	10	17.184	0.034	5.1	0.0150	0.0000	OK
15 minute winter	46	10	16.906	0.196	19.8	0.1494	0.0000	SURCHARGED
15 minute winter	47	11	16.773	0.166	53.6	0.2968	0.0000	OK
15 minute winter	48	10	16.740	0.040	5.1	0.0171	0.0000	OK
15 minute winter	49	12	16.536	0.136	7.9	0.0694	0.0000	OK
15 minute winter	50	10	16.550	0.050	10.8	0.0297	0.0000	OK
15 minute winter	51	12	16.525	0.397	77.4	0.4488	0.0000	SURCHARGED
15 minute winter	52	12	16.207	0.057	7.9	0.0286	0.0000	OK
15 minute winter	53	9	16.347	0.047	10.2	0.0281	0.0000	OK
15 minute winter	54	12	16.204	0.432	102.2	0.6319	0.0000	SURCHARGED
15 minute winter	55	10	16.242	0.042	10.8	0.0269	0.0000	OK
15 minute winter	56	12	15.967	0.635	114.7	0.8617	0.0000	SURCHARGED
15 minute winter	57	10	16.535	0.035	5.1	0.0155	0.0000	OK
15 minute winter	58	10	16.270	0.070	14.7	0.0468	0.0000	OK
15 minute winter	59	11	16.027	0.152	51.0	0.2793	0.0000	OK
15 minute winter	60	10	16.150	0.050	11.3	0.0313	0.0000	OK
15 minute winter	61	12	15.804	0.563	178.9	0.7687	0.0000	SURCHARGED
15 minute winter	62	12	15.459	0.329	11.3	0.1688	0.0000	SURCHARGED
15 minute winter	63	12	15.430	0.080	11.9	0.0477	0.0000	OK
15 minute winter	64	12	15.422	0.562	204.5	0.7523	0.0000	SURCHARGED
15 minute winter	65	10	14.661	0.061	11.3	0.0384	0.0000	OK
15 minute winter	66	10	14.790	0.060	15.9	0.0532	0.0000	OK
15 minute winter	67	12	14.391	0.448	248.2	0.8569	0.0000	SURCHARGED
15 minute winter	68	10	14.145	0.045	8.5	0.0247	0.0000	OK
15 minute winter	69	12	14.048	0.448	13.6	0.2836	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	36	1.009	38	184.9	1.677	1.660	1.5833	
15 minute winter	37	20.000	38	10.8	2.632	0.111	0.0508	
15 minute winter	38	1.010	39	219.2	1.987	1.969	1.4451	
15 minute winter	39	1.011	41	219.6	2.055	1.985	1.4889	
15 minute winter	40	21.000	41	18.6	2.321	0.397	0.0507	
15 minute winter	41	1.012	43	243.6	2.719	0.663	1.0042	
15 minute summer	42	22.000	43	7.0	1.909	0.140	0.0272	
15 minute winter	43	116	44	257.8	2.590	0.741	2.0551	
30 minute winter	44	1.014	82_IN	224.1	2.837	0.989	2.7219	
15 minute winter	47A	23.000	47	2.3	0.882	0.057	0.0942	
15 minute winter	45	24.000	47	5.1	1.307	0.110	0.0487	
15 minute winter	46	25.000	47	19.6	1.119	1.438	0.0795	
15 minute winter	47	23.001	51	53.7	1.465	0.822	1.0825	
15 minute winter	48	26.000	51	5.1	0.979	0.152	0.1532	
15 minute winter	49	27.000	51	7.9	1.113	0.241	0.1016	
15 minute winter	50	28.000	51	10.8	1.521	0.239	0.0533	
15 minute winter	51	23.002	54	69.5	1.901	0.965	0.5841	
15 minute winter	52	29.000	54	8.1	1.459	0.236	0.0742	
15 minute winter	53	30.000	54	10.4	2.148	0.191	0.0446	
15 minute winter	54	23.003	56	95.6	1.489	0.662	1.8403	
15 minute winter	55	31.000	56	10.8	2.103	0.168	0.0602	
15 minute winter	56	23.004	61	112.1	1.601	1.054	0.6989	
15 minute winter	57	32.000	59	5.1	1.350	0.121	0.0609	
15 minute winter	58	33.000	59	14.7	1.956	0.346	0.0364	
15 minute winter	59	32.001	61	49.1	1.693	0.661	0.9389	
15 minute winter	60	34.000	61	11.3	1.815	0.236	0.1135	
15 minute winter	61	23.005	64	175.1	2.552	0.777	0.6583	
15 minute winter	62	35.000	64	10.8	1.009	0.556	0.1780	
15 minute winter	63	36.000	64	11.9	1.836	0.240	0.0606	
15 minute winter	64	23.006	67	202.2	3.036	0.985	1.7508	
15 minute winter	65	37.000	67	11.2	1.725	0.314	0.1276	
15 minute winter	66	38.000	67	15.8	2.596	0.272	0.0609	
15 minute winter	67	23.007	70	238.0	3.279	0.587	1.9369	
15 minute winter	68	39.000	70	8.5	1.713	0.195	0.1263	
15 minute winter	69	40.000	70	12.8	1.557	0.377	0.0860	



Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.89%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	70	12	14.019	0.821	255.7	1.1743	0.0000	SURCHARGED
15 minute winter	71	12	13.706	1.327	11.3	0.5960	0.0000	SURCHARGED
15 minute winter	72	12	13.663	1.636	279.6	2.8016	0.0000	SURCHARGED
15 minute winter	73	12	13.146	1.174	307.9	2.3286	0.0000	SURCHARGED
15 minute winter	74	12	12.701	0.426	43.7	0.8899	0.0000	SURCHARGED
30 minute summer	75	20	12.640	0.785	333.2	1.3349	0.0000	SURCHARGED
30 minute winter	76	50	12.501	0.678	314.1	0.9695	0.0000	SURCHARGED
15 minute winter	77	10	13.689	0.089	19.3	0.0779	0.0000	OK
15 minute winter	78	10	13.340	0.087	30.5	0.1232	0.0000	OK
15 minute winter	79	10	13.520	0.070	17.6	0.0579	0.0000	OK
15 minute winter	80	11	12.996	0.137	60.9	0.1954	0.0000	OK
15 minute winter	81	11	12.569	0.453	59.7	0.5119	0.0000	SURCHARGED
30 minute winter	82_IN	48	12.501	0.701	635.3	547.9498	0.0000	SURCHARGED
30 minute winter	82	47	12.512	0.874	66.3	1.2510	0.0000	SURCHARGED
30 minute summer	82A	18	11.468	0.034	5.8	0.0386	0.0000	OK
30 minute summer	82_OUT	18	10.233	0.033	5.8	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	70	23.008	72	256.2	2.323	0.425	1.4340	
15 minute winter	71	41.000	72	18.6	1.054	1.045	0.2234	
15 minute winter	72	23.009	73	279.9	2.538	2.523	1.9512	
15 minute winter	73	23.010	75	306.5	2.779	2.752	1.4789	
15 minute winter	74	42.000	75	41.2	1.386	0.573	0.4089	
30 minute summer	75	23.011	76	331.3	2.091	2.305	2.5267	
30 minute winter	76	23.012	82_IN	313.0	2.444	2.309	2.0374	
15 minute winter	77	43.000	78	19.2	1.890	0.542	0.0704	
15 minute winter	78	43.001	80	30.4	1.655	0.299	0.2010	
15 minute winter	79	44.000	80	17.5	2.287	0.380	0.0596	
15 minute winter	80	43.002	81	59.7	1.741	0.564	0.5865	
15 minute winter	81	43.003_1	82_IN	55.6	1.773	1.225	1.6419	
30 minute winter	82_IN	43.003	82	66.3	0.780	0.108	0.7216	
30 minute winter	82	1.016	82A	5.8	1.795	0.108	0.0074	
30 minute summer	82A	1.017	82_OUT	5.8	1.957	0.108	0.0405	80.3

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.029	5.00	18.783	600	507604.297	104590.960	1.533
2	0.020	5.00	18.705	1200	507609.104	104590.317	1.579
3A	0.021	5.00	18.416	600	507600.356	104546.980	1.116
3			18.286	1200	507604.546	104544.871	1.429
4	0.020	5.00	18.220	1200	507598.499	104519.863	1.220
5	0.047	5.00	18.032	1200	507604.600	104519.441	1.642
6	0.019	5.00	17.985	600	507592.416	104481.388	1.582
7	0.057	5.00	17.794	1200	507604.682	104480.526	1.563
8	0.010	5.00	18.212	600	507603.259	104454.637	1.012
9	0.047	5.00	18.054	1200	507607.955	104454.471	1.931
10	0.029	5.00	18.376	600	507605.544	104431.716	1.326
11			18.203	1200	507612.443	104433.169	2.169
12	0.001	5.00	18.220	600	507611.772	104416.783	0.770
13	0.023	5.00	18.062	1200	507616.249	104415.101	2.104
14			17.995	1200	507614.301	104409.919	2.060
15	0.014	5.00	18.104	600	507609.485	104410.317	1.254
16			17.935	1200	507610.376	104406.067	2.023
17	0.070	5.00	17.589	600	507554.582	104428.791	1.389
18	0.039	5.00	17.398	600	507550.025	104413.026	1.298
19	0.042	5.00	17.317	1200	507558.318	104415.662	1.425
21A	0.024	5.00	17.646	600	507571.233	104393.677	1.496
20			17.561	1200	507574.752	104399.021	1.882
21	0.031	5.00	17.771	600	507581.516	104403.042	0.871
22			17.636	1350	507581.902	104397.450	2.076
23			17.133	1350	507579.084	104368.940	1.662
24			16.997		507593.568	104356.332	1.997
25	0.034	5.00	17.923	1200	507518.841	104520.178	1.373
26	0.039	5.00	17.760	600	507502.741	104517.634	1.310
27	0.047	5.00	17.692	1200	507509.813	104518.751	1.500
28	0.002	5.00	17.714	600	507496.093	104488.048	1.289
29	0.002	5.00	17.785	600	507498.786	104499.168	0.935
30	0.018	5.00	17.672	1200	507499.603	104493.999	1.425
31			17.975	1200	507514.237	104490.750	1.952
32	0.022	5.00	18.380	600	507530.251	104478.473	1.430
33	0.019	5.00	18.292	1200	507521.618	104479.484	1.538
34	0.030	5.00	18.168	600	507507.885	104481.373	1.118
35	0.032	5.00	18.077	1200	507513.924	104480.384	2.097
36	0.004	5.00	18.193	600	507517.347	104455.603	1.580
37	0.018	5.00	17.945	1200	507509.656	104454.313	2.073
38	0.020	5.00	17.905	600	507506.498	104439.028	1.305
39	0.017	5.00	17.763	1350	507512.512	104437.288	2.037
40	0.020	5.00	17.758	600	507506.085	104426.660	1.358
41			17.651	1350	507512.571	104426.097	1.960
42	0.007	5.00	17.795	600	507523.799	104426.598	0.945
43	0.101	5.00	17.526	1350	507517.200	104416.031	1.870
44	0.004	5.00	17.516	600	507520.072	104401.675	0.616
45	0.039	5.00	17.388	600	507510.412	104395.940	1.588
46			17.286	1350	507515.124	104395.392	1.759
47	0.010	5.00	17.297	600	507518.945	104386.749	1.197
48			17.200		507514.127	104386.824	1.700
49	0.010	5.00	17.249	600	507518.152	104378.370	1.049
50	0.034	5.00	17.192	600	507508.339	104376.130	1.292
51			17.097	1350	507512.902	104376.294	1.630

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
52	0.007	5.00	16.997	600	507496.195	104357.148	1.047
53		5.00	17.081	600	507509.292	104363.633	1.081
54	0.026	5.00	16.937	1350	507516.081	104359.555	1.575
55	0.001	5.00	16.999	600	507521.523	104359.381	0.799
56	0.031	5.00	16.865	1350	507519.788	104355.136	1.521
57	0.008	5.00	17.008	600	507532.542	104353.640	0.808
58			16.600	1350	507537.777	104343.378	1.323
59	0.063	5.00	17.116	1200	507559.503	104354.247	1.421
60			16.956	1350	507559.588	104343.552	1.747
61			17.043	1350	507576.803	104343.689	1.888
62			17.000		507591.411	104345.507	2.000
63	0.057	5.00	16.997		507598.585	104350.517	1.997
63_OUT			16.997		507600.120	104347.686	1.997

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	4.850	0.600	17.250	17.201	0.049	39.0	150	5.08	50.0
1.001	2	3	45.674	0.600	17.126	16.857	0.269	169.8	225	5.84	50.0
2.000	3A	3	4.081	0.600	17.300	16.982	0.318	14.8	100	5.04	50.0
1.002	3	5	25.430	0.600	16.857	16.465	0.392	64.9	225	6.16	50.0
3.000	4	5	6.116	0.600	17.000	16.540	0.460	13.5	150	5.04	50.0
1.003	5	7	38.913	0.600	16.398	16.231	0.169	244.7	300	6.75	50.0
4.000	6	7	12.296	0.600	16.403	16.306	0.097	127.3	225	5.18	50.0
1.004	7	9	26.269	0.600	16.231	16.123	0.108	243.1	300	7.19	50.0
5.000	8	9	4.689	0.600	17.200	16.273	0.927	5.1	150	5.02	50.0
1.005	9	11	21.770	0.600	16.123	16.024	0.099	244.6	300	7.55	50.0
6.000	10	11	7.050	0.600	17.050	16.184	0.866	8.1	150	5.05	50.0
1.006	11	13	16.465	0.600	16.034	15.958	0.076	243.6	300	7.36	50.0
7.000	12	13	4.783	0.600	17.450	16.108	1.342	3.6	150	5.01	50.0
1.007	13	14	5.596	0.600	15.958	15.935	0.023	240.7	300	7.95	50.0
1.008	14	16	5.499	0.600	15.935	15.912	0.023	239.1	300	8.64	50.0
8.000	15	16	4.342	0.600	16.850	16.062	0.788	3.5	150	5.02	50.0
1.009	16	22	29.749	0.600	15.912	15.625	0.277	107.2	300	8.36	50.0
9.000	17	19	13.630	0.600	16.200	15.967	0.233	58.6	150	5.17	50.0
10.000	18	19	6.792	0.600	16.100	15.967	0.133	65.4	150	5.12	50.0
9.001	19	20	23.388	0.600	15.830	15.754	0.076	169.5	225	3.56	50.0
11.000	21A	20	6.399	0.600	16.150	15.929	0.221	19.9	150	5.05	50.0
9.002	20	22	7.321	0.600	15.679	15.635	0.044	166.4	300	5.66	50.0
12.000	21	22	5.605	0.600	16.900	15.785	1.115	5.0	150	5.02	50.0
1.010	22	23	28.649	0.600	15.586	15.471	0.089	321.3	375	8.84	50.0
1.011	23	24	19.203	0.600	15.471	15.109	0.362	53.0	375	8.97	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.010	17.8	3.9	1.383	1.354	0.029	0.0	48	0.812
1.001	1.000	39.8	6.6	1.354	1.204	0.049	0.0	62	0.745
2.000	2.022	15.9	2.8	1.010	1.204	0.021	0.0	29	1.526
1.002	1.625	64.6	9.5	1.204	1.342	0.070	0.0	58	1.164
3.000	2.776	49.1	2.7	1.000	1.342	0.020	0.0	24	1.489
1.003	1.000	70.7	18.6	1.342	1.263	0.137	0.0	105	0.847
4.000	1.157	46.0	2.6	1.357	1.263	0.019	0.0	36	0.623
1.004	1.004	70.9	28.9	1.263	1.631	0.213	0.0	133	0.954
5.000	3.385	79.6	1.4	0.882	1.631	0.010	0.0	14	1.709
1.005	1.001	70.7	36.6	1.631	1.869	0.270	0.0	153	1.009
6.000	3.550	62.8	3.9	1.170	1.869	0.029	0.0	25	1.992
1.006	1.004	71.0	40.5	1.869	1.804	0.299	0.0	163	1.036
7.000	3.346	95.0	0.1	0.820	1.804	0.001	0.0	4	0.921
1.007	1.009	71.3	43.8	1.804	1.760	0.323	0.0	170	1.059
1.008	1.012	71.5	43.8	1.760	1.723	0.323	0.0	170	1.061
8.000	3.320	76.3	1.9	1.104	1.723	0.014	0.0	16	1.816
1.009	1.518	107.3	45.7	1.723	1.701	0.337	0.0	137	1.460
9.000	1.316	23.3	9.5	1.239	1.200	0.070	0.0	67	1.249
10.000	1.245	22.0	5.3	1.148	1.200	0.039	0.0	50	1.027
9.001	1.001	39.8	20.5	1.200	1.582	0.151	0.0	115	1.009
11.000	2.266	40.0	3.3	1.346	1.582	0.024	0.0	29	1.373
9.002	1.216	85.9	23.7	1.582	1.701	0.175	0.0	108	1.044
12.000	4.525	80.0	4.2	0.711	1.701	0.031	0.0	23	2.393
1.010	1.004	110.9	73.6	1.701	1.287	0.543	0.0	224	1.071
1.011	2.492	275.2	73.6	1.287	1.513	0.543	0.0	132	2.126

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.012	24	63	1.000	0.600	15.000	15.000	0.000	0.0	375	8.28	50.0
13.000	25	27	9.140	0.600	16.550	16.267	0.283	32.3	225	5.97	50.0
14.000	26	27	7.168	0.600	16.450	16.342	0.108	68.3	150	5.10	50.0
13.001	27	31	28.348	0.600	16.192	16.023	0.169	167.7	300	5.49	50.0
15.000	28	30	6.809	0.600	16.425	16.322	0.103	67.1	150	5.09	50.0
16.000	29	30	5.203	0.600	16.850	16.322	0.528	8.9	150	5.03	50.0
15.001	30	31	14.598	0.600	16.247	16.098	0.149	109.0	225	5.29	50.0
13.002	31	35	10.371	0.600	16.023	15.989	0.034	241.2	300	5.66	50.0
17.000	32	33	8.692	0.600	16.950	16.754	0.196	44.4	150	5.10	50.0
17.001	33	35	7.746	0.600	16.754	16.130	0.624	12.4	150	5.14	50.0
18.000	34	35	6.119	0.600	17.050	16.130	0.920	6.7	150	5.03	50.0
13.003	35	37	26.418	0.600	15.989	15.872	0.117	244.6	300	6.10	50.0
19.000	36	37	7.798	0.600	16.613	16.022	0.591	13.2	150	5.05	50.0
13.004	37	39	17.243	0.600	15.872	15.801	0.071	243.1	300	6.36	50.0
20.000	38	39	6.241	0.600	16.600	15.951	0.649	9.6	150	5.05	50.0
13.005	39	41	11.191	0.600	15.726	15.691	0.035	319.7	375	6.57	50.0
21.000	40	41	6.510	0.600	16.400	15.916	0.484	13.5	150	5.04	50.0
13.006	41	43	11.079	0.600	15.691	15.656	0.035	216.6	375	6.75	50.0
22.000	42	43	12.438	0.600	16.850	15.891	0.959	12.9	150	5.07	50.0
13.007	43	46	20.743	0.600	15.656	15.527	0.129	160.3	375	6.99	50.0
23.000	44	46	7.997	0.600	16.900	16.752	0.148	7.0	150	5.05	50.0
24.000	45	46	4.744	0.600	15.800	15.752	0.048	98.8	150	5.06	50.0
13.008	46	48	8.626	0.600	15.527	15.509	0.018	320.0	375	7.14	50.0
25.000	47	48	4.819	0.600	16.100	15.725	0.375	12.6	150	5.03	50.0
13.009	48	51	10.691	0.600	15.509	15.467	0.042	320.0	375	7.31	50.0
26.000	49	51	5.646	0.600	16.200	15.692	0.508	11.1	150	5.03	50.0
27.000	50	51	4.566	0.600	15.900	15.692	0.208	22.0	150	5.04	50.0
13.010	51	54	17.038	0.600	15.467	15.362	0.105	162.3	375	7.51	50.0
28.000	52	54	20.031	0.600	15.950	15.587	0.363	55.2	150	5.25	50.0
29.000	53	54	7.920	0.600	16.000	15.587	0.413	19.2	150	5.06	50.0
13.011	54	56	5.768	0.600	15.362	15.344	0.018	320.0	375	7.61	50.0
30.000	55	56	4.586	0.600	16.200	15.569	0.631	7.3	150	5.02	50.0
13.012	56	58	21.491	0.600	15.344	15.277	0.067	320.8	375	7.96	50.0
31.000	57	58	11.520	0.600	16.200	15.502	0.698	16.5	150	5.08	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.012	1.000	110.4	73.6	1.622	1.622	0.543	0.0	0	∞
13.000	2.310	91.8	4.6	1.348	1.200	0.034	0.0	34	1.211
14.000	1.237	21.9	5.3	1.360	1.200	0.039	0.0	50	1.020
13.001	1.211	85.6	16.3	1.200	1.652	0.120	0.0	88	0.938
15.000	1.229	21.7	0.3	1.119	1.200	0.002	0.0	12	0.420
16.000	3.319	56.9	0.3	0.785	1.200	0.002	0.0	7	0.792
15.001	1.303	51.8	3.0	1.200	1.652	0.022	0.0	36	0.713
13.002	1.008	71.2	19.2	1.652	1.797	0.142	0.0	106	0.860
17.000	1.514	26.7	3.0	1.280	1.388	0.022	0.0	34	1.001
17.001	2.875	50.8	5.6	1.388	1.797	0.041	0.0	33	1.885
18.000	3.842	69.5	4.1	0.869	1.797	0.030	0.0	24	2.143
13.003	1.001	70.7	33.2	1.797	1.773	0.245	0.0	144	0.985
19.000	2.788	49.3	0.5	1.430	1.773	0.004	0.0	11	0.898
13.004	1.004	70.9	36.2	1.773	1.662	0.267	0.0	152	1.009
20.000	3.264	57.7	2.7	1.155	1.662	0.020	0.0	22	1.669
13.005	1.008	111.3	41.2	1.662	1.585	0.304	0.0	158	0.935
21.000	2.761	48.8	2.7	1.208	1.585	0.020	0.0	24	1.481
13.006	1.013	111.9	43.9	1.585	1.495	0.324	0.0	163	0.954
22.000	2.824	49.9	0.9	0.795	1.495	0.007	0.0	14	1.098
13.007	1.426	157.5	58.5	1.495	1.384	0.432	0.0	158	1.323
23.000	3.842	67.9	0.5	0.869	1.384	0.004	0.0	10	1.148
24.000	1.011	17.9	5.3	1.438	1.384	0.039	0.0	56	0.882
13.008	1.007	111.2	64.4	1.384	1.325	0.475	0.0	205	1.042
25.000	2.825	49.9	1.4	1.047	1.325	0.010	0.0	17	1.240
13.009	1.007	111.2	65.7	1.325	1.255	0.485	0.0	208	1.047
26.000	3.849	53.7	1.4	0.899	1.255	0.010	0.0	17	1.305
27.000	2.159	38.1	4.6	1.142	1.255	0.034	0.0	35	1.458
13.010	1.419	156.8	71.7	1.255	1.200	0.529	0.0	178	1.388
28.000	1.357	24.0	0.9	0.897	1.200	0.007	0.0	20	0.655
29.000	2.310	40.8	0.0	0.931	1.200	0.000	0.0	0	0.000
13.011	1.007	111.2	76.2	1.200	1.146	0.562	0.0	228	1.081
30.000	3.761	66.5	0.1	0.849	1.146	0.001	0.0	5	0.703
13.012	1.006	111.1	80.5	1.146	0.948	0.594	0.0	237	1.092
31.000	2.491	44.0	1.1	0.608	0.948	0.008	0.0	16	1.044

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
13.013	58	60	21.812	0.600	15.277	15.209	0.068	320.0	375	8.33	50.0
32.000	59	60	19.695	0.600	15.695	15.434	0.261	41.0	150	5.11	50.0
13.014	60	61	17.216	0.600	15.209	15.155	0.054	320.0	375	8.61	50.0
13.015	61	62	14.721	0.600	15.155	15.109	0.046	320.0	375	8.85	50.0
13.016	62	63	1.000	0.600	15.000	15.000	0.000	0.0	375	8.77	50.0
1.013	63	63_OUT	1.000	0.600	15.000	15.000	0.000	0.0	450	8.30	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
13.013	1.006	111.1	81.6	0.943	1.372	0.602	0.0	239	1.095
32.000	1.576	27.9	8.5	1.271	1.372	0.063	0.0	57	1.391
13.014	1.007	111.2	90.1	1.372	1.513	0.665	0.0	257	1.116
13.015	1.007	111.2	90.1	1.513	1.516	0.665	0.0	257	1.116
13.016	1.006	110.4	90.1	1.625	1.622	0.665	0.0	0	∞
1.013	1.000	159.0	171.4	1.547	1.547	1.265	0.0	0	∞

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	4.850	89.0	150	PH1	18.783	17.250	1.383	18.705	17.201	1.354
1.001	45.674	169.8	225	PH1	18.705	17.126	1.354	18.286	16.857	1.204
2.000	4.691	14.8	100	PH1	18.416	17.300	1.016	18.286	16.982	1.204
1.002	25.439	64.9	225	PH1	18.286	16.857	1.204	18.032	16.465	1.342
3.000	6.116	13.3	150	PH1	18.220	17.000	1.070	18.032	16.940	1.342
1.003	58.915	244.7	300	PH1	18.032	16.330	1.342	17.794	16.231	1.263
4.000	12.296	127.2	225	PH1	17.985	16.403	1.357	17.794	16.206	1.263
1.004	26.260	249.1	300	PH1	17.794	16.231	1.263	18.054	16.123	1.631
5.000	4.638	5.1	150	PH1	18.212	17.200	0.962	18.054	16.273	1.631
1.005	21.770	244.6	300	PH1	18.054	16.123	1.631	18.203	16.034	1.869
6.000	7.039	8.1	150	PH1	18.376	17.050	1.176	18.203	16.184	1.869
1.006	18.465	243.0	300	PH1	18.203	16.034	1.869	18.062	15.958	1.804
7.000	4.783	3.6	150	PH1	18.220	17.450	0.420	18.062	16.108	1.804
1.007	5.536	240.7	300	PH1	18.062	15.958	1.804	17.995	15.935	1.760
1.008	5.489	239.1	300	PH1	17.995	15.935	1.760	17.935	15.912	1.723
8.000	4.342	5.5	150	PH1	18.104	16.850	1.104	17.935	16.062	1.723
1.009	29.749	197.2	300	PH1	17.935	15.912	1.723	17.636	15.635	1.701
9.000	13.650	58.6	150	PH1	17.589	16.200	1.239	17.317	15.967	1.200
10.000	8.702	65.4	150	PH1	17.398	16.100	1.148	17.317	15.967	1.200
9.001	23.388	169.5	225	PH1	17.317	15.892	1.200	17.561	15.754	1.582
11.000	6.399	13.9	150	PH1	17.646	16.150	1.346	17.561	15.829	1.582
9.002	7.921	160.4	300	PH1	17.561	15.679	1.582	17.636	15.635	1.701
12.000	5.685	5.0	150	PH1	17.771	16.900	0.721	17.636	15.785	1.701
1.010	26.649	321.9	375	PH1	17.636	15.560	1.701	17.133	15.471	1.287

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	600	Manhole	Acceptable	2	1200	Manhole	Acceptable
1.001	2	1200	Manhole	Acceptable	3	1200	Manhole	Acceptable
2.000	3A	600	Manhole	Acceptable	3	1200	Manhole	Acceptable
1.002	3	1200	Manhole	Acceptable	5	1200	Manhole	Acceptable
3.000	4	1200	Manhole	Acceptable	5	1200	Manhole	Acceptable
1.003	5	1200	Manhole	Acceptable	7	1200	Manhole	Acceptable
4.000	6	600	Manhole	Acceptable	7	1200	Manhole	Acceptable
1.004	7	1200	Manhole	Acceptable	9	1200	Manhole	Acceptable
5.000	8	600	Manhole	Acceptable	9	1200	Manhole	Acceptable
1.005	9	1200	Manhole	Acceptable	11	1200	Manhole	Acceptable
6.000	10	600	Manhole	Acceptable	11	1200	Manhole	Acceptable
1.006	11	1200	Manhole	Acceptable	13	1200	Manhole	Acceptable
7.000	12	600	Manhole	Acceptable	13	1200	Manhole	Acceptable
1.007	13	1200	Manhole	Acceptable	14	1200	Manhole	Acceptable
1.008	14	1200	Manhole	Acceptable	16	1200	Manhole	Acceptable
8.000	15	600	Manhole	Acceptable	16	1200	Manhole	Acceptable
1.009	16	1200	Manhole	Acceptable	22	1350	Manhole	Acceptable
9.000	17	600	Manhole	Acceptable	19	1200	Manhole	Acceptable
10.000	18	600	Manhole	Acceptable	19	1200	Manhole	Acceptable
9.001	19	1200	Manhole	Acceptable	20	1200	Manhole	Acceptable
11.000	21A	600	Manhole	Acceptable	20	1200	Manhole	Acceptable
9.002	20	1200	Manhole	Acceptable	22	1350	Manhole	Acceptable
12.000	21	600	Manhole	Acceptable	22	1350	Manhole	Acceptable
1.010	22	1350	Manhole	Acceptable	23	1350	Manhole	Acceptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.011	13.203	53.0	375	PH1	17.133	15.471	1.287	16.997	15.109	1.513
1.012	1.000	0.0	375	PH1	16.997	15.000	1.622	16.997	15.000	1.622
13.000	9.148	32.3	225	PH1	17.923	16.550	1.118	17.692	16.247	1.200
14.000	7.160	66.3	150	PH1	17.760	16.450	1.140	17.692	16.342	1.200
13.001	28.348	167.7	300	PH1	17.692	16.152	1.200	17.975	16.823	1.652
15.000	6.908	67.1	150	PH1	17.714	16.425	1.138	17.672	16.322	1.200
16.000	5.233	9.9	150	PH1	17.785	16.850	0.795	17.672	16.322	1.200
15.001	14.890	100.6	225	PH1	17.672	16.247	1.200	17.975	16.098	1.652
13.002	10.371	241.2	300	PH1	17.975	16.923	1.652	18.077	16.980	1.797
17.000	9.682	44.4	150	PH1	18.380	16.950	1.280	18.292	16.754	1.388
17.001	7.746	12.4	150	PH1	18.292	16.754	1.388	18.077	16.130	1.797
18.000	6.118	6.7	150	PH1	18.168	17.050	0.948	18.077	16.130	1.797
13.003	26.418	244.6	300	PH1	18.077	15.980	1.797	17.945	15.872	1.773
19.000	7.798	13.2	150	PH1	18.193	16.613	1.430	17.945	16.622	1.773
13.004	17.283	243.1	300	PH1	17.945	15.872	1.773	17.763	15.601	1.662
20.000	6.261	9.6	150	PH1	17.905	16.600	1.150	17.763	15.951	1.662
13.005	11.131	313.7	375	PH1	17.763	15.726	1.662	17.651	15.681	1.585
21.000	6.510	10.5	150	PH1	17.758	16.400	1.208	17.651	15.916	1.585
13.006	11.079	316.6	375	PH1	17.651	15.681	1.585	17.526	15.656	1.495
22.000	12.458	12.9	150	PH1	17.795	16.850	0.735	17.526	15.881	1.495
13.007	20.743	160.8	375	PH1	17.526	15.656	1.495	17.286	15.527	1.384
23.000	7.997	7.0	150	PH1	17.516	16.900	0.166	17.286	15.752	1.384
24.000	4.744	98.8	150	PH1	17.388	15.800	1.438	17.286	15.752	1.384
13.008	8.636	320.0	375	PH1	17.286	15.527	1.384	17.200	15.500	1.325
25.000	4.819	12.8	150	PH1	17.297	16.100	1.047	17.200	15.725	1.325
13.009	10.691	320.0	375	PH1	17.200	15.500	1.325	17.097	15.447	1.255
26.000	5.646	11.1	150	PH1	17.249	16.200	0.889	17.097	15.692	1.255
27.000	4.566	23.0	150	PH1	17.192	15.900	1.140	17.097	15.692	1.255
13.010	17.038	162.3	375	PH1	17.097	15.467	1.255	16.937	15.362	1.200
28.000	20.831	55.2	150	PH1	16.997	15.950	0.897	16.937	15.587	1.200
29.000	7.930	13.2	150	PH1	17.081	16.000	0.881	16.937	15.587	1.200
13.011	5.788	320.0	375	PH1	16.937	15.362	1.200	16.865	15.344	1.146
30.000	4.586	7.3	150	PH1	16.999	16.200	0.619	16.865	15.569	1.116
13.012	21.481	320.8	375	PH1	16.865	15.344	1.146	16.600	15.277	0.948
31.000	11.820	18.5	150	PH1	17.008	16.200	0.808	16.600	15.502	0.948

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.011	23	1350	Manhole	Adoptable	24		Junction	
1.012	24		Junction		63		Junction	
13.000	25	1200	Manhole	Adoptable	27	1200	Manhole	Adoptable
14.000	26	600	Manhole	Adoptable	27	1200	Manhole	Adoptable
13.001	27	1200	Manhole	Adoptable	31	1200	Manhole	Adoptable
15.000	28	600	Manhole	Adoptable	30	1200	Manhole	Adoptable
16.000	29	600	Manhole	Adoptable	30	1200	Manhole	Adoptable
15.001	30	1200	Manhole	Adoptable	31	1200	Manhole	Adoptable
13.002	31	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
17.000	32	600	Manhole	Adoptable	33	1200	Manhole	Adoptable
17.001	33	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
18.000	34	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
13.003	35	1200	Manhole	Adoptable	37	1200	Manhole	Adoptable
19.000	36	600	Manhole	Adoptable	37	1200	Manhole	Adoptable
13.004	37	1200	Manhole	Adoptable	39	1350	Manhole	Adoptable
20.000	38	600	Manhole	Adoptable	39	1350	Manhole	Adoptable
13.005	39	1350	Manhole	Adoptable	41	1350	Manhole	Adoptable
21.000	40	600	Manhole	Adoptable	41	1350	Manhole	Adoptable
13.006	41	1350	Manhole	Adoptable	43	1350	Manhole	Adoptable
22.000	42	600	Manhole	Adoptable	43	1350	Manhole	Adoptable
13.007	43	1350	Manhole	Adoptable	46	1350	Manhole	Adoptable
23.000	44	600	Manhole	Adoptable	46	1350	Manhole	Adoptable
24.000	45	600	Manhole	Adoptable	46	1350	Manhole	Adoptable
13.008	46	1350	Manhole	Adoptable	48		Junction	
25.000	47	600	Manhole	Adoptable	48		Junction	
13.009	48		Junction		51	1350	Manhole	Adoptable
26.000	49	600	Manhole	Adoptable	51	1350	Manhole	Adoptable
27.000	50	600	Manhole	Adoptable	51	1350	Manhole	Adoptable
13.010	51	1350	Manhole	Adoptable	54	1350	Manhole	Adoptable
28.000	52	600	Manhole	Adoptable	54	1350	Manhole	Adoptable
29.000	53	600	Manhole	Adoptable	54	1350	Manhole	Adoptable
13.011	54	1350	Manhole	Adoptable	56	1350	Manhole	Adoptable
30.000	55	600	Manhole	Adoptable	56	1350	Manhole	Adoptable
13.012	56	1350	Manhole	Adoptable	58	1350	Manhole	Adoptable
31.000	57	600	Manhole	Adoptable	58	1350	Manhole	Adoptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
13.013	21.812	320.0	375	PH1	16.600	15.277	0.948	16.956	15.209	1.372
32.000	10.000	41.0	150	PH1	17.116	15.695	1.271	16.956	15.434	1.372
13.014	17.218	320.0	375	PH1	16.956	15.209	1.372	17.043	15.155	1.513
13.015	18.721	320.0	375	PH1	17.043	15.155	1.513	17.000	15.109	1.516
13.016	1.000	0.0	375	PH1	17.000	15.000	1.625	16.997	15.000	1.622
1.013	1.000	0.0	450	PH1	16.997	15.000	1.547	16.997	15.000	1.547

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
13.013	58	1350	Manhole	Adoptable	60	1350	Manhole	Adoptable
32.000	59	1200	Manhole	Adoptable	60	1350	Manhole	Adoptable
13.014	60	1350	Manhole	Adoptable	61	1350	Manhole	Adoptable
13.015	61	1350	Manhole	Adoptable	62		Junction	
13.016	62		Junction		63		Junction	
1.013	63		Junction		63_OUT		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	507604.297	104590.960	18.783	1.533	600					
						0	1.000	17.250	150	
2	507609.104	104590.317	18.705	1.579	1200		1	1.000	17.201	150
						0	1.001	17.126	225	
3A	507600.356	104546.980	18.416	1.116	600					
						0	2.000	17.360	100	
3	507604.546	104544.871	18.286	1.429	1200		1	2.000	18.982	100
						2	1.001	18.857	225	
						0	1.002	18.857	225	
4	507598.499	104519.863	18.220	1.220	1200					
						0	3.000	17.000	150	
5	507604.600	104519.441	18.032	1.642	1200		1	3.000	18.540	150
						2	1.002	18.465	225	
						0	1.003	18.390	300	
6	507592.416	104481.388	17.985	1.582	600					
						0	4.000	18.400	225	
7	507604.682	104480.526	17.794	1.563	1200		1	4.000	18.306	225
						2	1.003	18.231	300	
						0	1.004	18.231	300	
8	507603.259	104454.637	18.212	1.012	600					
						0	5.000	17.200	150	
9	507607.955	104454.471	18.054	1.931	1200		1	5.000	18.273	150
						2	1.004	18.123	300	
						0	1.005	18.123	300	
10	507605.544	104431.716	18.376	1.326	600					
						0	6.000	17.050	150	
11	507612.443	104433.169	18.203	2.169	1200		1	6.000	18.104	150
						2	1.005	18.034	300	
						0	1.006	18.034	300	
12	507611.772	104416.783	18.220	0.770	600					
						0	7.000	17.450	150	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
13	507616.249	104415.101	18.062	2.104	1200		1 7.000 2 1.006	18.168 18.938	150 300
14	507614.301	104409.919	17.995	2.060	1200		1 1.007 0 1.008	18.998 18.935	300 300
15	507609.485	104410.317	18.104	1.254	600		0 8.000	18.850	150
16	507610.376	104406.067	17.935	2.023	1200		1 8.000 2 1.008	18.062 18.912	150 300
17	507554.582	104428.791	17.589	1.389	600		0 9.000	16.200	150
18	507550.025	104413.026	17.398	1.298	600		0 10.000	16.100	150
19	507558.318	104415.662	17.317	1.425	1200		1 10.000 2 9.000	18.967 18.967	150 150
21A	507571.233	104393.677	17.646	1.496	600		0 9.001	18.892	225
20	507574.752	104399.021	17.561	1.882	1200		1 11.000 2 9.001	16.150 18.829	150 225
21	507581.516	104403.042	17.771	0.871	600		0 9.002	15.679	300
22	507581.902	104397.450	17.636	2.076	1350		1 12.000 2 9.002 3 1.009	16.900 18.785 18.835	150 300 300
23	507579.084	104368.940	17.133	1.662	1350		0 1.010	18.560 18.471	375 375
24	507593.568	104356.332	16.997	1.997			1 1.011	15.471	375
25	507518.841	104520.178	17.923	1.373	1200		0 1.012	15.109	375
26	507502.741	104517.634	17.760	1.310	600		0 13.000	16.850	225
27	507509.813	104518.751	17.692	1.500	1200		1 14.000 2 13.000	16.450 18.342	150 225
28	507496.093	104488.048	17.714	1.289	600		0 13.001	16.267 16.192	300
29	507498.786	104499.168	17.785	0.935	600		0 15.000	16.125	150
							0 16.000	16.850	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
30	507499.603	104493.999	17.672	1.425	1200		1 16.000 2 15.000	16.000 16.000	150 150
31	507514.237	104490.750	17.975	1.952	1200		0 15.001 1 15.001 2 13.001	16.247 16.098 16.023	225 225 300
32	507530.251	104478.473	18.380	1.430	600		0 17.000	16.950	150
33	507521.618	104479.484	18.292	1.538	1200		1 17.000	16.754	150
34	507507.885	104481.373	18.168	1.118	600		0 17.001	16.754	150
35	507513.924	104480.384	18.077	2.097	1200		0 18.000 1 18.000 2 17.001 3 13.002	17.000 16.130 16.130 15.980	150 150 150 300
36	507517.347	104455.603	18.193	1.580	600		0 19.000	16.613	150
37	507509.656	104454.313	17.945	2.073	1200		1 19.000 2 13.003	16.022 15.872	150 300
38	507506.498	104439.028	17.905	1.305	600		0 20.000	16.500	150
39	507512.512	104437.288	17.763	2.037	1350		1 20.000 2 13.004	15.951 15.801	150 300
40	507506.085	104426.660	17.758	1.358	600		0 21.000	16.400	150
41	507512.571	104426.097	17.651	1.960	1350		1 21.000 2 13.005	15.912 15.691	150 375
42	507523.799	104426.598	17.795	0.945	600		0 22.000	16.850	150
43	507517.200	104416.031	17.526	1.870	1350		1 22.000 2 13.006	15.981 15.636	150 375
44	507520.072	104401.675	17.516	0.616	600		0 23.000	16.900	150
45	507510.412	104395.940	17.388	1.588	600		0 24.000	15.800	150
46	507515.124	104395.392	17.286	1.759	1350		1 24.000 2 23.000 3 13.007	15.752 15.752 15.527	150 150 375
47	507518.945	104386.749	17.297	1.197	600		0 25.000	16.100	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
48	507514.127	104386.824	17.200	1.700			1 25.000 2 13.008 0 13.009	15.725 15.300 15.500	150 375 375
49	507518.152	104378.370	17.249	1.049	600		0 26.000	16.200	150
50	507508.339	104376.130	17.192	1.292	600		0 27.000	15.200	150
51	507512.902	104376.294	17.097	1.630	1350		1 27.000 2 26.000 3 13.009 0 13.010	15.692 15.692 15.467 15.467	150 150 375 375
52	507496.195	104357.148	16.997	1.047	600		0 28.000	15.950	150
53	507509.292	104363.633	17.081	1.081	600		0 29.000	16.000	150
54	507516.081	104359.555	16.937	1.575	1350		1 29.000 2 28.000 3 13.010 0 13.011	15.587 15.587 15.362 15.362	150 150 375 375
55	507521.523	104359.381	16.999	0.799	600		0 30.000	16.200	150
56	507519.788	104355.136	16.865	1.521	1350		1 30.000 2 13.011 0 13.012	15.569 15.344 15.344	150 375 375
57	507532.542	104353.640	17.008	0.808	600		0 31.000	16.200	150
58	507537.777	104343.378	16.600	1.323	1350		1 31.000 2 13.012 0 13.013	15.502 15.277 15.277	150 375 375
59	507559.503	104354.247	17.116	1.421	1200		0 32.000	15.695	150
60	507559.588	104343.552	16.956	1.747	1350		1 32.000 2 13.013 0 13.014	15.434 15.209 15.209	150 375 375
61	507576.803	104343.689	17.043	1.888	1350		1 13.014 0 13.015	15.155 15.109	375 375
62	507591.411	104345.507	17.000	2.000			1 13.015 0 13.016	15.109 15.000	375 375
63	507598.585	104350.517	16.997	1.997			1 13.016 2 1.012 0 1.013	15.000 15.000 15.000	375 375 450
63_OUT	507600.120	104347.686	16.997	1.997			1 1.013	15.000	450

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	1440
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	✓		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	15.000
Safety Factor	5.0	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	316.0	0.0	0.700	554.6	0.0	1.400	935.2	0.0	2.001	0.0	0.0
0.100	347.1	0.0	0.800	592.7	0.0	1.500	999.5	0.0	2.200	0.0	0.0
0.200	379.2	0.0	0.900	644.7	0.0	1.600	1065.8	0.0	2.300	0.0	0.0
0.300	412.3	0.0	1.000	698.7	0.0	1.700	1134.1	0.0	2.400	0.0	0.0
0.400	446.4	0.0	1.100	754.7	0.0	1.800	1204.5	0.0	2.500	0.0	0.0
0.500	481.5	0.0	1.200	812.8	0.0	1.900	1277.0	0.0			
0.600	517.6	0.0	1.300	873.0	0.0	2.000	1351.9	0.0			

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.69480	Porosity	0.30
Side Inf Coefficient (m/hr)	0.69480	Invert Level (m)	13.900
Safety Factor	5.0	Time to half empty (mins)	12

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	784.5	784.5	0.800	784.5	885.3	0.801	0.0	885.3

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	14.700
Safety Factor	5.0	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	316.0	0.0	0.300	316.0	0.0	0.301	0.0	0.0

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 98.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	33	17.316	0.066	6.1	0.0438	0.0000	OK
60 minute summer	2	33	17.205	0.079	10.3	0.1099	0.0000	OK
60 minute summer	3A	33	17.339	0.039	4.4	0.0256	0.0000	OK
60 minute summer	3	33	16.932	0.075	14.7	0.0845	0.0000	OK
60 minute summer	4	33	17.031	0.031	4.2	0.0454	0.0000	OK
60 minute summer	5	33	16.521	0.131	28.7	0.2226	0.0000	OK
60 minute summer	6	33	16.448	0.045	4.0	0.0233	0.0000	OK
60 minute summer	7	34	16.418	0.187	44.5	0.3480	0.0000	OK
60 minute summer	8	33	17.217	0.017	2.1	0.0081	0.0000	OK
60 minute summer	9	34	16.355	0.232	55.3	0.3754	0.0000	OK
60 minute summer	10	33	17.082	0.032	6.1	0.0228	0.0000	OK
60 minute summer	11	34	16.289	0.254	60.8	0.2874	0.0000	OK
60 minute summer	12	33	17.455	0.005	0.2	0.0016	0.0000	OK
60 minute summer	13	34	16.219	0.260	65.2	0.3516	0.0000	OK
60 minute summer	14	34	16.163	0.227	65.0	0.2572	0.0000	OK
60 minute summer	15	32	16.871	0.021	2.9	0.0106	0.0000	OK
60 minute summer	16	34	16.097	0.184	67.6	0.2085	0.0000	OK
60 minute summer	17	33	16.293	0.093	14.7	0.1197	0.0000	OK
60 minute summer	18	33	16.168	0.068	8.2	0.0597	0.0000	OK
60 minute summer	19	33	16.053	0.161	31.7	0.2768	0.0000	OK
60 minute summer	21A	33	16.188	0.038	5.0	0.0229	0.0000	OK
60 minute summer	20	34	15.857	0.178	36.6	0.2012	0.0000	OK
60 minute summer	21	32	16.930	0.030	6.5	0.0298	0.0000	OK
60 minute summer	22	34	15.833	0.273	109.6	0.3903	0.0000	OK
60 minute summer	23	34	15.644	0.173	109.5	0.2471	0.0000	OK
60 minute summer	24	35	15.355	0.355	109.2	0.0000	0.0000	OK
60 minute summer	25	33	16.594	0.044	7.1	0.0719	0.0000	OK
60 minute summer	26	33	16.519	0.069	8.2	0.0607	0.0000	OK
60 minute summer	27	33	16.302	0.110	25.2	0.1938	0.0000	OK
60 minute summer	28	35	16.439	0.014	0.4	0.0045	0.0000	OK
60 minute summer	29	34	16.859	0.009	0.4	0.0030	0.0000	OK
60 minute summer	30	33	16.292	0.045	4.6	0.0624	0.0000	OK
60 minute summer	31	33	16.200	0.177	29.8	0.2006	0.0000	OK
60 minute summer	32	33	16.994	0.044	4.6	0.0260	0.0000	OK
60 minute summer	33	32	16.797	0.043	8.6	0.0594	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	1	1.000	2	6.1	0.864	0.342	0.0342
60 minute summer	2	1.001	3	10.3	0.858	0.259	0.5483
60 minute summer	3A	2.000	3	4.4	1.643	0.277	0.0126
60 minute summer	3	1.002	5	14.6	1.297	0.225	0.2858
60 minute summer	4	3.000	5	4.2	1.646	0.086	0.0156
60 minute summer	5	1.003	7	28.5	0.760	0.403	1.4674
60 minute summer	6	4.000	7	4.0	0.546	0.087	0.1544
60 minute summer	7	1.004	9	43.7	0.845	0.616	1.3739
60 minute summer	8	5.000	9	2.1	1.715	0.026	0.0256
60 minute summer	9	1.005	11	54.9	0.908	0.777	1.3290
60 minute summer	10	6.000	11	6.1	2.000	0.097	0.0552
60 minute summer	11	1.006	13	60.4	0.940	0.851	1.1870
60 minute summer	12	7.000	13	0.2	0.878	0.002	0.0337
60 minute summer	13	1.007	14	65.0	1.059	0.911	0.3384
60 minute summer	14	1.008	16	64.8	1.262	0.906	0.2823
60 minute summer	15	8.000	16	2.9	2.019	0.038	0.0095
60 minute summer	16	1.009	22	67.6	1.478	0.631	1.4080
60 minute summer	17	9.000	19	14.7	1.341	0.632	0.1496
60 minute summer	18	10.000	19	8.2	1.016	0.373	0.0789
60 minute summer	19	9.001	20	31.6	1.085	0.795	0.6817
60 minute summer	21A	11.000	20	5.0	1.491	0.125	0.0215
60 minute summer	20	9.002	22	36.5	0.904	0.424	0.3396
60 minute summer	21	12.000	22	6.5	2.596	0.082	0.0199
60 minute summer	22	1.010	23	109.5	1.606	0.987	1.9395
60 minute summer	23	1.011	24	109.2	1.729	0.397	1.2105
60 minute summer	24	1.012	63	108.9	1.011	0.986	0.1078
60 minute summer	25	13.000	27	7.1	1.335	0.077	0.0486
60 minute summer	26	14.000	27	8.2	1.092	0.375	0.0538
60 minute summer	27	13.001	31	25.2	0.778	0.294	0.9469
60 minute summer	28	15.000	30	0.4	0.471	0.018	0.0059
60 minute summer	29	16.000	30	0.4	0.916	0.007	0.0023
60 minute summer	30	15.001	31	4.6	0.658	0.089	0.1739
60 minute summer	31	13.002	35	29.4	0.627	0.413	0.4890
60 minute summer	32	17.000	33	4.6	1.101	0.172	0.0368
60 minute summer	33	17.001	35	8.6	2.022	0.170	0.0376

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 98.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	34	33	17.081	0.031	6.3	0.0250	0.0000	OK
60 minute summer	35	33	16.184	0.204	51.0	0.2927	0.0000	OK
60 minute summer	36	33	16.626	0.013	0.8	0.0045	0.0000	OK
60 minute summer	37	34	16.084	0.212	55.1	0.2760	0.0000	OK
60 minute summer	38	33	16.629	0.029	4.2	0.0169	0.0000	OK
60 minute summer	39	34	15.973	0.247	62.6	0.3945	0.0000	OK
60 minute summer	40	33	16.431	0.031	4.2	0.0180	0.0000	OK
60 minute summer	41	35	15.945	0.254	66.5	0.3635	0.0000	OK
60 minute summer	42	33	16.868	0.018	1.5	0.0078	0.0000	OK
60 minute summer	43	35	15.916	0.260	87.6	0.6531	0.0000	OK
60 minute summer	44	33	16.912	0.012	0.8	0.0048	0.0000	OK
60 minute summer	45	35	15.891	0.091	8.2	0.0708	0.0000	OK
60 minute summer	46	35	15.886	0.359	94.8	0.5138	0.0000	OK
60 minute summer	47	33	16.121	0.021	2.1	0.0095	0.0000	OK
60 minute summer	48	35	15.864	0.364	93.9	0.0000	0.0000	OK
60 minute summer	49	31	16.220	0.020	2.1	0.0096	0.0000	OK
60 minute summer	50	32	15.947	0.047	7.1	0.0383	0.0000	OK
60 minute summer	51	35	15.837	0.370	101.0	0.5296	0.0000	OK
60 minute summer	52	33	15.975	0.025	1.5	0.0106	0.0000	OK
60 minute summer	53	1	16.000	0.000	0.0	0.0000	0.0000	OK
60 minute summer	54	35	15.777	0.415	104.4	0.7304	0.0000	SURCHARGED
60 minute summer	55	34	16.206	0.006	0.2	0.0019	0.0000	OK
60 minute summer	56	35	15.738	0.394	110.2	0.7244	0.0000	SURCHARGED
60 minute summer	57	33	16.220	0.020	1.7	0.0097	0.0000	OK
60 minute summer	58	35	15.650	0.373	111.6	0.5336	0.0000	OK
60 minute summer	59	32	15.772	0.077	13.2	0.1548	0.0000	OK
60 minute summer	60	35	15.565	0.356	123.1	0.5090	0.0000	OK
60 minute summer	61	35	15.458	0.303	123.0	0.4335	0.0000	OK
60 minute summer	62	35	15.356	0.356	122.9	0.0000	0.0000	OK
60 minute summer	63	35	15.352	0.352	242.0	0.2012	0.0000	OK
60 minute winter	63_OUT	61	14.935	-0.065	209.1	210.7048	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	34	18.000	35	6.3	2.258	0.091	0.0252
60 minute summer	35	13.003	37	50.5	0.976	0.715	1.3724
60 minute summer	36	19.000	37	0.8	0.927	0.016	0.0295
60 minute summer	37	13.004	39	55.2	1.125	0.778	0.8458
60 minute summer	38	20.000	39	4.2	1.849	0.073	0.0142
60 minute summer	39	13.005	41	62.5	0.819	0.562	0.8749
60 minute summer	40	21.000	41	4.2	1.642	0.086	0.0167
60 minute summer	41	13.006	43	66.1	0.878	0.591	0.8918
60 minute summer	42	22.000	43	1.5	1.254	0.030	0.0258
60 minute summer	43	13.007	46	85.9	1.021	0.546	1.9723
60 minute summer	44	23.000	46	0.8	1.221	0.012	0.0687
60 minute summer	45	24.000	46	8.1	0.925	0.455	0.0661
60 minute summer	46	13.008	48	91.8	0.972	0.825	0.9401
60 minute summer	47	25.000	48	2.1	1.311	0.042	0.0443
60 minute summer	48	13.009	51	91.8	0.999	0.825	1.1625
60 minute summer	49	26.000	51	2.1	1.416	0.039	0.0529
60 minute summer	50	27.000	51	7.2	1.527	0.188	0.0486
60 minute summer	51	13.010	54	98.7	0.953	0.630	1.8765
60 minute summer	52	28.000	54	1.5	0.667	0.063	0.1959
60 minute summer	53	29.000	54	0.0	0.000	0.000	0.0697
60 minute summer	54	13.011	56	104.5	0.947	0.939	0.6362
60 minute summer	55	30.000	56	0.2	0.795	0.003	0.0409
60 minute summer	56	13.012	58	110.2	0.999	0.992	2.3690
60 minute summer	57	31.000	58	1.7	1.059	0.039	0.1083
60 minute summer	58	13.013	60	111.6	1.023	1.004	2.3808
60 minute summer	59	32.000	60	13.2	1.460	0.475	0.1307
60 minute summer	60	13.014	61	123.0	1.200	1.106	1.7520
60 minute summer	61	13.015	62	122.9	1.389	1.105	1.2988
60 minute summer	62	13.016	63	123.0	1.144	1.113	0.1079
60 minute summer	63	1.013	63_OUT	242.1	1.833	1.522	0.1321
60 minute winter	63_OUT	Infiltration		34.2			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	36	17.642	0.392	13.3	0.2589	0.0000	SURCHARGED
60 minute summer	2	36	17.618	0.492	22.4	0.6803	0.0000	SURCHARGED
60 minute summer	3A	36	17.655	0.355	9.6	0.2337	0.0000	SURCHARGED
60 minute summer	3	36	17.562	0.705	32.3	0.7979	0.0000	SURCHARGED
60 minute summer	4	36	17.509	0.509	9.1	0.7421	0.0000	SURCHARGED
60 minute summer	5	36	17.494	1.104	55.0	1.8804	0.0000	SURCHARGED
60 minute summer	6	36	17.409	1.006	8.7	0.5261	0.0000	SURCHARGED
60 minute summer	7	36	17.407	1.175	74.6	2.1870	0.0000	SURCHARGED
60 minute summer	8	36	17.257	0.057	4.6	0.0273	0.0000	OK
60 minute summer	9	36	17.257	1.134	94.5	1.8343	0.0000	SURCHARGED
60 minute summer	10	34	17.109	0.059	13.3	0.0427	0.0000	OK
60 minute summer	11	36	17.048	1.014	104.2	1.1466	0.0000	SURCHARGED
60 minute summer	12	33	17.458	0.008	0.5	0.0024	0.0000	OK
60 minute summer	13	35	16.821	0.863	112.8	1.1647	0.0000	SURCHARGED
60 minute summer	14	35	16.697	0.762	113.3	0.8614	0.0000	SURCHARGED
60 minute summer	15	33	16.879	0.029	6.4	0.0148	0.0000	OK
60 minute summer	16	35	16.574	0.661	118.5	0.7480	0.0000	SURCHARGED
60 minute summer	17	34	17.140	0.940	32.0	1.2130	0.0000	SURCHARGED
60 minute summer	18	34	16.752	0.652	17.8	0.5766	0.0000	SURCHARGED
60 minute summer	19	34	16.649	0.757	64.9	1.3014	0.0000	SURCHARGED
60 minute summer	21A	35	16.227	0.076	11.0	0.0462	0.0000	OK
60 minute summer	20	35	16.214	0.535	74.1	0.6046	0.0000	SURCHARGED
60 minute summer	21	33	16.943	0.043	14.2	0.0425	0.0000	OK
60 minute summer	22	35	16.154	0.594	202.2	0.8503	0.0000	SURCHARGED
120 minute winter	23	118	15.757	0.286	116.9	0.4090	0.0000	OK
120 minute winter	24	120	15.757	0.756	117.0	0.0000	0.0000	SURCHARGED
60 minute summer	25	36	17.506	0.956	15.5	1.5543	0.0000	SURCHARGED
60 minute summer	26	36	17.552	1.102	17.8	0.9675	0.0000	FLOOD RISK
60 minute summer	27	36	17.500	1.308	46.7	2.2999	0.0000	FLOOD RISK
60 minute summer	28	37	17.469	1.044	5.8	0.3277	0.0000	FLOOD RISK
60 minute summer	29	37	17.469	0.619	3.4	0.2018	0.0000	SURCHARGED
60 minute summer	30	37	17.468	1.221	15.5	1.6900	0.0000	FLOOD RISK
60 minute summer	31	37	17.463	1.440	45.4	1.6282	0.0000	SURCHARGED
60 minute summer	32	37	17.507	0.557	10.1	0.3287	0.0000	SURCHARGED
60 minute summer	33	37	17.491	0.736	18.9	1.0146	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	1	1.000	2	13.3	1.033	0.745	0.0854
60 minute summer	2	1.001	3	22.3	1.035	0.561	1.8165
60 minute summer	3A	2.000	3	10.0	1.930	0.627	0.0367
60 minute summer	3	1.002	5	31.8	1.408	0.492	1.0114
60 minute summer	4	3.000	5	8.6	1.854	0.176	0.1077
60 minute summer	5	1.003	7	50.7	0.794	0.717	2.7404
60 minute summer	6	4.000	7	6.9	0.544	0.150	0.4890
60 minute summer	7	1.004	9	74.4	1.057	1.049	1.8492
60 minute summer	8	5.000	9	4.6	1.681	0.058	0.0557
60 minute summer	9	1.005	11	94.2	1.337	1.331	1.5330
60 minute summer	10	6.000	11	13.1	1.996	0.209	0.0849
60 minute summer	11	1.006	13	104.7	1.488	1.476	1.3003
60 minute summer	12	7.000	13	0.5	0.878	0.005	0.0429
60 minute summer	13	1.007	14	113.3	1.610	1.589	0.3898
60 minute summer	14	1.008	16	113.7	1.615	1.590	0.3872
60 minute summer	15	8.000	16	6.4	2.105	0.084	0.0435
60 minute summer	16	1.009	22	119.0	1.690	1.109	2.0949
60 minute summer	17	9.000	19	29.9	1.701	1.287	0.2403
60 minute summer	18	10.000	19	16.5	1.029	0.752	0.1532
60 minute summer	19	9.001	20	64.1	1.611	1.609	0.9302
60 minute summer	21A	11.000	20	11.0	1.540	0.274	0.0852
60 minute summer	20	9.002	22	73.7	1.047	0.857	0.5155
60 minute summer	21	12.000	22	14.2	2.604	0.178	0.0609
60 minute summer	22	1.010	23	202.4	1.920	1.825	2.7987
120 minute winter	23	1.011	24	117.0	1.730	0.425	1.9245
120 minute winter	24	1.012	63	117.0	1.064	1.059	0.1103
60 minute summer	25	13.000	27	13.1	1.400	0.142	0.3635
60 minute summer	26	14.000	27	15.1	1.240	0.692	0.1261
60 minute summer	27	13.001	31	41.0	0.806	0.479	1.9962
60 minute summer	28	15.000	30	4.3	0.545	0.238	0.1216
60 minute summer	29	16.000	30	3.7	1.075	0.065	0.0921
60 minute summer	30	15.001	31	12.3	0.648	0.237	0.5962
60 minute summer	31	13.002	35	44.8	0.636	0.628	0.7303
60 minute summer	32	17.000	33	10.2	1.287	0.380	0.1530
60 minute summer	33	17.001	35	16.4	2.028	0.323	0.1364

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.70%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	34	36	17.459	0.409	13.7	0.3351	0.0000	SURCHARGED
60 minute summer	35	37	17.435	1.455	76.3	2.0894	0.0000	SURCHARGED
60 minute summer	36	37	17.279	0.666	6.6	0.2219	0.0000	SURCHARGED
60 minute summer	37	37	17.278	1.406	82.2	1.8349	0.0000	SURCHARGED
60 minute summer	38	36	17.159	0.559	9.1	0.3293	0.0000	SURCHARGED
60 minute summer	39	36	17.147	1.421	93.6	2.2705	0.0000	SURCHARGED
60 minute summer	40	36	17.117	0.717	9.1	0.4134	0.0000	SURCHARGED
60 minute summer	41	36	17.104	1.413	100.6	2.0214	0.0000	SURCHARGED
60 minute summer	42	36	17.054	0.204	3.8	0.0879	0.0000	SURCHARGED
60 minute summer	43	36	17.054	1.398	135.3	3.5128	0.0000	SURCHARGED
60 minute summer	44	36	16.919	0.019	1.8	0.0078	0.0000	OK
60 minute summer	45	36	16.962	1.162	17.8	0.8993	0.0000	SURCHARGED
60 minute summer	46	36	16.921	1.394	148.3	1.9953	0.0000	SURCHARGED
60 minute summer	47	36	16.853	0.753	4.6	0.3390	0.0000	SURCHARGED
60 minute summer	48	36	16.851	1.351	150.5	0.0000	0.0000	SURCHARGED
60 minute summer	49	36	16.769	0.569	4.6	0.2691	0.0000	SURCHARGED
60 minute summer	50	36	16.795	0.895	15.5	0.7242	0.0000	SURCHARGED
60 minute summer	51	36	16.766	1.299	164.6	1.8589	0.0000	SURCHARGED
60 minute summer	52	36	16.595	0.645	3.8	0.2684	0.0000	SURCHARGED
60 minute summer	53	36	16.592	0.592	4.2	0.1677	0.0000	SURCHARGED
60 minute summer	54	36	16.592	1.230	175.2	2.1667	0.0000	SURCHARGED
60 minute summer	55	36	16.483	0.283	2.1	0.0872	0.0000	SURCHARGED
60 minute summer	56	36	16.483	1.139	185.0	2.0942	0.0000	SURCHARGED
60 minute summer	57	33	16.229	0.029	3.7	0.0142	0.0000	OK
60 minute summer	58	36	16.223	0.946	187.9	1.3541	0.0000	SURCHARGED
60 minute summer	59	35	16.226	0.531	28.8	1.0706	0.0000	SURCHARGED
60 minute summer	60	36	15.953	0.744	210.2	1.0652	0.0000	SURCHARGED
120 minute winter	61	118	15.758	0.603	136.9	0.8629	0.0000	SURCHARGED
120 minute winter	62	120	15.757	0.757	136.9	0.0000	0.0000	SURCHARGED
120 minute winter	63	120	15.756	0.756	265.9	0.4318	0.0000	SURCHARGED
120 minute winter	63_OUT	120	15.756	0.756	265.9	550.9008	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	34	18.000	35	13.4	2.257	0.193	0.1077
60 minute summer	35	13.003	37	75.6	1.074	1.069	1.8603
60 minute summer	36	19.000	37	4.8	0.927	0.088	0.1373
60 minute summer	37	13.004	39	83.0	1.179	1.170	1.2156
60 minute summer	38	20.000	39	8.7	1.910	0.150	0.1102
60 minute summer	39	13.005	41	94.7	0.859	0.851	1.2343
60 minute summer	40	21.000	41	7.7	1.694	0.158	0.1146
60 minute summer	41	13.006	43	102.2	0.926	0.913	1.2220
60 minute summer	42	22.000	43	4.0	1.286	0.080	0.2193
60 minute summer	43	13.007	46	134.1	1.216	0.852	2.2879
60 minute summer	44	23.000	46	1.8	1.221	0.027	0.0755
60 minute summer	45	24.000	46	15.3	0.949	0.855	0.0835
60 minute summer	46	13.008	48	147.4	1.337	1.325	0.9514
60 minute summer	47	25.000	48	3.6	1.354	0.073	0.0848
60 minute summer	48	13.009	51	151.0	1.369	1.357	1.1693
60 minute summer	49	26.000	51	4.3	1.412	0.080	0.0994
60 minute summer	50	27.000	51	13.2	1.529	0.345	0.0804
60 minute summer	51	13.010	54	164.8	1.495	1.051	1.8792
60 minute summer	52	28.000	54	3.9	0.657	0.161	0.3526
60 minute summer	53	29.000	54	4.0	0.254	0.100	0.1394
60 minute summer	54	13.011	56	175.5	1.592	1.578	0.6362
60 minute summer	55	30.000	56	1.9	0.684	0.029	0.0807
60 minute summer	56	13.012	58	185.6	1.682	1.670	2.3704
60 minute summer	57	31.000	58	3.7	1.059	0.084	0.1154
60 minute summer	58	13.013	60	188.5	1.709	1.696	2.4058
60 minute summer	59	32.000	60	26.4	1.499	0.947	0.1883
60 minute summer	60	13.014	61	210.2	1.906	1.890	1.8989
120 minute winter	61	13.015	62	136.9	1.446	1.230	1.6237
120 minute winter	62	13.016	63	136.9	1.246	1.239	0.1103
120 minute winter	63	1.013	63_OUT	265.9	1.930	1.672	0.1584
120 minute winter	63_OUT	Infiltration		34.2			

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.021	5.00	18.783	600	507604.297	104590.960	1.533
2	0.020	5.00	18.705	1200	507609.104	104590.317	1.579
3A	0.021	5.00	18.416	600	507600.356	104546.980	1.116
3			18.286	1200	507604.546	104544.871	1.429
4	0.020	5.00	18.220	1200	507598.499	104519.863	1.220
5	0.047	5.00	18.032	1200	507604.600	104519.441	1.642
6	0.019	5.00	17.985	600	507592.416	104481.388	1.582
7	0.057	5.00	17.794	1200	507604.682	104480.526	1.563
8	0.010	5.00	18.212	600	507603.259	104454.637	1.012
9	0.047	5.00	18.054	1200	507607.955	104454.471	1.931
10	0.029	5.00	18.376	600	507605.544	104431.716	1.326
11			18.203	1200	507612.443	104433.169	2.169
12	0.001	5.00	18.220	600	507611.772	104416.783	0.770
13	0.023	5.00	18.062	1200	507616.249	104415.101	2.104
14			17.995	1200	507614.301	104409.919	2.060
15	0.014	5.00	18.104	600	507609.485	104410.317	1.254
16			17.935	1200	507610.376	104406.067	2.023
17	0.070	5.00	17.589	600	507554.582	104428.791	1.389
18	0.039	5.00	17.398	600	507550.025	104413.026	1.298
19	0.042	5.00	17.317	1200	507558.318	104415.662	1.425
21A	0.024	5.00	17.646	600	507571.233	104393.677	1.496
20			17.561	1200	507574.752	104399.021	1.882
21	0.031	5.00	17.771	600	507581.516	104403.042	0.871
22			17.636	1350	507581.902	104397.450	2.076
23			17.133	1350	507579.084	104368.940	1.662
24			16.997		507592.222	104357.490	1.997
25	0.034	5.00	17.923	1200	507518.841	104520.178	1.373
26	0.039	5.00	17.760	600	507502.741	104517.634	1.310
27	0.047	5.00	17.692	1200	507509.813	104518.751	1.500
28	0.002	5.00	17.714	600	507496.093	104488.048	1.289
29	0.002	5.00	17.785	600	507498.786	104499.168	0.935
30	0.018	5.00	17.672	1200	507499.603	104493.999	1.425
31			17.975	1200	507514.237	104490.750	1.952
32	0.022	5.00	18.380	600	507530.251	104478.473	1.430
33	0.019	5.00	18.292	1200	507521.618	104479.484	1.538
34	0.030	5.00	18.168	600	507507.885	104481.373	1.118
35	0.032	5.00	18.077	1200	507513.924	104480.384	2.097
36	0.004	5.00	18.193	600	507517.347	104455.603	1.580
37	0.018	5.00	17.945	1200	507509.656	104454.313	2.073
38	0.020	5.00	17.905	600	507506.498	104439.028	1.305
39	0.017	5.00	17.763	1350	507512.512	104437.288	2.037
40	0.020	5.00	17.758	600	507506.085	104426.660	1.358
41			17.651	1350	507512.571	104426.097	1.960
42	0.007	5.00	17.795	600	507523.799	104426.598	0.945
43	0.101	5.00	17.526	1350	507517.200	104416.031	1.870
44	0.004	5.00	17.516	600	507520.072	104401.675	0.616
45	0.039	5.00	17.388	600	507510.412	104395.940	1.588
46			17.286	1350	507515.124	104395.392	1.759
47	0.010	5.00	17.297	600	507518.945	104386.749	1.197
48			17.200		507514.127	104386.824	1.700
49	0.010	5.00	17.249	600	507518.152	104378.370	1.049
50	0.034	5.00	17.192	600	507508.339	104376.130	1.292
51			17.097	1350	507512.902	104376.294	1.630

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
52	0.007	5.00	16.997	600	507496.195	104357.148	1.047
53		5.00	17.081	600	507509.292	104363.633	1.081
54	0.026	5.00	16.937	1350	507516.081	104359.555	1.575
55	0.001	5.00	16.999	600	507521.523	104359.381	0.799
56	0.031	5.00	16.865	1350	507519.788	104355.136	1.521
57	0.008	5.00	17.008	600	507532.542	104353.640	0.808
58			16.600	1350	507537.777	104343.378	1.323
59	0.063	5.00	17.116	1200	507559.503	104354.247	1.421
60			16.956	1350	507559.588	104343.552	1.747
61			17.043	1350	507576.803	104343.689	1.888
62			17.000		507589.571	104345.283	2.000
63	0.057	5.00	16.997		507598.585	104350.517	1.997
63_OUT			16.997		507600.120	104347.686	1.997

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	4.850	0.600	17.250	17.201	0.049	39.0	150	5.08	50.0
1.001	2	3	45.674	0.600	17.126	16.857	0.269	169.8	225	5.84	50.0
2.000	3A	3	4.081	0.600	17.300	16.982	0.318	14.8	100	5.04	50.0
1.002	3	5	25.430	0.600	16.857	16.465	0.392	64.9	225	6.10	50.0
3.000	4	5	6.116	0.600	17.000	16.540	0.460	13.5	150	5.04	50.0
1.003	5	7	38.913	0.600	16.398	16.231	0.169	244.7	300	6.75	50.0
4.000	6	7	12.296	0.600	16.403	16.306	0.097	127.3	225	5.18	50.0
1.004	7	9	26.269	0.600	16.231	16.123	0.108	243.1	300	7.19	50.0
5.000	8	9	4.689	0.600	17.200	16.273	0.927	5.1	150	5.02	50.0
1.005	9	11	21.770	0.600	16.123	16.024	0.099	244.6	300	7.55	50.0
6.000	10	11	7.050	0.600	17.050	16.184	0.866	8.1	150	5.05	50.0
1.006	11	13	18.465	0.600	16.034	15.958	0.076	243.6	300	7.36	50.0
7.000	12	13	4.783	0.600	17.450	16.108	1.342	3.6	150	5.01	50.0
1.007	13	14	5.596	0.600	15.958	15.935	0.023	240.7	300	7.95	50.0
1.008	14	16	5.499	0.600	15.935	15.912	0.023	239.1	300	8.04	50.0
8.000	15	16	4.342	0.600	16.850	16.062	0.788	5.5	150	5.02	50.0
1.009	16	22	29.749	0.600	15.912	15.625	0.277	107.2	300	8.36	50.0
9.000	17	19	13.630	0.600	16.200	15.967	0.233	58.6	150	5.17	50.0
10.000	18	19	6.792	0.600	16.100	15.967	0.133	65.4	150	5.12	50.0
9.001	19	20	23.388	0.600	15.830	15.754	0.076	169.5	225	5.56	50.0
11.000	21A	20	6.399	0.600	16.150	15.929	0.221	19.9	150	5.05	50.0
9.002	20	22	7.321	0.600	15.679	15.635	0.044	166.4	300	5.66	50.0
12.000	21	22	5.605	0.600	16.900	15.785	1.115	5.0	150	5.02	50.0
1.010	22	23	28.649	0.600	15.580	15.471	0.089	321.3	375	8.84	50.0
1.011	23	24	17.427	0.600	15.471	15.100	0.371	47.0	375	8.95	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.000	1.010	17.8	2.8	1.383	1.354	0.021	0.0	41	0.743
1.001	1.000	39.8	5.6	1.354	1.204	0.041	0.0	57	0.709
2.000	2.022	15.9	2.8	1.010	1.204	0.021	0.0	29	1.526
1.002	1.625	64.6	8.4	1.204	1.342	0.062	0.0	55	1.134
3.000	2.776	49.1	2.7	1.010	1.342	0.020	0.0	24	1.489
1.003	1.000	70.7	17.5	1.342	1.263	0.129	0.0	101	0.832
4.000	1.157	46.0	2.6	1.357	1.263	0.019	0.0	36	0.623
1.004	1.004	70.9	27.8	1.263	1.631	0.205	0.0	130	0.945
5.000	3.385	79.6	1.4	0.882	1.631	0.010	0.0	14	1.709
1.005	1.001	70.7	35.5	1.631	1.869	0.262	0.0	150	1.001
6.000	3.550	62.8	3.9	1.170	1.869	0.029	0.0	25	1.992
1.006	1.004	71.0	39.4	1.869	1.804	0.291	0.0	160	1.029
7.000	3.346	95.0	0.1	0.820	1.804	0.001	0.0	4	0.921
1.007	1.009	71.3	42.7	1.804	1.760	0.315	0.0	167	1.052
1.008	1.012	71.5	42.7	1.760	1.723	0.315	0.0	167	1.056
8.000	3.320	76.3	1.9	1.104	1.723	0.014	0.0	16	1.816
1.009	1.518	107.3	44.6	1.723	1.701	0.329	0.0	134	1.449
9.000	1.316	23.3	9.5	1.239	1.200	0.070	0.0	67	1.249
10.000	1.245	22.0	5.3	1.148	1.200	0.039	0.0	50	1.027
9.001	1.001	39.8	20.5	1.200	1.582	0.151	0.0	115	1.009
11.000	2.266	40.0	3.3	1.346	1.582	0.024	0.0	29	1.373
9.002	1.216	85.9	23.7	1.582	1.701	0.175	0.0	108	1.044
12.000	4.525	80.0	4.2	0.711	1.701	0.031	0.0	23	2.393
1.010	1.004	110.9	72.5	1.701	1.287	0.535	0.0	222	1.068
1.011	2.649	292.6	72.5	1.287	1.522	0.535	0.0	126	2.209

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.012	24	63	1.000	0.600	15.000	15.000	0.000	0.0	375	8.28	50.0
13.000	25	27	9.140	0.600	16.550	16.267	0.283	32.3	225	5.97	50.0
14.000	26	27	7.168	0.600	16.450	16.342	0.108	68.3	150	5.10	50.0
13.001	27	31	28.348	0.600	16.192	16.023	0.169	167.7	300	5.49	50.0
15.000	28	30	6.809	0.600	16.425	16.322	0.103	67.1	150	5.09	50.0
16.000	29	30	5.203	0.600	16.850	16.322	0.528	8.9	150	5.03	50.0
15.001	30	31	14.598	0.600	16.247	16.098	0.149	109.0	225	5.29	50.0
13.002	31	35	10.371	0.600	16.023	15.989	0.034	241.2	300	5.66	50.0
17.000	32	33	8.692	0.600	16.950	16.754	0.196	44.4	150	5.10	50.0
17.001	33	35	7.746	0.600	16.754	16.130	0.624	12.4	150	5.14	50.0
18.000	34	35	6.119	0.600	17.050	16.130	0.920	6.7	150	5.03	50.0
13.003	35	37	26.418	0.600	15.989	15.872	0.117	244.6	300	6.10	50.0
19.000	36	37	7.798	0.600	16.613	16.022	0.591	13.2	150	5.05	50.0
13.004	37	39	17.243	0.600	15.872	15.801	0.071	243.1	300	6.36	50.0
20.000	38	39	6.241	0.600	16.600	15.951	0.649	9.6	150	5.05	50.0
13.005	39	41	11.191	0.600	15.726	15.691	0.035	319.7	375	6.57	50.0
21.000	40	41	6.510	0.600	16.400	15.916	0.484	13.5	150	5.04	50.0
13.006	41	43	11.079	0.600	15.691	15.656	0.035	316.6	375	6.75	50.0
22.000	42	43	12.438	0.600	16.850	15.891	0.959	12.9	150	5.07	50.0
13.007	43	46	20.743	0.600	15.656	15.527	0.129	160.3	375	6.99	50.0
23.000	44	46	7.997	0.600	16.900	16.752	0.148	7.0	150	5.05	50.0
24.000	45	46	4.744	0.600	15.800	15.752	0.048	98.8	150	5.06	50.0
13.008	46	48	8.626	0.600	15.527	15.509	0.018	320.0	375	7.14	50.0
25.000	47	48	4.819	0.600	16.100	15.725	0.375	12.6	150	5.03	50.0
13.009	48	51	10.691	0.600	15.509	15.467	0.042	320.0	375	7.31	50.0
26.000	49	51	5.646	0.600	16.200	15.692	0.508	11.1	150	5.03	50.0
27.000	50	51	4.566	0.600	15.900	15.692	0.208	22.0	150	5.04	50.0
13.010	51	54	17.038	0.600	15.467	15.362	0.105	162.3	375	7.51	50.0
28.000	52	54	20.031	0.600	15.950	15.587	0.363	55.2	150	5.25	50.0
29.000	53	54	7.920	0.600	16.000	15.587	0.413	19.2	150	5.06	50.0
13.011	54	56	5.768	0.600	15.362	15.344	0.018	320.0	375	7.61	50.0
30.000	55	56	4.586	0.600	16.200	15.569	0.631	7.3	150	5.02	50.0
13.012	56	58	21.491	0.600	15.344	15.277	0.067	320.8	375	7.96	50.0
31.000	57	58	11.520	0.600	16.200	15.502	0.698	16.5	150	5.08	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
1.012	1.000	110.4	72.5	1.622	1.622	0.535	0.0	0	∞
13.000	2.310	91.8	4.6	1.348	1.200	0.034	0.0	34	1.211
14.000	1.237	21.9	5.3	1.360	1.200	0.039	0.0	50	1.020
13.001	1.211	85.6	16.3	1.200	1.652	0.120	0.0	88	0.938
15.000	1.229	21.7	0.3	1.119	1.200	0.002	0.0	12	0.420
16.000	3.319	56.9	0.3	0.785	1.200	0.002	0.0	7	0.792
15.001	1.303	51.8	3.0	1.200	1.652	0.022	0.0	36	0.713
13.002	1.008	71.2	19.2	1.652	1.797	0.142	0.0	106	0.860
17.000	1.514	26.7	3.0	1.280	1.388	0.022	0.0	34	1.001
17.001	2.875	50.8	5.6	1.388	1.797	0.041	0.0	33	1.885
18.000	3.842	69.5	4.1	0.868	1.797	0.030	0.0	24	2.143
13.003	1.001	70.7	33.2	1.797	1.773	0.245	0.0	144	0.985
19.000	2.788	49.3	0.5	1.430	1.773	0.004	0.0	11	0.898
13.004	1.004	70.9	36.2	1.773	1.662	0.267	0.0	152	1.009
20.000	3.264	57.7	2.7	1.155	1.662	0.020	0.0	22	1.669
13.005	1.008	111.3	41.2	1.662	1.585	0.304	0.0	158	0.935
21.000	2.761	48.8	2.7	1.208	1.585	0.020	0.0	24	1.481
13.006	1.013	111.9	43.9	1.585	1.495	0.324	0.0	163	0.954
22.000	2.824	49.9	0.9	0.795	1.495	0.007	0.0	14	1.098
13.007	1.426	157.5	58.5	1.495	1.384	0.432	0.0	158	1.323
23.000	3.842	67.9	0.5	0.868	1.384	0.004	0.0	10	1.148
24.000	1.011	17.9	5.3	1.438	1.384	0.039	0.0	56	0.882
13.008	1.007	111.2	64.4	1.384	1.325	0.475	0.0	205	1.042
25.000	2.825	49.9	1.4	1.047	1.325	0.010	0.0	17	1.240
13.009	1.007	111.2	65.7	1.325	1.255	0.485	0.0	208	1.047
26.000	3.849	53.7	1.4	0.899	1.255	0.010	0.0	17	1.305
27.000	2.159	38.1	4.6	1.142	1.255	0.034	0.0	35	1.458
13.010	1.419	156.8	71.7	1.255	1.200	0.529	0.0	178	1.388
28.000	1.357	24.0	0.9	0.897	1.200	0.007	0.0	20	0.655
29.000	2.310	40.8	0.0	0.931	1.200	0.000	0.0	0	0.000
13.011	1.007	111.2	76.2	1.200	1.146	0.562	0.0	228	1.081
30.000	0.761	66.5	0.1	0.849	1.146	0.001	0.0	5	0.703
13.012	1.006	111.1	80.5	1.146	0.948	0.594	0.0	237	1.092
31.000	2.491	44.0	1.1	0.608	0.948	0.008	0.0	16	1.044

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
13.013	58	60	21.812	0.600	15.277	15.209	0.068	320.0	375	8.33	50.0
32.000	59	60	19.695	0.600	15.695	15.434	0.261	41.0	150	5.11	50.0
13.014	60	61	17.216	0.600	15.209	15.155	0.054	320.0	375	8.61	50.0
13.015	61	62	12.867	0.600	15.155	15.115	0.040	320.0	375	8.82	50.0
13.016	62	63	1.000	0.600	15.000	15.000	0.000	0.0	375	8.77	50.0
1.013	63	63_OUT	1.000	0.600	15.000	15.000	0.000	0.0	450	8.30	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)	Pro Depth (mm)	Pro Velocity (m/s)
13.013	1.006	111.1	81.6	0.943	1.372	0.602	0.0	239	1.095
32.000	1.576	27.9	8.5	1.271	1.372	0.063	0.0	57	1.391
13.014	1.007	111.2	90.1	1.372	1.513	0.665	0.0	257	1.116
13.015	1.007	111.2	90.1	1.513	1.510	0.665	0.0	257	1.116
13.016	1.006	110.4	90.1	1.625	1.622	0.665	0.0	0	∞
1.013	1.000	159.0	170.4	1.547	1.547	1.257	0.0	0	∞

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	4.850	89.0	150	PH1	18.783	17.250	1.383	18.705	17.201	1.354
1.001	45.674	169.8	225	PH1	18.705	17.126	1.354	18.286	16.857	1.204
2.000	4.691	14.8	100	PH1	18.416	17.300	1.016	18.286	16.982	1.204
1.002	25.439	64.9	225	PH1	18.286	16.857	1.204	18.032	16.465	1.342
3.000	6.116	13.3	150	PH1	18.220	17.000	1.070	18.032	16.940	1.342
1.003	58.915	244.7	300	PH1	18.032	16.330	1.342	17.794	16.231	1.263
4.000	12.286	127.2	225	PH1	17.985	16.403	1.357	17.794	16.206	1.263
1.004	26.260	249.1	300	PH1	17.794	16.231	1.263	18.054	16.123	1.631
5.000	4.638	5.1	150	PH1	18.212	17.200	0.962	18.054	16.273	1.631
1.005	21.770	244.6	300	PH1	18.054	16.123	1.631	18.203	16.034	1.869
6.000	7.039	8.1	150	PH1	18.376	17.050	1.176	18.203	16.184	1.869
1.006	18.465	243.0	300	PH1	18.203	16.034	1.869	18.062	15.958	1.804
7.000	4.783	3.6	150	PH1	18.220	17.450	0.420	18.062	16.108	1.804
1.007	5.536	240.7	300	PH1	18.062	15.958	1.804	17.995	15.935	1.760
1.008	5.489	239.1	300	PH1	17.995	15.935	1.760	17.935	15.912	1.723
8.000	4.342	5.5	150	PH1	18.104	16.850	1.104	17.935	16.062	1.723
1.009	29.749	197.2	300	PH1	17.935	15.912	1.723	17.636	15.635	1.701
9.000	13.650	58.6	150	PH1	17.589	16.200	1.239	17.317	15.967	1.200
10.000	8.702	65.4	150	PH1	17.398	16.100	1.148	17.317	15.967	1.200
9.001	23.388	169.5	225	PH1	17.317	15.892	1.200	17.561	15.754	1.582
11.000	6.399	13.9	150	PH1	17.646	16.150	1.346	17.561	15.829	1.582
9.002	7.921	160.4	300	PH1	17.561	15.679	1.582	17.636	15.635	1.701
12.000	5.685	5.0	150	PH1	17.771	16.900	0.721	17.636	15.785	1.701
1.010	26.649	321.9	375	PH1	17.636	15.560	1.701	17.133	15.471	1.287

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	600	Manhole	Acceptable	2	1200	Manhole	Acceptable
1.001	2	1200	Manhole	Acceptable	3	1200	Manhole	Acceptable
2.000	3A	600	Manhole	Acceptable	3	1200	Manhole	Acceptable
1.002	3	1200	Manhole	Acceptable	5	1200	Manhole	Acceptable
3.000	4	1200	Manhole	Acceptable	5	1200	Manhole	Acceptable
1.003	5	1200	Manhole	Acceptable	7	1200	Manhole	Acceptable
4.000	6	600	Manhole	Acceptable	7	1200	Manhole	Acceptable
1.004	7	1200	Manhole	Acceptable	9	1200	Manhole	Acceptable
5.000	8	600	Manhole	Acceptable	9	1200	Manhole	Acceptable
1.005	9	1200	Manhole	Acceptable	11	1200	Manhole	Acceptable
6.000	10	600	Manhole	Acceptable	11	1200	Manhole	Acceptable
1.006	11	1200	Manhole	Acceptable	13	1200	Manhole	Acceptable
7.000	12	600	Manhole	Acceptable	13	1200	Manhole	Acceptable
1.007	13	1200	Manhole	Acceptable	14	1200	Manhole	Acceptable
1.008	14	1200	Manhole	Acceptable	16	1200	Manhole	Acceptable
8.000	15	600	Manhole	Acceptable	16	1200	Manhole	Acceptable
1.009	16	1200	Manhole	Acceptable	22	1350	Manhole	Acceptable
9.000	17	600	Manhole	Acceptable	19	1200	Manhole	Acceptable
10.000	18	600	Manhole	Acceptable	19	1200	Manhole	Acceptable
9.001	19	1200	Manhole	Acceptable	20	1200	Manhole	Acceptable
11.000	21A	600	Manhole	Acceptable	20	1200	Manhole	Acceptable
9.002	20	1200	Manhole	Acceptable	22	1350	Manhole	Acceptable
12.000	21	600	Manhole	Acceptable	22	1350	Manhole	Acceptable
1.010	22	1350	Manhole	Acceptable	23	1350	Manhole	Acceptable

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.011	17.427	47.0	375	PH1	17.133	15.471	1.287	16.997	15.100	1.522
1.012	1.000	0.0	375	PH1	16.997	15.000	1.622	16.997	15.000	1.622
13.000	9.148	32.3	225	PH1	17.923	16.550	1.118	17.692	16.247	1.200
14.000	7.160	66.3	150	PH1	17.760	16.450	1.140	17.692	16.342	1.200
13.001	28.348	167.7	300	PH1	17.692	16.152	1.200	17.975	16.823	1.652
15.000	6.908	67.1	150	PH1	17.714	16.425	1.138	17.672	16.322	1.200
16.000	5.238	9.9	150	PH1	17.785	16.850	0.795	17.672	16.322	1.200
15.001	14.890	100.6	225	PH1	17.672	16.247	1.200	17.975	16.098	1.652
13.002	10.371	241.2	300	PH1	17.975	16.923	1.652	18.077	16.980	1.797
17.000	9.682	44.4	150	PH1	18.380	16.950	1.280	18.292	16.754	1.388
17.001	7.746	12.4	150	PH1	18.292	16.754	1.388	18.077	16.130	1.797
18.000	6.118	6.7	150	PH1	18.168	17.050	0.948	18.077	16.130	1.797
13.003	26.418	244.6	300	PH1	18.077	15.980	1.797	17.945	15.872	1.773
19.000	7.798	13.2	150	PH1	18.193	16.613	1.430	17.945	16.622	1.773
13.004	17.283	243.1	300	PH1	17.945	15.872	1.773	17.763	15.601	1.662
20.000	6.261	9.6	150	PH1	17.905	16.600	1.150	17.763	15.951	1.662
13.005	11.131	313.7	375	PH1	17.763	15.726	1.662	17.651	15.681	1.585
21.000	6.510	10.5	150	PH1	17.758	16.400	1.208	17.651	15.916	1.585
13.006	11.079	316.6	375	PH1	17.651	15.681	1.585	17.526	15.656	1.495
22.000	12.458	12.9	150	PH1	17.795	16.850	0.735	17.526	15.881	1.495
13.007	20.743	160.8	375	PH1	17.526	15.656	1.495	17.286	15.527	1.384
23.000	7.997	7.0	150	PH1	17.516	16.900	0.166	17.286	15.752	1.384
24.000	4.744	98.8	150	PH1	17.388	15.800	1.438	17.286	15.752	1.384
13.008	8.636	320.0	375	PH1	17.286	15.527	1.384	17.200	15.500	1.325
25.000	4.819	12.8	150	PH1	17.297	16.100	1.047	17.200	15.725	1.325
13.009	10.691	320.0	375	PH1	17.200	15.500	1.325	17.097	15.447	1.255
26.000	5.646	11.1	150	PH1	17.249	16.200	0.899	17.097	15.692	1.255
27.000	4.566	22.0	150	PH1	17.192	15.900	1.140	17.097	15.692	1.255
13.010	17.038	162.3	375	PH1	17.097	15.467	1.255	16.937	15.362	1.200
28.000	20.831	55.2	150	PH1	16.997	15.950	0.897	16.937	15.587	1.200
29.000	7.930	13.2	150	PH1	17.081	16.000	0.881	16.937	15.587	1.200
13.011	5.788	320.0	375	PH1	16.937	15.362	1.200	16.865	15.344	1.146
30.000	4.586	7.3	150	PH1	16.999	16.200	0.619	16.865	15.569	1.116
13.012	21.481	320.8	375	PH1	16.865	15.344	1.146	16.600	15.277	0.948
31.000	11.520	18.5	150	PH1	17.008	16.200	0.808	16.600	15.502	0.948

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.011	23	1350	Manhole	Adoptable	24		Junction	
1.012	24		Junction		63		Junction	
13.000	25	1200	Manhole	Adoptable	27	1200	Manhole	Adoptable
14.000	26	600	Manhole	Adoptable	27	1200	Manhole	Adoptable
13.001	27	1200	Manhole	Adoptable	31	1200	Manhole	Adoptable
15.000	28	600	Manhole	Adoptable	30	1200	Manhole	Adoptable
16.000	29	600	Manhole	Adoptable	30	1200	Manhole	Adoptable
15.001	30	1200	Manhole	Adoptable	31	1200	Manhole	Adoptable
13.002	31	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
17.000	32	600	Manhole	Adoptable	33	1200	Manhole	Adoptable
17.001	33	1200	Manhole	Adoptable	35	1200	Manhole	Adoptable
18.000	34	600	Manhole	Adoptable	35	1200	Manhole	Adoptable
13.003	35	1200	Manhole	Adoptable	37	1200	Manhole	Adoptable
19.000	36	600	Manhole	Adoptable	37	1200	Manhole	Adoptable
13.004	37	1200	Manhole	Adoptable	39	1350	Manhole	Adoptable
20.000	38	600	Manhole	Adoptable	39	1350	Manhole	Adoptable
13.005	39	1350	Manhole	Adoptable	41	1350	Manhole	Adoptable
21.000	40	600	Manhole	Adoptable	41	1350	Manhole	Adoptable
13.006	41	1350	Manhole	Adoptable	43	1350	Manhole	Adoptable
22.000	42	600	Manhole	Adoptable	43	1350	Manhole	Adoptable
13.007	43	1350	Manhole	Adoptable	46	1350	Manhole	Adoptable
23.000	44	600	Manhole	Adoptable	46	1350	Manhole	Adoptable
24.000	45	600	Manhole	Adoptable	46	1350	Manhole	Adoptable
13.008	46	1350	Manhole	Adoptable	48		Junction	
25.000	47	600	Manhole	Adoptable	48		Junction	
13.009	48		Junction		51	1350	Manhole	Adoptable
26.000	49	600	Manhole	Adoptable	51	1350	Manhole	Adoptable
27.000	50	600	Manhole	Adoptable	51	1350	Manhole	Adoptable
13.010	51	1350	Manhole	Adoptable	54	1350	Manhole	Adoptable
28.000	52	600	Manhole	Adoptable	54	1350	Manhole	Adoptable
29.000	53	600	Manhole	Adoptable	54	1350	Manhole	Adoptable
13.011	54	1350	Manhole	Adoptable	56	1350	Manhole	Adoptable
30.000	55	600	Manhole	Adoptable	56	1350	Manhole	Adoptable
13.012	56	1350	Manhole	Adoptable	58	1350	Manhole	Adoptable
31.000	57	600	Manhole	Adoptable	58	1350	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
13.013	21.812	320.0	375	PH1	16.600	15.277	0.948	16.956	15.209	1.372
32.000	10.000	41.0	150	PH1	17.116	15.695	1.271	16.956	15.434	1.372
13.014	17.218	320.0	375	PH1	16.956	15.209	1.372	17.043	15.155	1.513
13.015	12.867	320.0	375	PH1	17.043	15.155	1.513	17.000	15.115	1.510
13.016	1.000	0.0	375	PH1	17.000	15.000	1.625	16.997	15.000	1.622
1.013	1.000	0.0	450	PH1	16.997	15.000	1.547	16.997	15.000	1.547

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
13.013	58	1350	Manhole	Adoptable	60	1350	Manhole	Adoptable
32.000	59	1200	Manhole	Adoptable	60	1350	Manhole	Adoptable
13.014	60	1350	Manhole	Adoptable	61	1350	Manhole	Adoptable
13.015	61	1350	Manhole	Adoptable	62		Junction	
13.016	62		Junction		63		Junction	
1.013	63		Junction		63_OUT		Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
1	507604.297	104590.960	18.783	1.533	600				
							0	1.000	17.250
2	507609.104	104590.317	18.705	1.579	1200		1	1.000	17.201
							0	1.001	17.126
3A	507600.356	104546.980	18.416	1.116	600				
							0	2.000	17.360
3	507604.546	104544.871	18.286	1.429	1200		1	2.000	18.982
							2	1.001	18.857
							0	1.002	18.857
4	507598.499	104519.863	18.220	1.220	1200				
							0	3.000	17.000
5	507604.600	104519.441	18.032	1.642	1200		1	3.000	18.549
							2	1.002	18.465
							0	1.003	18.390
6	507592.416	104481.388	17.985	1.582	600				
							0	4.000	18.403
7	507604.682	104480.526	17.794	1.563	1200		1	4.000	18.306
							2	1.003	18.231
							0	1.004	18.231
8	507603.259	104454.637	18.212	1.012	600				
							0	5.000	17.200
9	507607.955	104454.471	18.054	1.931	1200		1	5.000	18.273
							2	1.004	18.123
							0	1.005	18.123
10	507605.544	104431.716	18.376	1.326	600				
							0	6.000	17.050
11	507612.443	104433.169	18.203	2.169	1200		1	6.000	18.104
							2	1.005	18.034
							0	1.006	18.034
12	507611.772	104416.783	18.220	0.770	600				
							0	7.000	17.450



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
13	507616.249	104415.101	18.062	2.104	1200		1 7.000 2 1.006	18.168 18.938	150 300
14	507614.301	104409.919	17.995	2.060	1200		1 1.007 0 1.008	18.998 18.995	300 300
15	507609.485	104410.317	18.104	1.254	600		0 8.000	18.850	150
16	507610.376	104406.067	17.935	2.023	1200		1 8.000 2 1.008 0 1.009	18.062 18.912 18.912	150 300 300
17	507554.582	104428.791	17.589	1.389	600		0 9.000	16.200	150
18	507550.025	104413.026	17.398	1.298	600		0 10.000	16.100	150
19	507558.318	104415.662	17.317	1.425	1200		1 10.000 2 9.000 0 9.001	18.967 18.967 18.892	150 150 225
21A	507571.233	104393.677	17.646	1.496	600		0 11.000	16.150	150
20	507574.752	104399.021	17.561	1.882	1200		1 11.000 2 9.001 0 9.002	18.829 18.754 15.679	150 225 300
21	507581.516	104403.042	17.771	0.871	600		0 12.000	16.900	150
22	507581.902	104397.450	17.636	2.076	1350		1 12.000 2 9.002 3 1.009 0 1.010	18.785 15.635 18.835 18.560	150 300 300 375
23	507579.084	104368.940	17.133	1.662	1350		1 1.010 0 1.011	18.471 15.471	375 375
24	507592.222	104357.490	16.997	1.997			1 1.011 0 1.012	15.100 15.000	375 375
25	507518.841	104520.178	17.923	1.373	1200		0 13.000	16.850	225
26	507502.741	104517.634	17.760	1.310	600		0 14.000	16.450	150
27	507509.813	104518.751	17.692	1.500	1200		1 14.000 2 13.000 0 13.001	18.342 16.267 16.192	150 225 300
28	507496.093	104488.048	17.714	1.289	600		0 15.000	16.425	150
29	507498.786	104499.168	17.785	0.935	600		0 16.000	16.850	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
30	507499.603	104493.999	17.672	1.425	1200		1 16.000 2 15.000	16.000 16.000	150 150
31	507514.237	104490.750	17.975	1.952	1200		0 15.001 1 15.001 2 13.001	16.247 16.098 16.023	225 225 300
32	507530.251	104478.473	18.380	1.430	600		0 13.002	16.023	300
33	507521.618	104479.484	18.292	1.538	1200		0 17.000 1 17.000	16.950 16.754	150 150
34	507507.885	104481.373	18.168	1.118	600		0 17.001	16.754	150
35	507513.924	104480.384	18.077	2.097	1200		0 18.000 1 18.000 2 17.001 3 13.002	17.050 16.130 16.130 15.980	150 150 150 300
36	507517.347	104455.603	18.193	1.580	600		0 13.003	15.980	300
37	507509.656	104454.313	17.945	2.073	1200		0 19.000 1 19.000 2 13.003	16.613 16.022 15.872	150 150 300
38	507506.498	104439.028	17.905	1.305	600		0 13.004	15.872	300
39	507512.512	104437.288	17.763	2.037	1350		0 20.000 1 20.000 2 13.004	16.500 15.951 15.801	150 150 300
40	507506.085	104426.660	17.758	1.358	600		0 13.005	15.726	375
41	507512.571	104426.097	17.651	1.960	1350		0 21.000 1 21.000 2 13.005	16.400 15.912 15.691	150 150 375
42	507523.799	104426.598	17.795	0.945	600		0 13.006	15.691	375
43	507517.200	104416.031	17.526	1.870	1350		0 22.000 1 22.000 2 13.006	16.850 15.981 15.636	150 150 375
44	507520.072	104401.675	17.516	0.616	600		0 13.007	15.636	375
45	507510.412	104395.940	17.388	1.588	600		0 23.000	16.900	150
46	507515.124	104395.392	17.286	1.759	1350		0 24.000 1 24.000 2 23.000 3 13.007	15.800 15.752 15.752 15.527	150 150 150 375
47	507518.945	104386.749	17.297	1.197	600		0 13.008	15.527	375
							0 25.000	16.100	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
48	507514.127	104386.824	17.200	1.700			1 25.000 2 13.008 0 13.009	15.725 15.300 15.500	150 375 375
49	507518.152	104378.370	17.249	1.049	600		0 26.000	16.200	150
50	507508.339	104376.130	17.192	1.292	600		0 27.000	15.200	150
51	507512.902	104376.294	17.097	1.630	1350		1 27.000 2 26.000 3 13.009 0 13.010	15.692 15.692 15.467 15.467	150 150 375 375
52	507496.195	104357.148	16.997	1.047	600		0 28.000	15.950	150
53	507509.292	104363.633	17.081	1.081	600		0 29.000	16.000	150
54	507516.081	104359.555	16.937	1.575	1350		1 29.000 2 28.000 3 13.010 0 13.011	15.587 15.587 15.362 15.362	150 150 375 375
55	507521.523	104359.381	16.999	0.799	600		0 30.000	16.200	150
56	507519.788	104355.136	16.865	1.521	1350		1 30.000 2 13.011 0 13.012	15.569 15.344 15.344	150 375 375
57	507532.542	104353.640	17.008	0.808	600		0 31.000	16.200	150
58	507537.777	104343.378	16.600	1.323	1350		1 31.000 2 13.012 0 13.013	15.502 15.277 15.277	150 375 375
59	507559.503	104354.247	17.116	1.421	1200		0 32.000	15.695	150
60	507559.588	104343.552	16.956	1.747	1350		1 32.000 2 13.013 0 13.014	15.434 15.209 15.209	150 375 375
61	507576.803	104343.689	17.043	1.888	1350		1 13.014 0 13.015	15.155 15.155	375 375
62	507589.571	104345.283	17.000	2.000			1 13.015 0 13.016	15.115 15.000	375 375
63	507598.585	104350.517	16.997	1.997			1 13.016 2 1.012 0 1.013	15.000 15.000 15.000	375 375 450
63_OUT	507600.120	104347.686	16.997	1.997			1 1.013	15.000	450

Simulation Settings

Rainfall Methodology FSR FSR Region England and Wales M5-60 (mm) 19.000 Ratio-R 0.350 Summer CV 0.750 Winter CV 0.840	Analysis Speed Detailed Skip Steady State x Drain Down Time (mins) 240 Additional Storage (m³/ha) 20.0 Check Discharge Rate(s) x Check Discharge Volume x
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Storm Durations

15 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.00000 Side Inf Coefficient (m/hr) 0.00000 Safety Factor 6.5	Porosity 1.00 Invert Level (m) 15.000 Time to half empty (mins)
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Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	316.0	0.0	0.700	554.6	0.0	1.400	935.2	0.0	2.001	0.0	0.0
0.100	347.1	0.0	0.800	592.7	0.0	1.500	999.5	0.0	2.200	0.0	0.0
0.200	379.2	0.0	0.900	644.7	0.0	1.600	1065.8	0.0	2.300	0.0	0.0
0.300	412.3	0.0	1.000	698.7	0.0	1.700	1134.1	0.0	2.400	0.0	0.0
0.400	446.4	0.0	1.100	754.7	0.0	1.800	1204.5	0.0	2.500	0.0	0.0
0.500	481.5	0.0	1.200	812.8	0.0	1.900	1277.0	0.0			
0.600	517.6	0.0	1.300	873.0	0.0	2.000	1351.9	0.0			

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.69480 Side Inf Coefficient (m/hr) 0.69480 Safety Factor 6.5	Porosity 0.30 Invert Level (m) 13.900 Time to half empty (mins) 15
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Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	802.5	802.5	0.800	802.5	906.5	0.801	0.0	906.5

Node 63 OUT Depth/Area Storage Structure

Base Inf Coefficient (m/hr) 0.00000 Side Inf Coefficient (m/hr) 0.00000 Safety Factor 6.5	Porosity 0.30 Invert Level (m) 14.700 Time to half empty (mins)
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Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	316.0	0.0	0.300	316.0	0.0	0.301	0.0	0.0

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	17.313	0.063	5.7	0.0353	0.0000	OK
15 minute winter	2	10	17.208	0.082	11.0	0.1129	0.0000	OK
15 minute winter	3A	10	17.345	0.045	5.7	0.0298	0.0000	OK
15 minute winter	3	11	16.937	0.080	16.5	0.0900	0.0000	OK
15 minute winter	4	10	17.035	0.035	5.4	0.0517	0.0000	OK
15 minute winter	5	11	16.535	0.144	33.8	0.2455	0.0000	OK
15 minute winter	6	12	16.471	0.068	5.2	0.0358	0.0000	OK
15 minute winter	7	12	16.466	0.235	53.4	0.4364	0.0000	OK
15 minute winter	8	10	17.219	0.019	2.7	0.0091	0.0000	OK
15 minute winter	9	12	16.414	0.291	64.4	0.4705	0.0000	OK
15 minute winter	10	10	17.086	0.036	7.9	0.0259	0.0000	OK
15 minute winter	11	11	16.337	0.303	68.6	0.3427	0.0000	SURCHARGED
15 minute winter	12	11	17.456	0.006	0.3	0.0019	0.0000	OK
15 minute winter	13	11	16.251	0.293	74.0	0.3953	0.0000	OK
15 minute winter	14	11	16.190	0.255	73.5	0.2881	0.0000	OK
15 minute winter	15	9	16.873	0.023	3.8	0.0117	0.0000	OK
15 minute winter	16	11	16.116	0.204	76.7	0.2302	0.0000	OK
15 minute winter	17	10	16.312	0.112	19.1	0.1446	0.0000	OK
15 minute winter	18	10	16.178	0.078	10.6	0.0693	0.0000	OK
15 minute winter	19	11	16.092	0.200	40.9	0.3432	0.0000	OK
15 minute summer	21A	10	16.192	0.042	6.2	0.0256	0.0000	OK
15 minute winter	20	11	15.893	0.214	46.3	0.2415	0.0000	OK
15 minute winter	21	9	16.934	0.034	8.4	0.0337	0.0000	OK
15 minute winter	22	11	15.865	0.305	130.1	0.4366	0.0000	OK
15 minute winter	23	12	15.658	0.187	128.4	0.2680	0.0000	OK
15 minute winter	24	12	15.379	0.379	129.4	0.0000	0.0000	SURCHARGED
15 minute winter	25	10	16.600	0.050	9.3	0.0820	0.0000	OK
15 minute winter	26	10	16.531	0.081	10.6	0.0708	0.0000	OK
15 minute winter	27	10	16.318	0.126	32.5	0.2210	0.0000	OK
15 minute summer	28	11	16.441	0.016	0.5	0.0050	0.0000	OK
15 minute summer	29	11	16.860	0.010	0.5	0.0033	0.0000	OK
15 minute winter	30	10	16.298	0.051	5.9	0.0701	0.0000	OK
15 minute winter	31	11	16.246	0.223	37.9	0.2521	0.0000	OK
15 minute winter	32	10	17.001	0.051	6.0	0.0301	0.0000	OK
15 minute winter	33	10	16.802	0.048	11.1	0.0657	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	1	1.000	2	5.6	0.847	0.316	0.0323
15 minute winter	2	1.001	3	10.8	0.857	0.272	0.5793
15 minute winter	3A	2.000	3	5.7	1.746	0.357	0.0152
15 minute winter	3	1.002	5	16.4	1.339	0.254	0.3116
15 minute winter	4	3.000	5	5.4	1.757	0.109	0.0187
15 minute winter	5	1.003	7	33.8	0.778	0.478	1.7604
15 minute winter	6	4.000	7	5.1	0.579	0.112	0.2478
15 minute winter	7	1.004	9	49.7	0.850	0.701	1.6925
15 minute winter	8	5.000	9	2.7	1.768	0.034	0.0429
15 minute winter	9	1.005	11	61.4	0.921	0.867	1.5261
15 minute winter	10	6.000	11	7.9	2.179	0.125	0.0730
15 minute winter	11	1.006	13	67.9	0.966	0.957	1.2961
15 minute winter	12	7.000	13	0.3	1.037	0.003	0.0420
15 minute winter	13	1.007	14	73.5	1.091	1.031	0.3702
15 minute winter	14	1.008	16	73.4	1.285	1.026	0.3152
15 minute winter	15	8.000	16	3.8	2.138	0.050	0.0157
15 minute winter	16	1.009	22	76.8	1.539	0.716	1.6193
15 minute winter	17	9.000	19	18.9	1.350	0.812	0.2011
15 minute winter	18	10.000	19	10.6	1.002	0.482	0.1073
15 minute winter	19	9.001	20	40.0	1.153	1.006	0.8071
15 minute summer	21A	11.000	20	6.2	1.560	0.154	0.0297
15 minute winter	20	9.002	22	46.0	0.966	0.536	0.4086
15 minute winter	21	12.000	22	8.4	2.780	0.105	0.0345
15 minute winter	22	1.010	23	128.4	1.687	1.158	2.1577
15 minute winter	23	1.011	24	129.4	1.798	0.442	1.2454
15 minute winter	24	1.012	63	129.7	1.177	1.174	0.1102
15 minute winter	25	13.000	27	9.2	1.397	0.101	0.0608
15 minute winter	26	14.000	27	10.5	1.156	0.480	0.0650
15 minute winter	27	13.001	31	32.1	0.821	0.375	1.1860
15 minute summer	28	15.000	30	0.5	0.503	0.023	0.0069
15 minute summer	29	16.000	30	0.5	0.980	0.009	0.0027
15 minute winter	30	15.001	31	5.8	0.661	0.112	0.2563
15 minute winter	31	13.002	35	36.9	0.622	0.518	0.6144
15 minute winter	32	17.000	33	5.9	1.182	0.222	0.0438
15 minute winter	33	17.001	35	11.1	2.030	0.218	0.0654

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	34	10	17.085	0.035	8.2	0.0285	0.0000	OK
15 minute winter	35	11	16.228	0.248	63.4	0.3566	0.0000	OK
15 minute winter	36	10	16.628	0.015	1.1	0.0052	0.0000	OK
15 minute winter	37	12	16.181	0.309	68.9	0.4029	0.0000	SURCHARGED
15 minute summer	38	10	16.632	0.032	5.2	0.0187	0.0000	OK
15 minute winter	39	12	16.113	0.387	77.2	0.6185	0.0000	SURCHARGED
15 minute summer	40	10	16.435	0.035	5.2	0.0201	0.0000	OK
15 minute winter	41	12	16.093	0.402	76.6	0.5752	0.0000	SURCHARGED
15 minute winter	42	10	16.870	0.020	1.9	0.0086	0.0000	OK
15 minute winter	43	12	16.071	0.415	102.6	1.0435	0.0000	SURCHARGED
15 minute winter	44	10	16.913	0.013	1.1	0.0055	0.0000	OK
15 minute winter	45	12	16.028	0.228	10.6	0.1763	0.0000	SURCHARGED
15 minute winter	46	12	16.012	0.485	108.6	0.6947	0.0000	SURCHARGED
15 minute winter	47	10	16.124	0.024	2.7	0.0107	0.0000	OK
15 minute winter	48	12	15.981	0.481	104.6	0.0000	0.0000	SURCHARGED
15 minute winter	49	10	16.223	0.023	2.7	0.0108	0.0000	OK
15 minute winter	50	9	15.954	0.054	9.3	0.0435	0.0000	OK
15 minute winter	51	12	15.943	0.476	111.9	0.6810	0.0000	SURCHARGED
15 minute winter	52	10	15.978	0.028	1.9	0.0118	0.0000	OK
15 minute summer	53	1	16.000	0.000	0.0	0.0000	0.0000	OK
15 minute winter	54	12	15.866	0.504	115.3	0.8878	0.0000	SURCHARGED
15 minute winter	55	11	16.207	0.007	0.3	0.0023	0.0000	OK
15 minute winter	56	12	15.819	0.475	120.8	0.8733	0.0000	SURCHARGED
15 minute winter	57	10	16.223	0.023	2.2	0.0110	0.0000	OK
15 minute winter	58	12	15.708	0.431	121.9	0.6166	0.0000	SURCHARGED
15 minute winter	59	10	15.786	0.091	17.2	0.1844	0.0000	OK
15 minute winter	60	12	15.596	0.387	135.0	0.5535	0.0000	SURCHARGED
15 minute winter	61	12	15.477	0.322	134.8	0.4604	0.0000	OK
15 minute winter	62	12	15.379	0.379	134.6	0.0000	0.0000	SURCHARGED
15 minute winter	63	12	15.375	0.375	276.3	0.2142	0.0000	OK
30 minute winter	63_OUT	35	14.580	-0.420	241.5	163.6565	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	34	18.000	35	8.2	2.359	0.118	0.0465
15 minute winter	35	13.003	37	63.3	1.017	0.894	1.7312
15 minute winter	36	19.000	37	1.1	0.912	0.022	0.0719
15 minute winter	37	13.004	39	67.7	1.161	0.954	1.2156
15 minute summer	38	20.000	39	5.3	1.920	0.091	0.0455
15 minute winter	39	13.005	41	71.5	0.840	0.643	1.2343
15 minute summer	40	21.000	41	5.2	1.737	0.106	0.0558
15 minute winter	41	13.006	43	73.2	0.880	0.654	1.2220
15 minute winter	42	22.000	43	1.9	1.309	0.038	0.1172
15 minute winter	43	13.007	46	97.3	1.047	0.618	2.2879
15 minute winter	44	23.000	46	1.1	1.303	0.016	0.0733
15 minute winter	45	24.000	46	10.2	0.962	0.572	0.0835
15 minute winter	46	13.008	48	101.9	1.003	0.916	0.9514
15 minute winter	47	25.000	48	2.7	1.367	0.054	0.0466
15 minute winter	48	13.009	51	99.9	1.025	0.898	1.1693
15 minute winter	49	26.000	51	2.7	1.426	0.050	0.0544
15 minute winter	50	27.000	51	9.3	1.619	0.243	0.0515
15 minute winter	51	13.010	54	108.2	0.990	0.690	1.8792
15 minute winter	52	28.000	54	1.9	0.720	0.078	0.1994
15 minute summer	53	29.000	54	0.0	0.000	0.000	0.0697
15 minute winter	54	13.011	56	114.3	1.037	1.028	0.6362
15 minute winter	55	30.000	56	0.3	0.837	0.005	0.0411
15 minute winter	56	13.012	58	120.6	1.093	1.085	2.3704
15 minute winter	57	31.000	58	2.2	1.165	0.050	0.1109
15 minute winter	58	13.013	60	122.7	1.112	1.104	2.4058
15 minute winter	59	32.000	60	17.2	1.538	0.617	0.1513
15 minute winter	60	13.014	61	134.8	1.250	1.212	1.8159
15 minute winter	61	13.015	62	134.6	1.443	1.210	1.1954
15 minute winter	62	13.016	63	134.8	1.226	1.220	0.1102
15 minute winter	63	1.013	63_OUT	276.4	1.974	1.738	0.1400
30 minute winter	63_OUT	Infiltration		26.4			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	13	17.717	0.467	14.3	0.2604	0.0000	SURCHARGED
15 minute winter	2	13	17.704	0.578	23.1	0.8005	0.0000	SURCHARGED
15 minute winter	3A	13	17.762	0.462	11.9	0.3048	0.0000	SURCHARGED
15 minute winter	3	13	17.662	0.805	33.3	0.9110	0.0000	SURCHARGED
15 minute winter	4	13	17.618	0.618	11.3	0.9018	0.0000	SURCHARGED
15 minute winter	5	13	17.601	1.211	63.9	2.0628	0.0000	SURCHARGED
15 minute winter	6	13	17.518	1.115	10.8	0.5829	0.0000	SURCHARGED
15 minute winter	7	13	17.514	1.283	75.4	2.3877	0.0000	FLOOD RISK
15 minute winter	8	13	17.368	0.168	5.7	0.0804	0.0000	SURCHARGED
15 minute winter	9	13	17.363	1.240	96.1	2.0058	0.0000	SURCHARGED
15 minute winter	10	13	17.180	0.130	16.4	0.0933	0.0000	OK
15 minute winter	11	13	17.150	1.115	106.3	1.2612	0.0000	SURCHARGED
15 minute winter	12	10	17.458	0.008	0.6	0.0026	0.0000	OK
15 minute winter	13	12	16.912	0.953	115.4	1.2871	0.0000	SURCHARGED
15 minute winter	14	12	16.783	0.848	116.0	0.9588	0.0000	SURCHARGED
15 minute winter	15	10	16.883	0.033	7.9	0.0165	0.0000	OK
15 minute winter	16	12	16.656	0.744	121.4	0.8409	0.0000	SURCHARGED
15 minute winter	17	11	17.498	1.298	39.7	1.6758	0.0000	FLOOD RISK
15 minute winter	18	12	16.993	0.893	22.1	0.7893	0.0000	SURCHARGED
15 minute winter	19	12	16.863	0.971	75.9	1.6699	0.0000	SURCHARGED
15 minute winter	21A	12	16.334	0.184	13.6	0.1112	0.0000	SURCHARGED
15 minute winter	20	12	16.299	0.620	84.6	0.7013	0.0000	SURCHARGED
15 minute winter	21	10	16.948	0.048	17.6	0.0474	0.0000	OK
15 minute winter	22	12	16.220	0.660	217.5	0.9440	0.0000	SURCHARGED
15 minute winter	23	12	15.749	0.278	217.7	0.3974	0.0000	OK
15 minute winter	24	12	15.457	0.457	217.8	0.0000	0.0000	SURCHARGED
15 minute winter	25	13	17.599	1.049	19.3	1.7062	0.0000	SURCHARGED
15 minute winter	26	13	17.646	1.196	22.1	1.0505	0.0000	FLOOD RISK
15 minute winter	27	13	17.593	1.401	52.4	2.4636	0.0000	FLOOD RISK
15 minute winter	28	13	17.561	1.136	12.2	0.3566	0.0000	FLOOD RISK
15 minute winter	29	13	17.560	0.710	7.3	0.2314	0.0000	FLOOD RISK
15 minute winter	30	13	17.559	1.312	21.0	1.8158	0.0000	FLOOD RISK
15 minute winter	31	13	17.552	1.529	55.9	1.7296	0.0000	SURCHARGED
15 minute winter	32	13	17.598	0.648	12.5	0.3822	0.0000	SURCHARGED
15 minute winter	33	13	17.580	0.826	21.7	1.1380	0.0000	SURCHARGED

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	1	1.000	2	11.8	1.007	0.660	0.0854
15 minute winter	2	1.001	3	22.8	1.018	0.573	1.8165
15 minute winter	3A	2.000	3	11.0	1.998	0.691	0.0367
15 minute winter	3	1.002	5	31.4	1.332	0.486	1.0114
15 minute winter	4	3.000	5	10.6	1.987	0.215	0.1077
15 minute winter	5	1.003	7	52.6	0.791	0.744	2.7404
15 minute winter	6	4.000	7	7.6	0.610	0.166	0.4890
15 minute winter	7	1.004	9	74.6	1.059	1.051	1.8492
15 minute winter	8	5.000	9	5.8	1.929	0.073	0.0827
15 minute winter	9	1.005	11	95.5	1.357	1.351	1.5330
15 minute winter	10	6.000	11	15.9	2.213	0.253	0.1191
15 minute winter	11	1.006	13	107.1	1.521	1.509	1.3003
15 minute winter	12	7.000	13	0.6	1.037	0.006	0.0430
15 minute winter	13	1.007	14	116.0	1.647	1.626	0.3898
15 minute winter	14	1.008	16	116.7	1.658	1.631	0.3872
15 minute winter	15	8.000	16	7.9	2.278	0.103	0.0443
15 minute winter	16	1.009	22	122.3	1.737	1.140	2.0949
15 minute winter	17	9.000	19	34.4	1.956	1.481	0.2403
15 minute winter	18	10.000	19	19.1	1.083	0.866	0.1532
15 minute winter	19	9.001	20	73.1	1.837	1.835	0.9302
15 minute winter	21A	11.000	20	12.7	1.653	0.316	0.1127
15 minute winter	20	9.002	22	84.0	1.193	0.978	0.5155
15 minute winter	21	12.000	22	17.6	2.947	0.220	0.0628
15 minute winter	22	1.010	23	217.7	2.051	1.963	2.8336
15 minute winter	23	1.011	24	217.8	2.189	0.744	1.7069
15 minute winter	24	1.012	63	217.8	1.975	1.972	0.1103
15 minute winter	25	13.000	27	14.8	1.354	0.161	0.3635
15 minute winter	26	14.000	27	16.6	1.261	0.757	0.1261
15 minute winter	27	13.001	31	48.3	0.862	0.564	1.9962
15 minute winter	28	15.000	30	~31.1	~0.638	~0.518	0.1216
15 minute winter	29	16.000	30	~8.1	1.158	~0.109	0.0921
15 minute winter	30	15.001	31	15.3	0.679	0.295	0.5962
15 minute winter	31	13.002	35	46.1	0.681	0.647	0.7303
15 minute winter	32	17.000	33	11.6	1.323	0.432	0.1530
15 minute winter	33	17.001	35	19.2	2.059	0.378	0.1364

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.84%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	34	13	17.550	0.500	17.0	0.4092	0.0000	SURCHARGED
15 minute winter	35	13	17.524	1.544	80.3	2.2167	0.0000	SURCHARGED
15 minute winter	36	13	17.362	0.749	7.9	0.2494	0.0000	SURCHARGED
15 minute winter	37	13	17.361	1.489	83.8	1.9426	0.0000	SURCHARGED
15 minute winter	38	13	17.235	0.635	11.3	0.3740	0.0000	SURCHARGED
15 minute winter	39	13	17.223	1.497	95.3	2.3923	0.0000	SURCHARGED
15 minute winter	40	13	17.191	0.791	11.3	0.4565	0.0000	SURCHARGED
15 minute winter	41	13	17.178	1.487	102.6	2.1275	0.0000	SURCHARGED
15 minute winter	42	13	17.125	0.275	4.0	0.1185	0.0000	SURCHARGED
15 minute winter	43	13	17.126	1.470	140.6	3.6916	0.0000	SURCHARGED
15 minute winter	44	13	16.984	0.084	2.3	0.0349	0.0000	OK
15 minute winter	45	13	17.028	1.228	22.1	0.9508	0.0000	SURCHARGED
15 minute winter	46	13	16.988	1.461	152.5	2.0903	0.0000	FLOOD RISK
15 minute winter	47	13	16.917	0.817	9.4	0.3676	0.0000	SURCHARGED
15 minute winter	48	13	16.914	1.414	154.7	0.0000	0.0000	FLOOD RISK
15 minute winter	49	13	16.828	0.628	5.7	0.2971	0.0000	SURCHARGED
15 minute winter	50	13	16.853	0.953	19.3	0.7709	0.0000	SURCHARGED
15 minute winter	51	13	16.824	1.357	169.0	1.9422	0.0000	FLOOD RISK
15 minute winter	52	13	16.644	0.694	6.8	0.2888	0.0000	SURCHARGED
15 minute winter	53	13	16.641	0.641	4.7	0.1815	0.0000	SURCHARGED
15 minute winter	54	13	16.640	1.278	179.9	2.2519	0.0000	FLOOD RISK
15 minute winter	55	13	16.526	0.326	2.9	0.1003	0.0000	SURCHARGED
15 minute winter	56	13	16.525	1.181	189.4	2.1723	0.0000	SURCHARGED
15 minute winter	57	13	16.259	0.059	4.5	0.0283	0.0000	OK
15 minute winter	58	13	16.254	0.977	192.1	1.3978	0.0000	SURCHARGED
15 minute winter	59	12	16.349	0.654	35.7	1.3201	0.0000	SURCHARGED
15 minute winter	60	13	15.970	0.761	217.1	1.0889	0.0000	SURCHARGED
15 minute winter	61	13	15.664	0.509	217.2	0.7279	0.0000	SURCHARGED
15 minute winter	62	12	15.457	0.457	217.3	0.0000	0.0000	SURCHARGED
15 minute winter	63	12	15.445	0.445	457.7	0.2542	0.0000	OK
30 minute winter	63_OUT	36	15.428	0.428	424.2	385.9053	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	34	18.000	35	16.2	2.395	0.233	0.1077
15 minute winter	35	13.003	37	77.0	1.093	1.089	1.8603
15 minute winter	36	19.000	37	77.0	0.912	0.913	0.1373
15 minute winter	37	13.004	39	84.8	1.205	1.196	1.2156
15 minute winter	38	20.000	39	10.6	2.063	0.184	0.1102
15 minute winter	39	13.005	41	96.7	0.877	0.869	1.2343
15 minute winter	40	21.000	41	9.6	1.826	0.197	0.1146
15 minute winter	41	13.006	43	105.2	0.954	0.941	1.2220
15 minute winter	42	22.000	43	4.0	1.395	0.080	0.2193
15 minute winter	43	13.007	46	136.8	1.241	0.869	2.2879
15 minute winter	44	23.000	46	2.7	1.303	0.039	0.1112
15 minute winter	45	24.000	46	17.5	1.006	0.981	0.0835
15 minute winter	46	13.008	48	151.4	1.372	1.361	0.9514
15 minute winter	47	25.000	48	4.3	1.398	0.086	0.0848
15 minute winter	48	13.009	51	154.7	1.403	1.391	1.1693
15 minute winter	49	26.000	51	5.2	1.456	0.098	0.0994
15 minute winter	50	27.000	51	14.8	1.707	0.389	0.0804
15 minute winter	51	13.010	54	168.9	1.531	1.077	1.8792
15 minute winter	52	28.000	54	5.6	0.727	0.235	0.3526
15 minute winter	53	29.000	54	5.6	0.727	0.235	0.3526
15 minute winter	54	13.011	56	179.2	1.625	1.611	0.6362
15 minute winter	55	30.000	56	2.4	0.837	0.037	0.0807
15 minute winter	56	13.012	58	189.2	1.715	1.703	2.3704
15 minute winter	57	31.000	58	4.5	1.182	0.102	0.1383
15 minute winter	58	13.013	60	192.9	1.749	1.736	2.4058
15 minute winter	59	32.000	60	31.0	1.760	1.112	0.1883
15 minute winter	60	13.014	61	217.2	1.970	1.953	1.8989
15 minute winter	61	13.015	62	217.3	1.971	1.953	1.3884
15 minute winter	62	13.016	63	217.3	1.970	1.967	0.1103
15 minute winter	63	1.013	63_OUT	457.7	2.916	2.878	0.1567
30 minute winter	63_OUT	Infiltration		26.9			

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.021	5.00	17.032	1200	507453.240	104484.843	1.559
2	0.030	5.00	16.667	1200	507417.319	104477.750	1.476
3	0.031	5.00	16.456	1200	507399.830	104490.204	1.425
4	0.010	5.00	15.974	600	507339.123	104491.209	1.424
5			15.864	1200	507340.391	104487.342	1.426
6	0.029	5.00	15.727	1200	507331.769	104489.462	1.561
7	0.002	5.00	15.773	600	507329.084	104481.541	0.973
8	0.017	5.00	15.818	1200	507336.121	104481.871	1.710
9	0.072	5.00	15.852	600	507340.862	104466.670	1.302
10			15.819	1200	507336.886	104465.548	1.886
11	0.054	5.00	15.922	600	507343.353	104458.983	1.372
12	0.022	5.00	15.965	600	507330.921	104466.806	1.565
13			15.864	1200	507334.188	104461.394	1.960
14	0.006	5.00	15.931	600	507330.135	104455.588	1.381
15	0.034	5.00	15.906	1200	507329.947	104458.834	2.031
16	0.021	5.00	15.645	600	507293.649	104462.611	1.595
17	0.058	5.00	15.509	600	507291.370	104452.382	1.559
18			15.434	1200	507291.126	104456.585	1.842
19	0.018	5.00	15.287	600	507282.875	104456.445	1.237
20			15.308	1200	507284.929	104459.179	1.779
21	0.056	5.00	15.107	600	507274.156	104475.338	1.467
22			14.985	1200	507271.953	104468.929	1.617
23			14.892	1350	507265.987	104470.486	1.584
24	0.008	5.00	14.912	600	507260.975	104464.438	1.307
25	0.056	5.00	14.859	1350	507258.340	104468.254	1.576
26			14.920	1350	507249.323	104462.026	1.671
27	0.036	5.00	15.293	600	507235.992	104466.629	1.748
28			15.189	1200	507232.996	104463.994	1.684
29	0.045	5.00	15.142	600	507246.274	104453.729	1.422
30			15.063	1350	507239.530	104453.046	1.856
31	0.017	5.00	15.214	1350	507235.200	104447.736	2.028
Temp			15.000	1350	507242.314	104447.842	

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	36.615	0.600	15.473	15.191	0.282	129.8	225	5.53	50.0
1.001	2	3	21.470	0.600	15.191	14.831	0.360	134.2	225	5.85	50.0
1.002	3	5	59.508	0.600	15.031	14.438	0.593	160.4	225	6.61	50.0
2.000	4	5	4.070	0.600	14.550	14.511	0.039	164.3	150	5.07	50.0
1.003	5	8	6.940	0.600	14.438	14.108	0.330	21.0	225	6.66	50.0
3.000	6	8	9.750	0.600	14.166	14.108	0.058	156.9	225	5.14	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.000	1.146	45.6	2.8	1.334	1.251	0.021	0.0
1.001	1.127	44.8	6.9	1.251	1.200	0.051	0.0
1.002	1.305	51.9	11.1	1.200	1.201	0.082	0.0
2.000	0.983	17.4	1.4	1.274	1.203	0.010	0.0
1.003	2.866	113.9	12.5	1.201	1.485	0.092	0.0
3.000	1.062	42.2	3.9	1.336	1.485	0.029	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
4.000	7	8	7.043	0.600	14.800	14.185	0.615	11.8	150	3.04	50.0
1.004	8	10	16.341	0.600	14.108	14.008	0.100	162.4	225	6.32	50.0
5.000	9	10	4.131	0.600	14.550	14.083	0.467	8.8	150	3.02	50.0
1.005	10	13	4.953	0.600	13.933	13.904	0.029	170.8	300	6.98	50.0
6.000	11	13	9.477	0.600	14.550	14.054	0.496	19.1	150	3.07	50.0
7.000	12	13	6.922	0.600	14.400	14.054	0.346	18.3	150	3.04	50.0
1.006	13	15	4.534	0.600	13.904	13.875	0.029	170.8	300	7.07	50.0
8.000	14	15	3.251	0.600	14.550	14.025	0.525	6.2	150	3.01	50.0
1.007	15	18	38.886	0.600	13.875	13.657	0.208	187.6	300	7.64	50.0
9.000	16	18	6.533	0.600	14.050	13.917	0.233	28.0	150	3.06	50.0
10.000	17	18	4.210	0.600	13.950	13.917	0.133	31.7	150	3.04	50.0
1.008	18	20	6.718	0.600	13.592	13.529	0.063	106.6	375	7.70	50.0
11.000	19	20	3.420	0.600	14.050	13.754	0.296	11.6	150	3.02	50.0
1.009	20	22	10.231	0.600	13.529	13.368	0.161	100.8	375	7.85	50.0
12.000	21	22	6.777	0.600	13.640	13.593	0.047	144.2	150	3.14	50.0
1.010	22	23	6.168	0.600	13.368	13.308	0.060	102.8	375	7.94	50.0
1.011	23	25	7.966	0.600	13.308	13.283	0.025	318.6	375	8.07	50.0
13.000	24	25	4.637	0.600	13.605	13.598	0.007	47.8	150	3.05	50.0
1.012	25	26	10.959	0.600	13.283	13.249	0.034	322.3	375	8.25	50.0
1.013	26	30	13.287	0.600	13.249	13.208	0.041	324.1	375	8.47	50.0
14.000	27	28	3.590	0.600	13.545	13.505	0.040	99.7	150	3.07	50.0
14.001	28	30	12.730	0.600	13.505	13.432	0.073	174.7	150	3.35	50.0
15.000	29	30	6.778	0.600	13.720	13.432	0.288	23.5	150	3.05	50.0
1.014	30	31	6.852	0.600	13.207	13.186	0.021	326.3	225	8.63	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
4.000	2.998	53.0	0.3	0.823	1.485	0.002	0.0
1.004	1.020	40.6	19.0	1.485	1.586	0.140	0.0
5.000	3.408	60.2	9.8	1.152	1.586	0.072	0.0
1.005	1.200	84.8	28.7	1.586	1.660	0.212	0.0
6.000	2.315	40.9	7.3	1.222	1.660	0.054	0.0
7.000	2.367	41.8	3.0	1.415	1.660	0.022	0.0
1.006	1.200	84.8	39.0	1.660	1.731	0.288	0.0
8.000	4.075	72.0	0.8	1.231	1.731	0.006	0.0
1.007	1.146	81.0	44.5	1.731	1.467	0.328	0.0
9.000	1.908	33.7	2.8	1.445	1.467	0.021	0.0
10.000	1.795	31.7	7.9	1.409	1.467	0.058	0.0
1.008	1.754	193.7	55.2	1.467	1.404	0.407	0.0
11.000	2.980	52.7	2.4	1.087	1.404	0.018	0.0
1.009	1.804	199.3	57.6	1.404	1.242	0.425	0.0
12.000	0.835	14.7	7.6	1.317	1.242	0.056	0.0
1.010	1.787	197.4	65.2	1.242	1.209	0.481	0.0
1.011	1.009	111.5	65.2	1.209	1.201	0.481	0.0
13.000	1.459	25.8	1.1	1.157	1.201	0.008	0.0
1.012	1.004	110.8	73.9	1.201	1.296	0.545	0.0
1.013	1.001	110.5	73.9	1.296	1.480	0.545	0.0
14.000	1.006	17.8	4.9	1.598	1.534	0.036	0.0
14.001	0.757	13.4	4.9	1.534	1.481	0.036	0.0
15.000	2.084	36.8	6.1	1.272	1.481	0.045	0.0
1.014	0.718	85.7	84.8	1.631	1.803	0.626	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	36.615	123.9	225	PH1	17.032	15.473	1.334	16.667	15.191	1.251
1.001	21.479	134.2	225	PH1	16.667	15.191	1.251	16.456	15.031	1.200
1.002	59.508	106.4	225	PH1	16.456	15.031	1.200	15.864	14.438	1.201
2.000	4.976	104.3	150	PH1	15.974	14.550	1.274	15.864	14.511	1.203
1.003	6.940	21.0	225	PH1	15.864	14.438	1.201	15.818	14.108	1.485
3.000	9.750	150.9	225	PH1	15.727	14.166	1.336	15.818	14.108	1.485

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.002	3	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
2.000	4	600	Manhole	Adoptable	5	1200	Manhole	Adoptable
1.003	5	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable
3.000	6	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.000	7.045	11.4	150	PH1	15.773	14.800	0.823	15.818	14.183	1.485
1.004	16.341	103.4	225	PH1	15.818	14.108	1.485	15.819	14.008	1.586
5.000	4.101	8.8	150	PH1	15.852	14.550	1.152	15.819	14.088	1.586
1.005	4.953	170.8	300	PH1	15.819	13.933	1.586	15.864	13.904	1.660
6.000	9.477	19.1	150	PH1	15.922	14.550	1.222	15.864	14.054	1.660
7.000	6.932	18.6	150	PH1	15.965	14.400	1.415	15.864	14.054	1.660
1.006	4.954	170.8	300	PH1	15.864	13.904	1.660	15.906	13.875	1.731
8.000	5.251	6.2	150	PH1	15.931	14.550	1.231	15.906	14.025	1.731
1.007	36.886	187.0	300	PH1	15.906	13.875	1.731	15.434	13.867	1.467
9.000	6.593	26.0	150	PH1	15.645	14.050	1.445	15.434	13.817	1.467
10.000	4.210	31.7	150	PH1	15.509	13.950	1.409	15.434	13.817	1.467
1.008	6.718	106.6	375	PH1	15.434	13.592	1.467	15.308	13.529	1.404
11.000	3.420	11.6	150	PH1	15.287	14.050	1.087	15.308	13.754	1.404
1.009	16.231	100.8	375	PH1	15.308	13.529	1.404	14.985	13.368	1.242
12.000	6.777	144.2	150	PH1	15.107	13.640	1.317	14.985	13.593	1.242
1.010	6.166	102.8	375	PH1	14.985	13.368	1.242	14.892	13.308	1.209
1.011	7.966	118.6	375	PH1	14.892	13.308	1.209	14.859	13.288	1.201
13.000	4.657	47.8	150	PH1	14.912	13.605	1.157	14.859	13.508	1.201
1.012	10.959	322.3	375	PH1	14.859	13.283	1.201	14.920	13.249	1.296
1.013	13.287	324.1	375	PH1	14.920	13.249	1.296	15.063	13.208	1.480
14.000	3.990	89.7	150	PH1	15.293	13.545	1.598	15.189	13.565	1.534
14.001	12.750	174.7	150	PH1	15.189	13.505	1.534	15.063	13.482	1.481
15.000	6.778	25.5	150	PH1	15.142	13.720	1.272	15.063	13.482	1.481
1.014	6.853	126.3	225	Triple	15.063	13.207	1.631	15.214	13.185	1.803

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.000	7	600	Manhole	Adoptable	8	1200	Manhole	Adoptable
1.004	8	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
5.000	9	600	Manhole	Adoptable	10	1200	Manhole	Adoptable
1.005	10	1200	Manhole	Adoptable	13	1200	Manhole	Adoptable
6.000	11	600	Manhole	Adoptable	13	1200	Manhole	Adoptable
7.000	12	600	Manhole	Adoptable	13	1200	Manhole	Adoptable
1.006	13	1200	Manhole	Adoptable	15	1200	Manhole	Adoptable
8.000	14	600	Manhole	Adoptable	15	1200	Manhole	Adoptable
1.007	15	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
9.000	16	600	Manhole	Adoptable	18	1200	Manhole	Adoptable
10.000	17	600	Manhole	Adoptable	18	1200	Manhole	Adoptable
1.008	18	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
11.000	19	600	Manhole	Adoptable	20	1200	Manhole	Adoptable
1.009	20	1200	Manhole	Adoptable	22	1200	Manhole	Adoptable
12.000	21	600	Manhole	Adoptable	22	1200	Manhole	Adoptable
1.010	22	1200	Manhole	Adoptable	23	1350	Manhole	Adoptable
1.011	23	1350	Manhole	Adoptable	25	1350	Manhole	Adoptable
13.000	24	600	Manhole	Adoptable	25	1350	Manhole	Adoptable
1.012	25	1350	Manhole	Adoptable	26	1350	Manhole	Adoptable
1.013	26	1350	Manhole	Adoptable	30	1350	Manhole	Adoptable
14.000	27	600	Manhole	Adoptable	28	1200	Manhole	Adoptable
14.001	28	1200	Manhole	Adoptable	30	1350	Manhole	Adoptable
15.000	29	600	Manhole	Adoptable	30	1350	Manhole	Adoptable
1.014	30	1350	Manhole	Adoptable	31	1350	Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	507453.240	104484.843	17.032	1.559	1200		0	1.000	15.473	225
2	507417.319	104477.750	16.667	1.476	1200		1	1.000	15.181	225
3	507399.830	104490.204	16.456	1.425	1200		1	1.001	15.193	225
4	507339.123	104491.209	15.974	1.424	600		0	1.002	15.031	225
							0	2.000	14.550	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
5	507340.391	104487.342	15.864	1.426	1200		1	2.000	14.531	150
						2	1.002	14.438	225	
						0	1.003	14.438	225	
6	507331.769	104489.462	15.727	1.561	1200		0	3.000	14.166	225
7	507329.084	104481.541	15.773	0.973	600		0	4.000	14.800	150
8	507336.121	104481.871	15.818	1.710	1200		1	4.000	14.183	150
							2	3.000	14.108	225
							3	1.003	14.108	225
							0	1.004	14.108	225
9	507340.862	104466.670	15.852	1.302	600		0	5.000	14.550	150
10	507336.886	104465.548	15.819	1.886	1200		1	5.000	14.083	150
							2	1.004	14.008	225
							0	1.005	13.933	300
11	507343.353	104458.983	15.922	1.372	600		0	6.000	14.550	150
12	507330.921	104466.806	15.965	1.565	600		0	7.000	14.480	150
13	507334.188	104461.394	15.864	1.960	1200		1	7.000	14.034	150
							2	6.000	14.034	150
							3	1.005	13.904	300
							0	1.006	13.904	300
14	507330.135	104455.588	15.931	1.381	600		0	8.000	14.550	150
15	507329.947	104458.834	15.906	2.031	1200		1	8.000	14.025	150
							2	1.006	13.875	300
							0	1.007	13.875	300
16	507293.649	104462.611	15.645	1.595	600		0	9.000	14.850	150
17	507291.370	104452.382	15.509	1.559	600		0	10.000	13.950	150
18	507291.126	104456.585	15.434	1.842	1200		1	10.000	13.817	150
							2	9.000	13.817	150
							3	1.007	13.667	300
							0	1.008	13.592	375
19	507282.875	104456.445	15.287	1.237	600		0	11.000	14.050	150
20	507284.929	104459.179	15.308	1.779	1200		1	11.000	13.734	150
							2	1.008	13.529	375
							0	1.009	13.529	375
21	507274.156	104475.338	15.107	1.467	600		0	12.000	13.640	150
22	507271.953	104468.929	14.985	1.617	1200		1	12.000	13.588	150
							2	1.009	13.368	375
							0	1.010	13.368	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
23	507265.987	104470.486	14.892	1.584	1350		1	1.010	13.308	375
						0	1.011	13.308	375	
24	507260.975	104464.438	14.912	1.307	600		0	13.000	13.400	150
25	507258.340	104468.254	14.859	1.576	1350		1	13.000	13.400	150
						2	1.011	13.283	375	
						0	1.012	13.283	375	
26	507249.323	104462.026	14.920	1.671	1350		1	1.012	13.339	375
						0	1.013	13.249	375	
27	507235.992	104466.629	15.293	1.748	600		0	14.000	13.545	150
28	507232.996	104463.994	15.189	1.684	1200		1	14.000	13.505	150
						0	14.001	13.505	150	
29	507246.274	104453.729	15.142	1.422	600		0	15.000	13.720	150
30	507239.530	104453.046	15.063	1.856	1350		1	15.000	13.432	150
						2	14.001	13.432	150	
						3	1.013	13.208	375	
						0	1.014	13.207	225	
31	507235.200	104447.736	15.214	2.028	1350		1	1.014	13.186	225
Loop	507242.314	104447.842	15.000		1350					

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	✓		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 31 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.16272	Porosity	0.95
Side Inf Coefficient (m/hr)	0.16272	Invert Level (m)	12.786
Safety Factor	5.0	Time to half empty (mins)	432

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	484.0	484.0	0.400	484.0	527.0	0.800	484.0	527.0	0.801	0.0	527.0

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 98.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	33	15.520	0.047	4.4	0.0656	0.0000	OK
60 minute summer	2	33	15.267	0.076	10.7	0.1166	0.0000	OK
60 minute summer	3	33	15.126	0.095	17.2	0.1484	0.0000	OK
60 minute summer	4	33	14.588	0.038	2.1	0.0159	0.0000	OK
60 minute summer	5	34	14.500	0.062	19.1	0.0701	0.0000	OK
60 minute summer	6	34	14.263	0.097	6.1	0.1451	0.0000	OK
60 minute summer	7	34	14.809	0.009	0.4	0.0031	0.0000	OK
60 minute summer	8	34	14.261	0.153	28.8	0.2040	0.0000	OK
60 minute summer	9	31	14.606	0.056	15.1	0.0784	0.0000	OK
60 minute summer	10	34	14.161	0.228	43.6	0.2581	0.0000	OK
60 minute summer	11	31	14.605	0.055	11.4	0.0585	0.0000	OK
60 minute summer	12	33	14.434	0.034	4.6	0.0190	0.0000	OK
60 minute summer	13	34	14.141	0.237	59.1	0.2683	0.0000	OK
60 minute summer	14	33	14.564	0.014	1.3	0.0052	0.0000	OK
60 minute summer	15	34	14.095	0.220	67.2	0.3219	0.0000	OK
60 minute summer	16	33	14.089	0.039	4.4	0.0211	0.0000	OK
60 minute summer	17	33	14.024	0.074	12.2	0.0765	0.0000	OK
60 minute summer	18	34	13.806	0.214	83.1	0.2418	0.0000	OK
60 minute summer	19	33	14.079	0.029	3.8	0.0169	0.0000	OK
60 minute summer	20	34	13.734	0.205	86.8	0.2314	0.0000	OK
60 minute summer	21	33	13.753	0.113	11.8	0.1179	0.0000	OK
60 minute summer	22	34	13.690	0.322	98.1	0.3645	0.0000	OK
60 minute summer	23	34	13.662	0.354	98.0	0.5059	0.0000	OK
60 minute summer	24	33	13.631	0.026	1.7	0.0106	0.0000	OK
60 minute summer	25	34	13.622	0.339	110.7	0.7263	0.0000	OK
60 minute summer	26	34	13.552	0.303	110.5	0.4335	0.0000	OK
60 minute summer	27	33	13.626	0.081	7.6	0.0564	0.0000	OK
60 minute summer	28	33	13.590	0.085	7.6	0.0964	0.0000	OK
60 minute summer	29	33	13.776	0.056	9.5	0.0516	0.0000	OK
60 minute summer	30	34	13.426	0.219	126.6	0.3132	0.0000	OK
240 minute winter	31	240	13.175	-0.011	40.6	178.9569	0.0000	OK
temp								

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	1	1.000	2	4.4	0.502	0.096	0.3245
60 minute summer	2	1.001	3	10.7	0.773	0.238	0.2965
60 minute summer	3	1.002	5	17.0	1.384	0.327	0.7352
60 minute summer	4	2.000	5	2.1	0.639	0.121	0.0134
60 minute summer	5	1.003	8	19.1	1.018	0.167	0.1309
60 minute summer	6	3.000	8	5.9	0.344	0.140	0.1973
60 minute summer	7	4.000	8	0.4	0.710	0.008	0.0344
60 minute summer	8	1.004	10	28.9	1.053	0.712	0.4708
60 minute summer	9	5.000	10	15.1	2.560	0.251	0.0305
60 minute summer	10	1.005	13	43.5	0.741	0.513	0.2904
60 minute summer	11	6.000	13	11.4	1.812	0.279	0.0765
60 minute summer	12	7.000	13	4.6	1.375	0.110	0.0426
60 minute summer	13	1.006	15	58.9	1.031	0.694	0.2849
60 minute summer	14	8.000	15	1.3	1.364	0.018	0.0143
60 minute summer	15	1.007	18	67.2	1.270	0.830	2.0568
60 minute summer	16	9.000	18	4.4	1.273	0.130	0.0226
60 minute summer	17	10.000	18	12.2	1.529	0.385	0.0336
60 minute summer	18	1.008	20	83.2	1.325	0.429	0.4243
60 minute summer	19	11.000	20	3.8	1.646	0.072	0.0079
60 minute summer	20	1.009	22	86.8	1.083	0.436	1.3167
60 minute summer	21	12.000	22	11.8	0.880	0.800	0.0908
60 minute summer	22	1.010	23	98.0	0.937	0.496	0.6430
60 minute summer	23	1.011	25	97.9	0.920	0.878	0.8469
60 minute summer	24	13.000	25	1.7	0.716	0.066	0.0379
60 minute summer	25	1.012	26	110.5	1.100	0.997	1.0974
60 minute summer	26	1.013	30	110.2	1.278	0.997	1.1396
60 minute summer	27	14.000	28	7.6	0.762	0.427	0.0400
60 minute summer	28	14.001	30	7.6	0.763	0.567	0.1268
60 minute summer	29	15.000	30	9.5	1.659	0.258	0.0388
60 minute summer	30	1.014	31	126.5	1.151	1.476	0.7402
240 minute winter	31	Infiltration		4.8			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.91%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
60 minute summer	1	33	15.543	0.070	9.6	0.0974	0.0000	OK
60 minute summer	2	37	15.440	0.249	23.3	0.3821	0.0000	SURCHARGED
60 minute summer	3	36	15.417	0.386	37.9	0.6041	0.0000	SURCHARGED
60 minute summer	4	36	15.259	0.709	6.7	0.2999	0.0000	SURCHARGED
60 minute summer	5	36	15.256	0.818	36.1	0.9256	0.0000	SURCHARGED
60 minute summer	6	36	15.226	1.060	13.3	1.5924	0.0000	SURCHARGED
60 minute summer	7	36	15.223	0.423	2.3	0.1370	0.0000	SURCHARGED
60 minute summer	8	36	15.221	1.113	52.9	1.4809	0.0000	SURCHARGED
60 minute summer	9	35	15.242	0.692	32.9	0.9611	0.0000	SURCHARGED
60 minute summer	10	35	15.070	1.137	71.3	1.2855	0.0000	SURCHARGED
60 minute summer	11	35	15.201	0.651	24.7	0.6969	0.0000	SURCHARGED
60 minute summer	12	35	15.045	0.645	10.1	0.3640	0.0000	SURCHARGED
60 minute summer	13	35	15.025	1.121	97.9	1.2683	0.0000	SURCHARGED
60 minute summer	14	35	14.938	0.388	3.6	0.1435	0.0000	SURCHARGED
60 minute summer	15	35	14.937	1.062	112.6	1.5566	0.0000	SURCHARGED
360 minute winter	16	352	14.768	0.718	1.9	0.3921	0.0000	SURCHARGED
360 minute winter	17	352	14.768	0.818	5.3	0.8402	0.0000	SURCHARGED
360 minute winter	18	352	14.768	1.176	37.3	1.3302	0.0000	SURCHARGED
360 minute winter	19	352	14.768	0.718	1.7	0.4122	0.0000	SURCHARGED
360 minute winter	20	352	14.768	1.239	39.0	1.4014	0.0000	SURCHARGED
360 minute winter	21	352	14.768	1.128	5.1	1.1799	0.0000	SURCHARGED
360 minute winter	22	352	14.768	1.400	44.0	1.5834	0.0000	FLOOD RISK
360 minute winter	23	352	14.768	1.460	44.0	2.0892	0.0000	FLOOD RISK
360 minute winter	24	352	14.768	1.163	0.7	0.4710	0.0000	FLOOD RISK
360 minute winter	25	352	14.768	1.485	49.8	3.1806	0.0000	FLOOD RISK
360 minute winter	26	352	14.768	1.519	49.7	2.1734	0.0000	FLOOD RISK
360 minute winter	27	352	14.768	1.223	3.3	0.8498	0.0000	SURCHARGED
360 minute winter	28	352	14.768	1.263	3.3	1.4281	0.0000	SURCHARGED
360 minute winter	29	352	14.768	1.048	4.1	0.9597	0.0000	SURCHARGED
360 minute winter	30	352	14.768	1.561	57.1	2.2334	0.0000	FLOOD RISK
360 minute winter	31	352	14.768	1.582	58.6	368.3357	0.0000	OK
temp								

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
60 minute summer	1	1.000	2	9.6	0.610	0.211	0.8863
60 minute summer	2	1.001	3	23.7	0.968	0.530	0.8539
60 minute summer	3	1.002	5	35.7	1.536	0.688	2.3667
60 minute summer	4	2.000	5	5.1	0.743	0.291	0.0717
60 minute summer	5	1.003	8	41.4	1.082	0.363	0.2760
60 minute summer	6	3.000	8	11.7	0.400	0.277	0.3480
60 minute summer	7	4.000	8	2.6	0.669	0.049	0.1240
60 minute summer	8	1.004	10	56.3	1.416	1.388	0.6499
60 minute summer	9	5.000	10	29.3	2.570	0.487	0.0727
60 minute summer	10	1.005	13	73.5	1.044	0.866	0.3488
60 minute summer	11	6.000	13	22.0	1.813	0.539	0.1668
60 minute summer	12	7.000	13	8.4	1.351	0.201	0.1113
60 minute summer	13	1.006	15	99.2	1.408	1.169	0.3489
60 minute summer	14	8.000	15	3.6	1.357	0.050	0.0572
60 minute summer	15	1.007	18	113.9	1.617	1.405	2.7383
360 minute winter	16	9.000	18	1.9	1.009	0.056	0.1150
360 minute winter	17	10.000	18	5.3	1.253	0.167	0.0741
360 minute winter	18	1.008	20	37.3	1.153	0.192	0.7410
360 minute winter	19	11.000	20	1.7	1.320	0.032	0.0602
360 minute winter	20	1.009	22	38.9	1.019	0.195	1.7902
360 minute winter	21	12.000	22	5.1	0.730	0.346	0.1193
360 minute winter	22	1.010	23	44.0	0.841	0.223	0.6801
360 minute winter	23	1.011	25	44.0	0.744	0.394	0.8786
360 minute winter	24	13.000	25	0.7	0.622	0.027	0.0816
360 minute winter	25	1.012	26	49.7	0.880	0.449	1.2087
360 minute winter	26	1.013	30	49.7	0.999	0.449	1.4655
360 minute winter	27	14.000	28	3.3	0.635	0.186	0.0702
360 minute winter	28	14.001	30	3.3	0.618	0.246	0.2245
360 minute winter	29	15.000	30	4.1	1.333	0.111	0.1193
360 minute winter	30	1.014	31	57.0	0.869	0.666	0.8175
360 minute winter	31	Infiltration		4.8			

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.999
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	x

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.029	5.00	17.032	1200	507453.240	104484.843	1.559
2	0.030	5.00	16.667	1200	507417.319	104477.750	1.476
3	0.031	5.00	16.456	1200	507399.830	104490.204	1.425
4	0.010	5.00	15.974	600	507339.123	104491.209	1.424
5			15.864	1200	507340.391	104487.342	1.426
6	0.029	5.00	15.727	1200	507331.769	104489.462	1.561
7	0.002	5.00	15.773	600	507329.084	104481.541	0.973
8	0.017	5.00	15.818	1200	507336.121	104481.871	1.710
9	0.072	5.00	15.852	600	507340.862	104466.670	1.302
10			15.819	1200	507336.886	104465.548	1.886
11	0.054	5.00	15.922	600	507343.353	104458.983	1.372
12	0.022	5.00	15.965	600	507330.921	104466.806	1.565
13			15.864	1200	507334.188	104461.394	1.960
14	0.006	5.00	15.931	600	507330.135	104455.588	1.381
15	0.034	5.00	15.906	1200	507329.947	104458.834	2.031
16	0.021	5.00	15.645	600	507293.649	104462.611	1.595
17	0.058	5.00	15.509	600	507291.370	104452.382	1.559
18			15.434	1200	507291.126	104456.585	1.842
19	0.018	5.00	15.287	600	507282.875	104456.445	1.237
20			15.308	1200	507284.929	104459.179	1.779
21	0.056	5.00	15.107	600	507274.156	104475.338	1.467
22			14.985	1200	507271.953	104468.929	1.617
23			14.892	1350	507265.987	104470.486	1.584
24	0.008	5.00	14.912	600	507260.975	104464.438	1.307
25	0.056	5.00	14.859	1350	507258.340	104468.254	1.576
26			14.920	1350	507249.323	104462.026	1.671
27	0.036	5.00	15.293	600	507235.992	104466.629	1.748
28			15.189	1200	507232.996	104463.994	1.684
29	0.045	5.00	15.142	600	507246.274	104453.729	1.422
30			15.063	1350	507239.530	104453.046	1.856
31	0.017	5.00	15.214	1350	507235.200	104447.736	2.028

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.000	1	2	36.615	0.600	15.473	15.191	0.282	129.8	225	5.53	50.0
1.001	2	3	21.470	0.600	15.191	15.031	0.160	134.2	225	5.85	50.0
1.002	3	5	59.508	0.600	15.031	14.438	0.593	100.4	225	6.63	50.0
2.000	4	5	4.079	0.600	14.550	14.511	0.039	104.3	150	5.07	50.0
1.003	5	8	4.940	0.600	14.438	14.106	0.330	21.0	225	6.85	50.0
3.000	6	8	5.750	0.600	14.166	14.106	0.059	136.9	225	5.14	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	E Area (ha)	E Add Inflow (l/s)
1.000	1.146	45.6	3.9	1.334	1.251	0.029	0.0
1.001	1.127	44.8	8.0	1.251	1.200	0.059	0.0
1.002	1.305	51.9	12.2	1.200	1.201	0.090	0.0
2.000	0.983	17.4	1.4	1.274	1.203	0.010	0.0
1.003	2.866	113.9	13.6	1.201	1.485	0.100	0.0
3.000	1.062	42.2	3.9	1.336	1.485	0.029	0.0

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
4.000	7	8	7.043	0.600	14.800	14.185	0.615	11.8	150	5.04	50.0
1.004	8	10	16.341	0.600	14.108	14.008	0.100	162.4	225	6.32	50.0
5.000	9	10	4.331	0.600	14.550	14.083	0.467	8.8	150	5.02	50.0
1.005	10	13	4.953	0.600	13.933	13.904	0.029	170.8	300	6.99	50.0
6.000	11	13	9.477	0.600	14.550	14.054	0.496	19.1	150	5.07	50.0
7.000	12	13	6.922	0.600	14.400	14.054	0.346	18.3	150	5.04	50.0
1.006	13	15	4.534	0.600	13.904	13.875	0.029	170.8	300	7.00	50.0
8.000	14	15	5.251	0.600	14.550	14.025	0.525	6.2	150	5.01	50.0
1.007	15	18	38.886	0.600	13.875	13.657	0.208	187.6	300	7.62	50.0
9.000	16	18	6.533	0.600	14.050	13.917	0.233	28.0	150	5.06	50.0
10.000	17	18	4.210	0.600	13.950	13.917	0.133	31.7	150	5.04	50.0
1.008	18	20	6.718	0.600	13.592	13.529	0.063	106.6	375	7.08	50.0
11.000	19	20	3.420	0.600	14.050	13.754	0.296	11.6	150	5.02	50.0
1.009	20	22	10.231	0.600	13.529	13.368	0.161	100.8	375	7.85	50.0
12.000	21	22	6.777	0.600	13.640	13.595	0.045	144.2	150	5.14	50.0
1.010	22	23	6.168	0.600	13.368	13.308	0.060	102.8	375	7.89	50.0
1.011	23	25	7.966	0.600	13.308	13.283	0.025	918.6	375	8.02	50.0
13.000	24	25	4.637	0.600	13.605	13.598	0.007	47.8	150	5.05	50.0
1.012	25	26	10.959	0.600	13.283	13.249	0.034	322.3	375	8.21	50.0
1.013	26	30	13.287	0.600	13.249	13.208	0.041	324.1	375	8.43	50.0
14.000	27	28	3.590	0.600	13.545	13.505	0.040	99.7	150	5.07	50.0
14.001	28	30	12.730	0.600	13.505	13.432	0.073	174.7	150	5.35	50.0
15.000	29	30	6.778	0.600	13.720	13.432	0.288	23.5	150	5.05	50.0
1.014	30	31	6.852	0.600	13.207	13.186	0.021	326.5	225	8.59	50.0

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
4.000	2.998	53.0	0.3	0.823	1.485	0.002	0.0
1.004	1.020	40.6	20.1	1.485	1.586	0.148	0.0
5.000	3.408	60.2	9.8	1.152	1.586	0.072	0.0
1.005	1.200	84.8	29.8	1.586	1.660	0.220	0.0
6.000	2.315	40.9	7.3	1.222	1.660	0.054	0.0
7.000	2.367	41.8	3.0	1.415	1.660	0.022	0.0
1.006	1.200	84.8	40.1	1.660	1.731	0.296	0.0
8.000	4.075	72.0	0.8	1.231	1.731	0.006	0.0
1.007	1.146	81.0	45.5	1.731	1.467	0.336	0.0
9.000	1.908	33.7	2.8	1.445	1.467	0.021	0.0
10.000	1.795	31.7	7.9	1.409	1.467	0.058	0.0
1.008	1.754	193.7	56.2	1.467	1.404	0.415	0.0
11.000	2.980	52.7	2.4	1.087	1.404	0.018	0.0
1.009	1.804	199.3	58.7	1.404	1.242	0.433	0.0
12.000	0.835	14.7	7.6	1.317	1.242	0.056	0.0
1.010	1.787	197.4	66.3	1.242	1.209	0.489	0.0
1.011	1.009	111.5	66.3	1.209	1.201	0.489	0.0
13.000	1.459	25.8	1.1	1.157	1.201	0.008	0.0
1.012	1.004	110.8	74.9	1.201	1.296	0.553	0.0
1.013	1.001	110.5	74.9	1.296	1.480	0.553	0.0
14.000	1.006	17.8	4.9	1.598	1.534	0.036	0.0
14.001	0.757	13.4	4.9	1.534	1.481	0.036	0.0
15.000	2.084	36.8	6.1	1.272	1.481	0.045	0.0
1.014	0.718	85.7	85.9	1.631	1.803	0.634	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.000	36.615	123.9	225	PH1	17.032	15.473	1.334	16.667	15.191	1.251
1.001	21.479	134.2	225	PH1	16.667	15.191	1.251	16.456	15.031	1.200
1.002	59.508	106.4	225	PH1	16.456	15.031	1.200	15.864	14.438	1.201
2.000	4.976	104.3	150	PH1	15.974	14.550	1.274	15.864	14.511	1.203
1.003	6.940	21.0	225	PH1	15.864	14.438	1.201	15.818	14.108	1.485
3.000	9.750	150.9	225	PH1	15.727	14.166	1.336	15.818	14.108	1.485

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.000	1	1200	Manhole	Adoptable	2	1200	Manhole	Adoptable
1.001	2	1200	Manhole	Adoptable	3	1200	Manhole	Adoptable
1.002	3	1200	Manhole	Adoptable	5	1200	Manhole	Adoptable
2.000	4	600	Manhole	Adoptable	5	1200	Manhole	Adoptable
1.003	5	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable
3.000	6	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
4.000	7.045	11.4	150	PH1	15.773	14.800	0.823	15.818	14.183	1.485
1.004	16.341	103.4	225	PH1	15.818	14.108	1.485	15.819	14.008	1.586
5.000	4.101	8.8	150	PH1	15.852	14.550	1.152	15.819	14.088	1.586
1.005	4.953	170.8	300	PH1	15.819	13.933	1.586	15.864	13.904	1.660
6.000	9.477	19.1	150	PH1	15.922	14.550	1.222	15.864	14.054	1.660
7.000	6.932	18.6	150	PH1	15.965	14.400	1.415	15.864	14.054	1.660
1.006	4.954	170.8	300	PH1	15.864	13.904	1.660	15.906	13.875	1.731
8.000	5.251	6.2	150	PH1	15.931	14.550	1.231	15.906	14.025	1.731
1.007	36.886	187.0	300	PH1	15.906	13.875	1.731	15.434	13.867	1.467
9.000	6.593	26.0	150	PH1	15.645	14.050	1.445	15.434	13.817	1.467
10.000	4.210	31.7	150	PH1	15.509	13.950	1.409	15.434	13.817	1.467
1.008	6.718	106.6	375	PH1	15.434	13.592	1.467	15.308	13.529	1.404
11.000	3.420	11.6	150	PH1	15.287	14.050	1.087	15.308	13.754	1.404
1.009	16.231	100.8	375	PH1	15.308	13.529	1.404	14.985	13.368	1.242
12.000	6.777	144.2	150	PH1	15.107	13.640	1.317	14.985	13.593	1.242
1.010	6.166	102.8	375	PH1	14.985	13.368	1.242	14.892	13.308	1.209
1.011	7.966	118.6	375	PH1	14.892	13.308	1.209	14.859	13.288	1.201
13.000	4.657	47.8	150	PH1	14.912	13.605	1.157	14.859	13.508	1.201
1.012	10.959	322.3	375	PH1	14.859	13.283	1.201	14.920	13.249	1.296
1.013	13.287	324.1	375	PH1	14.920	13.249	1.296	15.063	13.208	1.480
14.000	3.990	89.7	150	PH1	15.293	13.545	1.598	15.189	13.565	1.534
14.001	12.750	174.7	150	PH1	15.189	13.505	1.534	15.063	13.482	1.481
15.000	6.778	25.5	150	PH1	15.142	13.720	1.272	15.063	13.482	1.481
1.014	6.853	326.3	225	Triple	15.063	13.207	1.631	15.214	13.185	1.803

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
4.000	7	600	Manhole	Adoptable	8	1200	Manhole	Adoptable
1.004	8	1200	Manhole	Adoptable	10	1200	Manhole	Adoptable
5.000	9	600	Manhole	Adoptable	10	1200	Manhole	Adoptable
1.005	10	1200	Manhole	Adoptable	13	1200	Manhole	Adoptable
6.000	11	600	Manhole	Adoptable	13	1200	Manhole	Adoptable
7.000	12	600	Manhole	Adoptable	13	1200	Manhole	Adoptable
1.006	13	1200	Manhole	Adoptable	15	1200	Manhole	Adoptable
8.000	14	600	Manhole	Adoptable	15	1200	Manhole	Adoptable
1.007	15	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
9.000	16	600	Manhole	Adoptable	18	1200	Manhole	Adoptable
10.000	17	600	Manhole	Adoptable	18	1200	Manhole	Adoptable
1.008	18	1200	Manhole	Adoptable	20	1200	Manhole	Adoptable
11.000	19	600	Manhole	Adoptable	20	1200	Manhole	Adoptable
1.009	20	1200	Manhole	Adoptable	22	1200	Manhole	Adoptable
12.000	21	600	Manhole	Adoptable	22	1200	Manhole	Adoptable
1.010	22	1200	Manhole	Adoptable	23	1350	Manhole	Adoptable
1.011	23	1350	Manhole	Adoptable	25	1350	Manhole	Adoptable
13.000	24	600	Manhole	Adoptable	25	1350	Manhole	Adoptable
1.012	25	1350	Manhole	Adoptable	26	1350	Manhole	Adoptable
1.013	26	1350	Manhole	Adoptable	30	1350	Manhole	Adoptable
14.000	27	600	Manhole	Adoptable	28	1200	Manhole	Adoptable
14.001	28	1200	Manhole	Adoptable	30	1350	Manhole	Adoptable
15.000	29	600	Manhole	Adoptable	30	1350	Manhole	Adoptable
1.014	30	1350	Manhole	Adoptable	31	1350	Junction	

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
1	507453.240	104484.843	17.032	1.559	1200		0	1.000	15.473	225
2	507417.319	104477.750	16.667	1.476	1200		1	1.000	15.191	225
3	507399.830	104490.204	16.456	1.425	1200		1	1.001	15.193	225
4	507339.123	104491.209	15.974	1.424	600		0	1.002	15.031	225
							0	2.000	14.550	150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
5	507340.391	104487.342	15.864	1.426	1200		1	2.000	14.531	150
							2	1.002	14.438	225
							0	1.003	14.438	225
6	507331.769	104489.462	15.727	1.561	1200		0	3.000	14.166	225
7	507329.084	104481.541	15.773	0.973	600		0	4.000	14.800	150
8	507336.121	104481.871	15.818	1.710	1200		1	4.000	14.183	150
							2	3.000	14.108	225
							3	1.003	14.108	225
							0	1.004	14.108	225
9	507340.862	104466.670	15.852	1.302	600		0	5.000	14.550	150
10	507336.886	104465.548	15.819	1.886	1200		1	5.000	14.083	150
							2	1.004	14.008	225
							0	1.005	13.933	300
11	507343.353	104458.983	15.922	1.372	600		0	6.000	14.550	150
12	507330.921	104466.806	15.965	1.565	600		0	7.000	14.480	150
13	507334.188	104461.394	15.864	1.960	1200		1	7.000	14.034	150
							2	6.000	14.034	150
							3	1.005	13.904	300
							0	1.006	13.904	300
14	507330.135	104455.588	15.931	1.381	600		0	8.000	14.550	150
15	507329.947	104458.834	15.906	2.031	1200		1	8.000	14.025	150
							2	1.006	13.875	300
							0	1.007	13.875	300
16	507293.649	104462.611	15.645	1.595	600		0	9.000	14.850	150
17	507291.370	104452.382	15.509	1.559	600		0	10.000	13.950	150
18	507291.126	104456.585	15.434	1.842	1200		1	10.000	13.817	150
							2	9.000	13.817	150
							3	1.007	13.667	300
							0	1.008	13.592	375
19	507282.875	104456.445	15.287	1.237	600		0	11.000	14.050	150
20	507284.929	104459.179	15.308	1.779	1200		1	11.000	13.758	150
							2	1.008	13.529	375
							0	1.009	13.529	375
21	507274.156	104475.338	15.107	1.467	600		0	12.000	13.640	150
22	507271.953	104468.929	14.985	1.617	1200		1	12.000	13.588	150
							2	1.009	13.368	375
							0	1.010	13.368	375

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
23	507265.987	104470.486	14.892	1.584	1350		1	1.010	13.308	375
							0	1.011	13.308	375
24	507260.975	104464.438	14.912	1.307	600		0	13.000	13.400	150
25	507258.340	104468.254	14.859	1.576	1350		1	13.000	13.400	150
							2	1.011	13.283	375
							0	1.012	13.283	375
26	507249.323	104462.026	14.920	1.671	1350		1	1.012	13.249	375
							0	1.013	13.249	375
27	507235.992	104466.629	15.293	1.748	600		0	14.000	13.545	150
28	507232.996	104463.994	15.189	1.684	1200		1	14.000	13.505	150
							0	14.001	13.505	150
29	507246.274	104453.729	15.142	1.422	600		0	15.000	13.720	150
30	507239.530	104453.046	15.063	1.856	1350		1	15.000	13.432	150
							2	14.001	13.432	150
							3	1.013	13.208	375
							0	1.014	13.207	225
31	507235.200	104447.736	15.214	2.028	1350		1	1.014	13.186	225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 : 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 31 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.16272	Porosity	0.95
Side Inf Coefficient (m/hr)	0.16272	Invert Level (m)	12.786
Safety Factor	6.5	Time to half empty (mins)	561

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	484.0	484.0	0.400	484.0	527.0	0.800	484.0	527.0	0.801	0.0	527.0

Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.81%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	10	15.535	0.062	7.9	0.0935	0.0000	OK
15 minute winter	2	11	15.285	0.094	15.9	0.1452	0.0000	OK
15 minute winter	3	11	15.145	0.114	23.7	0.1789	0.0000	OK
15 minute winter	4	10	14.593	0.043	2.7	0.0181	0.0000	OK
15 minute summer	5	11	14.513	0.075	25.3	0.0843	0.0000	OK
15 minute winter	6	11	14.316	0.150	7.9	0.2254	0.0000	OK
15 minute winter	7	11	14.810	0.010	0.5	0.0034	0.0000	OK
15 minute winter	8	11	14.315	0.207	38.4	0.2756	0.0000	OK
15 minute summer	9	9	14.613	0.063	18.7	0.0875	0.0000	OK
15 minute winter	10	11	14.226	0.293	55.6	0.3310	0.0000	OK
15 minute winter	11	10	14.612	0.062	14.7	0.0664	0.0000	OK
15 minute winter	12	10	14.438	0.038	6.0	0.0216	0.0000	OK
15 minute winter	13	11	14.199	0.295	74.6	0.3341	0.0000	OK
15 minute winter	14	10	14.565	0.015	1.6	0.0057	0.0000	OK
15 minute winter	15	11	14.146	0.271	84.4	0.3967	0.0000	OK
15 minute winter	16	10	14.094	0.044	5.7	0.0242	0.0000	OK
15 minute winter	17	10	14.038	0.088	15.8	0.0904	0.0000	OK
15 minute winter	18	12	13.878	0.286	103.0	0.3233	0.0000	OK
15 minute winter	19	10	14.084	0.034	4.9	0.0193	0.0000	OK
15 minute winter	20	12	13.839	0.310	106.3	0.3501	0.0000	OK
15 minute winter	21	11	13.837	0.197	15.3	0.2064	0.0000	OVERCHARGED
15 minute winter	22	12	13.788	0.420	117.5	0.4750	0.0000	OVERCHARGED
15 minute winter	23	12	13.737	0.429	117.8	0.6143	0.0000	OVERCHARGED
15 minute winter	24	12	13.680	0.075	2.2	0.0304	0.0000	OK
15 minute winter	25	12	13.680	0.397	131.8	0.8512	0.0000	OVERCHARGED
15 minute winter	26	12	13.597	0.348	132.1	0.4977	0.0000	OK
15 minute winter	27	10	13.641	0.096	9.8	0.0669	0.0000	OK
15 minute winter	28	10	13.604	0.099	9.7	0.1120	0.0000	OK
15 minute winter	29	10	13.785	0.065	12.3	0.0599	0.0000	OK
15 minute winter	30	12	13.465	0.258	150.5	0.3685	0.0000	OVERCHARGED
30 minute winter	31	38	13.007	-0.179	132.0	101.3965	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	1	1.000	2	7.7	0.628	0.169	0.4522
15 minute winter	2	1.001	3	15.6	0.867	0.348	0.3868
15 minute winter	3	1.002	5	23.7	1.505	0.457	0.9416
15 minute winter	4	2.000	5	2.7	0.681	0.154	0.0160
15 minute summer	5	1.003	8	25.3	1.059	0.222	0.1646
15 minute winter	6	3.000	8	7.1	0.415	0.169	0.2904
15 minute winter	7	4.000	8	0.5	0.669	0.009	0.0598
15 minute winter	8	1.004	10	37.6	1.068	0.927	0.6343
15 minute summer	9	5.000	10	18.7	2.549	0.311	0.0453
15 minute winter	10	1.005	13	55.1	0.786	0.650	0.3471
15 minute winter	11	6.000	13	14.6	1.886	0.358	0.1140
15 minute winter	12	7.000	13	6.0	1.365	0.143	0.0659
15 minute winter	13	1.006	15	74.2	1.085	0.875	0.3396
15 minute winter	14	8.000	15	1.6	1.357	0.022	0.0262
15 minute winter	15	1.007	18	82.5	1.335	1.019	2.3996
15 minute winter	16	9.000	18	5.7	1.360	0.168	0.0331
15 minute winter	17	10.000	18	15.7	1.612	0.495	0.0410
15 minute winter	18	1.008	20	101.7	1.329	0.525	0.6297
15 minute winter	19	11.000	20	4.9	1.757	0.093	0.0213
15 minute winter	20	1.009	22	105.2	1.101	0.528	1.6848
15 minute winter	21	12.000	22	14.5	0.918	0.983	0.1193
15 minute winter	22	1.010	23	117.8	1.068	0.597	0.6801
15 minute winter	23	1.011	25	118.0	1.070	1.058	0.8786
15 minute winter	24	13.000	25	2.0	0.782	0.079	0.0613
15 minute winter	25	1.012	26	132.1	1.199	1.192	1.1890
15 minute winter	26	1.013	30	132.2	1.364	1.196	1.2694
15 minute winter	27	14.000	28	9.7	0.800	0.546	0.0484
15 minute winter	28	14.001	30	9.5	0.814	0.709	0.1487
15 minute winter	29	15.000	30	12.2	1.762	0.332	0.0470
15 minute winter	30	1.014	31	150.7	1.278	1.759	0.7703
30 minute winter	31	Infiltration		3.5			

Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.81%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	1	13	15.718	0.245	16.4	0.3682	0.0000	SURCHARGED
15 minute winter	2	13	15.720	0.529	33.1	0.8127	0.0000	SURCHARGED
15 minute winter	3	13	15.690	0.659	50.6	1.0323	0.0000	SURCHARGED
15 minute winter	4	13	15.503	0.953	12.9	0.4032	0.0000	SURCHARGED
15 minute winter	5	13	15.501	1.063	44.0	1.2022	0.0000	SURCHARGED
15 minute winter	6	13	15.466	1.300	16.4	1.9532	0.0000	FLOOD HIGH
15 minute winter	7	13	15.461	0.661	7.8	0.2143	0.0000	SURCHARGED
15 minute winter	8	13	15.461	1.353	56.6	1.8000	0.0000	SURCHARGED
15 minute winter	9	12	15.506	0.956	40.8	1.3274	0.0000	SURCHARGED
15 minute winter	10	12	15.289	1.356	74.3	1.5338	0.0000	SURCHARGED
15 minute winter	11	12	15.464	0.914	30.6	0.9777	0.0000	SURCHARGED
15 minute winter	12	12	15.263	0.863	12.5	0.4869	0.0000	SURCHARGED
15 minute winter	13	12	15.242	1.338	102.8	1.5130	0.0000	SURCHARGED
15 minute winter	14	12	15.146	0.596	4.5	0.2206	0.0000	SURCHARGED
15 minute winter	15	12	15.145	1.270	118.3	1.8621	0.0000	SURCHARGED
15 minute winter	16	12	14.648	0.598	11.9	0.3263	0.0000	SURCHARGED
15 minute winter	17	12	14.775	0.825	32.9	0.8477	0.0000	SURCHARGED
15 minute winter	18	12	14.623	1.031	151.8	1.1660	0.0000	SURCHARGED
15 minute winter	19	12	14.547	0.497	10.2	0.2854	0.0000	SURCHARGED
15 minute winter	20	12	14.535	1.006	159.2	1.1380	0.0000	SURCHARGED
15 minute winter	21	12	14.581	0.941	31.8	0.9841	0.0000	SURCHARGED
15 minute winter	22	12	14.376	1.008	184.6	1.1405	0.0000	SURCHARGED
15 minute winter	23	12	14.251	0.943	184.5	1.3497	0.0000	SURCHARGED
15 minute winter	24	12	14.113	0.508	4.5	0.2059	0.0000	SURCHARGED
15 minute winter	25	12	14.110	0.827	212.7	1.7719	0.0000	SURCHARGED
15 minute winter	26	12	13.888	0.639	212.8	0.9150	0.0000	SURCHARGED
15 minute winter	27	11	13.890	0.345	20.4	0.2400	0.0000	SURCHARGED
15 minute winter	28	11	13.812	0.307	19.0	0.3474	0.0000	SURCHARGED
15 minute winter	29	11	13.830	0.110	25.5	0.1004	0.0000	OK
15 minute winter	30	12	13.639	0.432	250.9	0.6186	0.0000	SURCHARGED
30 minute winter	31	39	13.267	0.081	234.8	221.1677	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)
15 minute winter	1	1.000	2	16.1	0.739	0.354	1.4562
15 minute winter	2	1.001	3	33.0	1.012	0.736	0.8539
15 minute winter	3	1.002	5	44.0	1.584	0.849	2.3667
15 minute winter	4	2.000	5	12.9	0.761	0.403	0.0717
15 minute winter	5	1.003	8	46.1	1.159	0.404	0.2760
15 minute winter	6	3.000	8	10.3	0.469	0.245	0.3480
15 minute winter	7	4.000	8	74.3	0.666	0.120	0.1240
15 minute winter	8	1.004	10	63.7	1.602	1.571	0.6499
15 minute winter	9	5.000	10	33.7	2.619	0.560	0.0727
15 minute winter	10	1.005	13	78.5	1.115	0.926	0.3488
15 minute winter	11	6.000	13	25.3	1.909	0.618	0.1668
15 minute winter	12	7.000	13	9.5	1.361	0.228	0.1113
15 minute winter	13	1.006	15	104.6	1.485	1.233	0.3489
15 minute winter	14	8.000	15	5.5	1.350	0.077	0.0572
15 minute winter	15	1.007	18	120.6	1.713	1.488	2.7383
15 minute winter	16	9.000	18	9.3	1.405	0.274	0.1150
15 minute winter	17	10.000	18	29.2	1.656	0.919	0.0741
15 minute winter	18	1.008	20	151.7	1.375	0.783	0.7410
15 minute winter	19	11.000	20	7.9	1.828	0.150	0.0602
15 minute winter	20	1.009	22	160.7	1.457	0.806	1.7902
15 minute winter	21	12.000	22	28.5	1.618	1.931	0.1193
15 minute winter	22	1.010	23	184.5	1.673	0.935	0.6801
15 minute winter	23	1.011	25	184.9	1.676	1.659	0.8786
15 minute winter	24	13.000	25	3.7	0.792	0.144	0.0816
15 minute winter	25	1.012	26	212.8	1.929	1.920	1.2087
15 minute winter	26	1.013	30	212.8	1.930	1.926	1.4655
15 minute winter	27	14.000	28	19.0	1.079	1.068	0.0702
15 minute winter	28	14.001	30	18.6	1.055	1.388	0.2245
15 minute winter	29	15.000	30	25.2	1.944	0.684	0.1064
15 minute winter	30	1.014	31	251.0	2.104	2.930	0.8093
30 minute winter	31	Infiltration		3.7			

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.500
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
1	0.114	17.950	507542.696	104515.962	1.550

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	✓		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	17.550
Safety Factor	5.0	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	39.1	0.0	0.400	234.6	0.0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.06070	Porosity	0.30
Side Inf Coefficient (m/hr)	0.06070	Invert Level (m)	16.400
Safety Factor	5.0	Time to half empty (mins)	728

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	241.9	241.9	0.400	241.9	308.0	1.000	241.9	308.0	1.001	0.0	308.0



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 98.71%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	232	16.811	0.411	7.3	30.4043	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute winter	1	Infiltration	1.0



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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 98.71%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	1	352	17.351	0.951	10.5	70.4168	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
360 minute winter	1	Infiltration	1.0

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.500
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
1	0.114	17.950	507542.696	104515.962	1.550

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 : 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	17.550
Safety Factor	6.5	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	39.1	0.0	0.400	234.6	0.0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.06070	Porosity	0.30
Side Inf Coefficient (m/hr)	0.06070	Invert Level (m)	16.400
Safety Factor	6.5	Time to half empty (mins)	946

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	241.9	241.9	0.400	241.9	308.0	1.000	241.9	308.0	1.001	0.0	308.0



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	1	33	16.641	0.241	24.2	17.8776	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.7



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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	1	34	16.925	0.525	51.3	38.8348	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.8

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.500
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
1	0.113	17.850	507580.244	104485.628	1.630

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	✓		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	17.450
Safety Factor	5.0	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	37.5	0.0	0.400	224.7	0.0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.02012	Porosity	0.30
Side Inf Coefficient (m/hr)	0.02012	Invert Level (m)	16.220
Safety Factor	5.0	Time to half empty (mins)	2437

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	337.3	337.3	0.350	337.3	411.7	1.100	337.3	411.7	1.101	0.0	411.7



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 99.54%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
480 minute winter	1	464	16.591	0.371	4.2	38.0365	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
480 minute winter	1	Infiltration	0.5



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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 99.54%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
960 minute winter	1	930	17.047	0.827	4.7	84.8342	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
960 minute winter	1	Infiltration	0.5

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.500
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	0.200
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Easting (m)	Northing (m)	Depth (m)
1	0.113	17.850	507580.244	104485.628	1.630

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 : 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	1.00
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	17.450
Safety Factor	6.5	Time to half empty (mins)	

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	37.5	0.0	0.400	224.7	0.0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.02012	Porosity	0.30
Side Inf Coefficient (m/hr)	0.02012	Invert Level (m)	16.220
Safety Factor	6.5	Time to half empty (mins)	3168

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	337.3	337.3	0.350	337.3	411.7	1.100	337.3	411.7	1.101	0.0	411.7



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	1	34	16.398	0.178	24.0	18.3026	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.3



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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	1	34	16.602	0.382	50.8	39.1961	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.4

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.990
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.033	14.650	1250	507319.782	104517.785	1.750

Simulation Settings

Rainfall Methodology	FEH-13	Drain Down Time (mins)	240
Summer CV	0.750	Additional Storage (m³/ha)	20.0
Winter CV	0.840	Check Discharge Rate(s)	x
Analysis Speed	Detailed	Check Discharge Volume	x
Skip Steady State	x		

Storm Durations

60	180	360	600	960	2160	4320	7200	10080
120	240	480	720	1440	2880	5760	8640	

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.17485	Porosity	0.95
Side Inf Coefficient (m/hr)	0.17485	Invert Level (m)	12.900
Safety Factor	5.0	Time to half empty (mins)	510

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	25.0	25.0	0.400	25.0	35.0	0.800	25.0	35.0	0.801	0.0	35.0



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
240 minute winter	1	228	13.264	0.364	2.1	8.7730	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute winter	1	Infiltration	0.3



Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
240 minute winter	1	236	14.249	1.349	4.2	19.5206	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
240 minute winter	1	Infiltration	0.3

Design Settings

Rainfall Methodology	FSR
Return Period (years)	5
Additional Flow (%)	0
FSR Region	England and Wales
M5-60 (mm)	19.000
Ratio-R	0.350
CV	0.750
Time of Entry (mins)	5.00
Maximum Time of Concentration (mins)	30.00
Maximum Rainfall (mm/hr)	50.0
Minimum Velocity (m/s)	1.00
Connection Type	Level Soffits
Minimum Backdrop Height (m)	9.990
Preferred Cover Depth (m)	1.200
Include Intermediate Ground	✓
Enforce best practice design rules	✓

Nodes

Name	Area (ha)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
1	0.033	14.650	1250	507319.782	104517.785	1.750

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Detailed
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	19.000	Drain Down Time (mins)	240
Ratio-R	0.350	Additional Storage (m³/ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 : 30

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
10	10	0	0
100	40	0	0

Node 1 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.17485	Porosity	0.95
Side Inf Coefficient (m/hr)	0.17485	Invert Level (m)	12.900
Safety Factor	6.5	Time to half empty (mins)	663

Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)	Depth (m)	Area (m²)	Inf Area (m²)
0.000	25.0	25.0	0.400	25.0	35.0	0.800	25.0	35.0	0.801	0.0	35.0



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Results for 10 year +10% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m ³)	Flood (m ³)	Status
30 minute winter	1	33	13.113	0.213	7.0	5.1506	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.2



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Results for 100 year +40% CC Critical Storm Duration. Lowest mass balance: 100.00%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
30 minute winter	1	34	13.365	0.465	14.8	11.2225	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	Outflow (l/s)
30 minute winter	1	Infiltration	0.3