Project Name	: Burndell Road, Yapton
Job No	: 18-070
Note Title	: Drainage Strategy Technical Note
Author	: Luke Phillips
Checked	: Luke Hart
Approved	: Ryan Saul
Date	: November 2018

1.0 INTRODUCTION

1.1 Odyssey have been instructed by Bovis Homes to prepare this drainage technical note in support of their Reserved Matters (RM) application for the residential development at Burndell Road, Yapton. This follows the grant of outline planning permission on 13th October 2017 (Ref: Y/19/16/OUT)

1.2 The description of the development at the outline application was:

"*Outline application for the development of a maximum of 108 No. residential dwellings, vehicular access from Burndell Road, public open space, ancillary works & associated infrastructure.*"

1.3 The aim of this report is to support the discharge of Conditions 5, 6, and 24, which are set out below:

Condition 5

"Development shall not commence until full details of the proposed surface water drainage scheme, including maintenance and management, have been submitted to and approved in writing by the Local Planning Authority. No building shall be occupied until the complete surface water drainage system serving that property has been implemented in accordance with the agreed details and the details so agreed shall be maintained in accordance with the scheme in perpetuity."

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Condition 6

"Prior to the commencement of construction works details of a proposed foul drainage system shall be submitted to an approved in writing by the local planning authority. This shall include details of its siting, design and subsequent management/ maintenance. No dwelling shall be occupied until works for the disposal of sewage have been fully implemented in accordance with the approved details."

Condition 24

"No part of the development shall be first occupied until provision has been made within the site in accordance with plans and details to be submitted to and approved by the local planning authority to prevent surface water draining onto the public highway."

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2.0 EXISTING SITE

2.1 The proposed development site comprises of 3.87ha of greenfield land, located South of an existing residential development fronting Burndell Road and Fellows Gardens. The site is relatively flat with a fall of approximately 1.2m across the site from North to South.

2.2 The existing drainage regime relies on surface water infiltrating through the underlying strata, with any excess runoff discharging into the network of ditches abutting the site's southern boundary.

2.3 There are no public surface water sewers in close proximity to the site.

2.4 Existing geology maps and further borehole testing has proven that the underlying geology consists predominantly of sandy, gravelly clay above the Upper Chalk Formation. Making the site unsuitable for the use of an infiltrating surface water drainage strategy.

2.5 Furthermore, infiltration testing carried out proved that the geology of the ground has poor permeability, and therefore the use of any infiltrating SuDS features would not be a viable option for this site.

2.6 There are no existing foul water sewers present within the site. The nearest public foul water sewer is located in Burndell Road and currently serves the existing residential developments on Park Drive and Fairholme Drive.

2.7 In order to safeguard against potential flooding from the surrounding ditches, all structures have been located a minimum of five metres away from the top of any existing ditch bank.

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3.0 PROPOSED SURFACE WATER DRAINAGE STRATEGY

3.1 The surface water drainage strategy for the proposed development is shown on the drawing listed below which can be found in **Appendix A:**

- 18-070/103 – Engineering Layout

3.2 The surface water drainage strategy has been designed in accordance with the strategy set out in the Odyssey Flood Risk Assessment (FRA) submitted as part of the outline planning application for the site. The FRA detailed the need for cellular storage attenuation crates, an attenuation basin, and lined permeable paving systems in order to provide surface water storage and treatment, prior to discharging into the ditches surrounding the site.

3.3 The surface water drainage system has been designed to accommodate all rainfall events up to the 1 in 100 year event plus climate change (+40%.) Supporting calculations can be found within **Appendix C.**

3.4 During extreme events, excess flood waters will be predominantly conveyed within the carriageways to the ditches and open space to the East and South of the site. The overland flow routes can be found on drawing **18-070/105** appended in **Appendix B.**

3.5 The proposed drainage strategy splits the development into 4 separate sub-catchments. The Northern catchment drains to the East and utilises an offline cellular storage tank combined with flow control device in order to manage the stormwater. This catchment then discharges into the Eastern ditch at a rate of 7.0 l/s.

3.6 The three Southern catchments each drain to a separate cellular storage attenuation tank prior to discharging into the attenuation basin located within the South West of the site. The surface water is discharged from each cellular storage crate at a controlled rate, before being conveyed through the basin and discharged into the Southern ditch at a rate of 7.0 l/s.

3.7 Generated surface water run-off from roofs and private driveways will be conveyed through permeable paving systems and private pipe networks to the main sewer network. All highway drainage will be captured with trapped road gullies that discharge into the main sewer network.

3.8 The permeable paving will also ensure that any surface water generated by roofs and private driveways will be contained within the private drainage network without draining onto the public highway.

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3.9 The main sewer network will then convey the surface water to the respective attenuation feature before it is discharged at a combined rate of 14 l/s as previously agreed at the outline planning stage. The discharge rates proposed are listed within the table below;

	Discharge Rate
Northern Catchment	7.0 l/s
Southern Catchment	7.0 l/s
Total	14.0 l/s

3.10 Surface water treatment will be provided by the permeable paving via both the grit layer and geotextile that the blocks are bedded on, as well as the underlying gravel media comprising of washed no-fines material. These measures provide filtration and the breakdown of hydrocarbons as the water is conveyed through the system and into the piped network.

3.11 The proposed attenuation basin will also provide treatment through the surface vegetation and ground cover. Nutrients, oils/grease, and metals can all be removed through filtration via the vegetated basins.

3.12 The proposed permeable paving and attenuation basin combined with trapped gullies and catchpits that form part of the piped network will provide sufficient treatment of the surface water prior to discharge into the existing ditches.

4.0 PROPOSED FOUL WATER DRAINAGE STRATEGY

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4.1 The foul water drainage strategy for the proposed development is shown on the drawing listed below which can be found in **Appendix A:**

- 18-070/103 – Engineering Layout

4.2 The foul water drainage strategy has been designed in accordance with strategy set out in the Odyssey FRA submitted as part of the outline planning application for the site.

4.3 All foul effluent created by the development is to be discharged through private foul water sewer networks into the main foul water sewer network that runs through the site.

4.4 These main sewers have been designed in accordance with Sewers for Adoption 7th Edition.

4.5 All foul effluent is to be discharged to the pumping station located towards the South West corner of the site. It will then be pumped via rising main to the North before discharging into the existing Southern Water manhole 2003 in Burndell Road.

5.0 PROPOSED MANAGEMENT AND MAINTENANCE

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5.1 All foul and surface water sewer networks shown on drawing **18-070/103** are to be offered for adoption by Southern Water and as such will be maintained by Southern Water in accordance with their maintenance and management program.

5.2 Any surface water drainage systems that take highway drainage only,

5.3 will be offered for adoption by West Sussex County Council and as such will be maintained by West Sussex County Council in accordance with their maintenance and management program.

5.4 Any drainage solely serving an individual property and located within the property curtilage will be maintained by the property owner.

5.5 Any drainage features not offered for adoption, including the cellular storage attenuation crates and the attenuation basin, are to be maintained by a private management company in accordance with the following schedule and any recommendations made by manufacturers.

Permeable Paving

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Visual inspection of paving.	Ensure joints are kept fully filled.	Monthly (depending on local environment)
	Paving should be agitated (e.g. brushed, vacuumed, etc.)	To ensure no vegetation of any sort is allowed to grow and develop in the joints.	Six monthly or as required (Spring and Autumn seasons).
	Paving should be inspected after any heavy precipitations.	Ensure no displacement of any organic matter into the surface of the pavement.	As required.
Corrective Maintenance	Inspection of outfall should be undertaken.	Non-infiltration systems to have outfall checked for debris and blockages.	Six monthly or as required.
	Removal of weeds.	To ensure weeds are killed effectively they should be actively growing so that the glyphosate will go down to the roots. Glyphosate based weed killers include Roundup and Tumbleweed.	As required.
	Laying material may require cleaning and /or replacing.	Depending on the environment the permeable pavement has received and been exposed to.	25 to 30-year period.

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Pipe Systems, Gullies, and Manholes

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Inspect and identify any areas that are not operating correctly.	Gullies and private manholes and inspection chambers	Monthly (for the first 3 months) then annually.
	Remove debris from gratings, sumps / silt traps.		Annually
Infrequent Maintenance	Clear blockages.	Piped system.	As required.

Cellular Storage Attenuation Tanks

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Inspect and identify any areas that are not operating correctly.		Monthly (for the first 3 months) then six monthly.
	Remove sediment from upstream silt traps (sump).	Remove sediment from sump when 50% volume lost. N.B. Sumps must be maintained to limit sediment entry into the underground cells.	Six monthly, or as required.
Infrequent Maintenance	Clear blockage via inspection routes within cellular storage by rodding / jetting via catchpits	Polystorm system 'inspect' units incorporate horizontal tunnel	As required.
Corrective Maintenance	Excavate, uncover & jet cells to remove sediment (Wavin Aquacell or similar).		As required.

Attenuation Basin

Maintenance Category	Maintenance Activity	Comments	Frequency
Routine Maintenance	Litter picking and general	Ensure a free-flowing water route is observed	Three times/year at end of winter, mid-summer, after autumn leaf fall, or as required based on site-specific observations of clogging.

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Infrequent Maintenance	Stabilise and mow contributing and adjacent grass		As required.
	Removal of weeds		As required
	Remediation works of any landscaping or any other component that is deemed to have an adverse impact on the flow path		As required
	Remove sediment from inlets, outlet and forebay		As required

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6.0 CONCLUSION

6.1 This technical note has provided details of the proposed surface water and foul water drainage systems proposed within the proposed development at Burndell Road, Yapton.

6.2 This technical note, combined with other documents submitted as part of the Reserved Matters application provides the detail required to discharge Conditions 5, 6, and 24.

6.3 This note has demonstrated how the proposals accord with the FRA, NPPF and local Planning Policies with regards to surface and foul water drainage.

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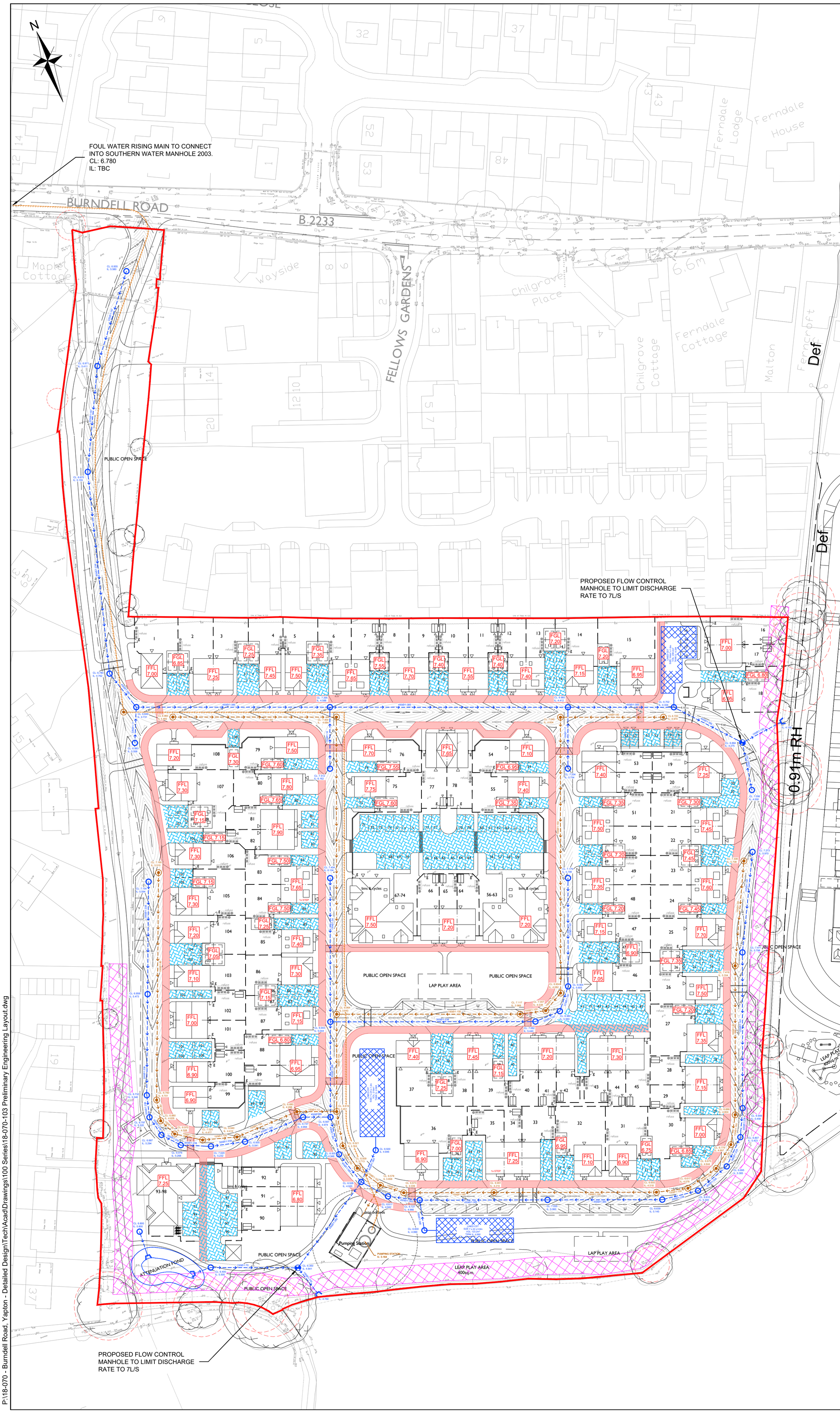
APPENDIX A

Odyssey Engineering Layout



NOTES

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6. ODYSSEY ACCEPT NO LIABILITY FOR THE ACCURACY OF SURVEY INFORMATION AND LAYOUTS SUPPLIED BY OTHERS.
7. MASTERPLAN IS BASED ON URBAN PULSE DESIGN SITE PLAN DRAWING 18-1065-005 DATED 29/10/18.
8. FOR OVERLAND FLOW ROUTES REFER TO ODYSSEY DRAWING 18-070/105.

LEGEND

- SITE BOUNDARY
- FFL 7.00 — PROPOSED FINISHED FLOOR LEVEL (mAOD)
- × 6.80 — EXISTING LEVEL (mAOD). SEE NOTE 5.
- 7.50 — PROPOSED HIGHWAY CONTOURS.
- FOUL SEWER AND MANHOLE (PIPE NO./GRADIENT/PIPE SIZE)
- SURFACE WATER SEWER AND MANHOLE (PIPE NO./GRADIENT/PIPE SIZE)
- FLOW CONTROL CHAMBER
- PROPOSED CELLULAR STORAGE ATTENUATION TANK
- PROPOSED HEADWALL
- FOUL RISING MAIN
- 5m BUFFER FROM TOP OF EMBANKMENT
- 15m CLEARANCE FROM CENTRE OF PUMPING STATION WET WELL
- PROPOSED TREE, REFER TO LANDSCAPE ARCHITECTS PLANS. DETAILS TO BE CONFIRMED
- PERMEABLE PAVING
- INDICATIVE SERVICE CORRIDOR
- TREE ROOT PROTECTION ZONE

FOR PLANNING PURPOSES ONLY

Rev	Amendments	Drn	Chk	App	Date
A	PLANNING ISSUE	JA	LH	RS	23.11.18

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Job Title
LAND SOUTH OF BURNDELL ROAD, YAPTON

Drawing Title
PRELIMINARY ENGINEERING LAYOUT

Client
BOVIS HOMES

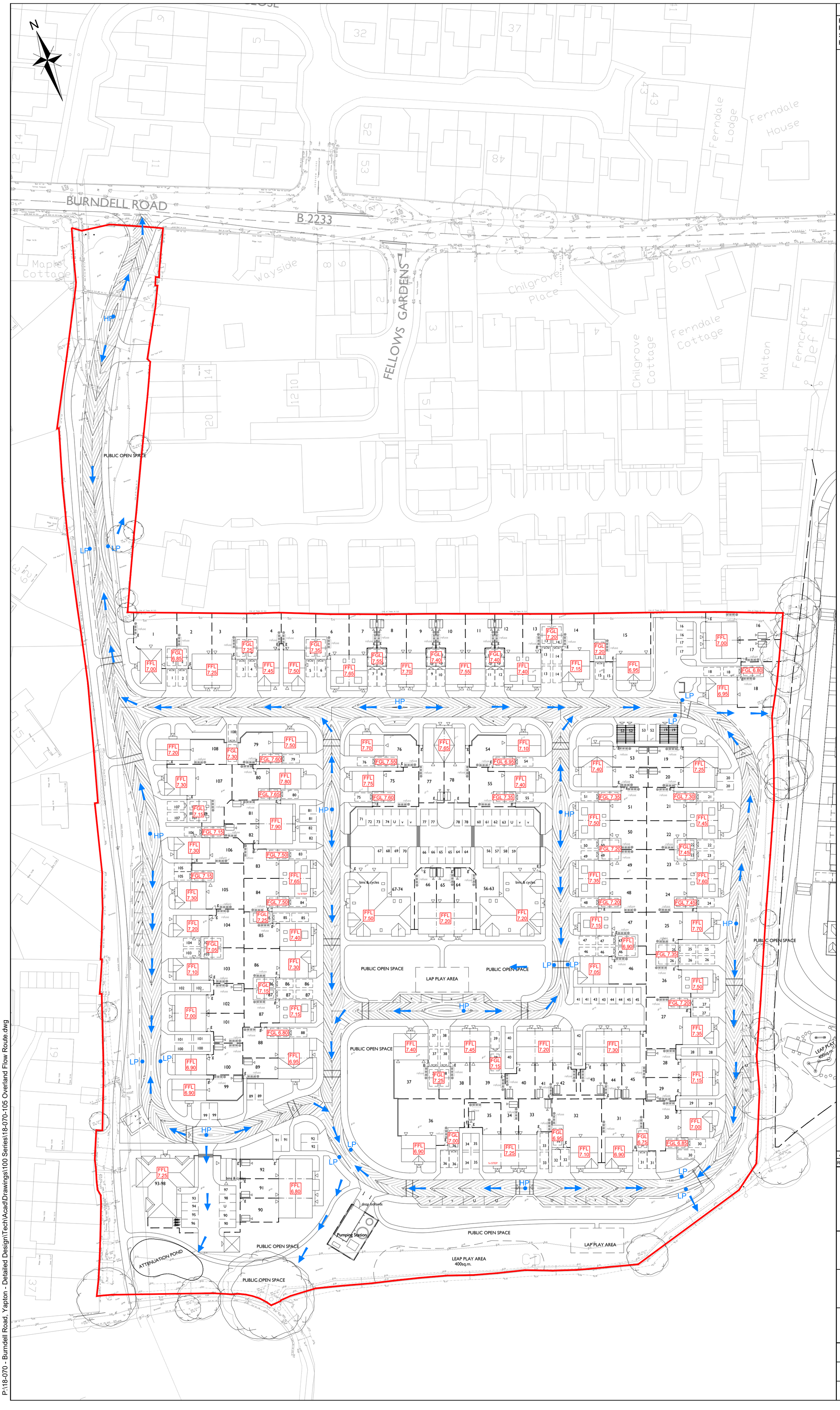
Scale	Date	Designed
1:500 @A1	NOV 18	SG
Drawn	**Checked**	**Approved**
SOM	LH	RS

Job No	Drawing No	Rev
18-070	18-070/103	A

P:\18-070 - Burndell Road, Yapton - Detailed Design\Tech\Acad\Drawings\100 Series\18-070-103 Preliminary Engineering Layout.dwg

APPENDIX B

Odyssey Overland Flow Routes



NOTES

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7. MASTERPLAN IS BASED ON URBAN PULSE DESIGN SITE PLAN DRAWING 18-1065-005 DATED 29/10/18.
8. FOR PROPOSED SURFACE WATER DRAINAGE LAYOUT REFER TO ODYSSEY DRAWING 18-070/103.

LEGEND

- SITE BOUNDARY
- FFL 7.00 — PROPOSED FINISHED FLOOR LEVEL (mAOD)
- × 6.80 — EXISTING LEVEL (mAOD). SEE NOTE 22
- 7.50 — PROPOSED HIGHWAY CONTOURS. SEE NOTE 19
- INDICATIVE DIRECTION OF OVERLAND FLOW
- LP — LOW POINT
- HP — HIGH POINT

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Rev	Amendments	Drn	Chk	App	Date
A	PLANNING ISSUE	JA	LH	RS	23.11.18

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Job Title
LAND SOUTH OF BURNDELL ROAD, YAPTON

Drawing Title
OVERLAND FLOW ROUTE

Client
BOVIS HOMES

Scale	Date	Designed
1:500 @A1	NOV 18	SG
Drawn	**Checked**	**Approved**
SOM	LH	RS

Job No	Drawing No	Rev
18-070	18-070/105	A

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APPENDIX C

Microdrainage Calculations

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for SW Network

Pipe Sizes STANDARD Manhole Sizes STANDARD

FEH Rainfall Model

Return Period (years)	2
FEH Rainfall Version	1999
Site Location	GB 498650 101750 SU 98650 01750
C (1km)	-0.025
D1 (1km)	0.390
D2 (1km)	0.245
D3 (1km)	0.403
E (1km)	0.310
F (1km)	2.321
Maximum Rainfall (mm/hr)	50
Maximum Time of Concentration (mins)	30
Foul Sewage (l/s/ha)	0.000
Volumetric Runoff Coeff.	0.750
PIMP (%)	100
Add Flow / Climate Change (%)	0
Minimum Backdrop Height (m)	0.200
Maximum Backdrop Height (m)	1.500
Min Design Depth for Optimisation (m)	1.200
Min Vel for Auto Design only (m/s)	1.00
Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for SW Network

« - Indicates pipe capacity < flow

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	28.225	0.169	167.0	0.014	4.00	0.0	0.600	o	225	Pipe/Conduit	
S1.001	30.216	0.181	167.0	0.027	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.002	57.745	0.243	238.0	0.046	0.00	0.0	0.600	o	300	Pipe/Conduit	
S1.003	12.182	0.032	385.0	0.021	0.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	4.47	5.580	0.014	0.0	0.0	0.0	1.01	40.1	1.9
S1.001	50.00	4.97	5.411	0.041	0.0	0.0	0.0	1.01	40.1	5.6
S1.002	50.00	5.91	5.155	0.087	0.0	0.0	0.0	1.01	71.7	11.8
S1.003	50.00	6.11	4.762	0.108	0.0	0.0	0.0	1.03	163.8	14.7

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S2.000	10.197	0.322	31.7	0.018	4.00	0.0	0.600	o	225	Pipe/Conduit	
S3.000	9.008	0.018	500.4	0.021	4.00	0.0	0.600	o	150	Pipe/Conduit	
S3.001	32.110	1.201	26.7	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.000	6.309	0.013	500.0	0.019	4.00	0.0	0.600	o	100	Pipe/Conduit	
S4.001	12.325	0.757	16.3	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S5.000	5.264	0.011	500.0	0.000	4.00	0.0	0.600	o	100	Pipe/Conduit	
S5.001	28.423	1.209	23.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S1.004	55.100	0.143	385.3	0.075	0.00	0.0	0.600	o	450	Pipe/Conduit	
S6.000	8.782	0.018	500.0	0.011	4.00	0.0	0.600	o	100	Pipe/Conduit	
S6.001	4.702	0.320	14.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S7.000	10.217	0.020	500.0	0.010	4.00	0.0	0.600	o	100	Pipe/Conduit	
S7.001	9.387	0.368	25.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S8.000	9.845	0.020	500.0	0.011	4.00	0.0	0.600	o	100	Pipe/Conduit	
S8.001	3.606	0.368	9.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S2.000	50.00	4.07	5.558	0.018	0.0	0.0	0.0	2.33	92.8	2.4
S3.000	50.00	4.34	6.250	0.021	0.0	0.0	0.0	0.44	7.8	2.8
S3.001	50.00	4.61	6.232	0.021	0.0	0.0	0.0	1.96	34.5	2.8
S4.000	50.00	4.31	5.850	0.019	0.0	0.0	0.0	0.34	2.7	2.6
S4.001	50.00	4.42	5.837	0.019	0.0	0.0	0.0	1.92	15.1	2.6
S5.000	50.00	4.26	6.300	0.000	0.0	0.0	0.0	0.34	2.7	0.0
S5.001	50.00	4.56	6.289	0.000	0.0	0.0	0.0	1.60	12.6	0.0
S1.004	48.59	7.00	4.731	0.242	0.0	0.0	0.0	1.03	163.8	31.8
S6.000	50.00	4.43	6.550	0.011	0.0	0.0	0.0	0.34	2.7	1.5
S6.001	50.00	4.47	6.532	0.011	0.0	0.0	0.0	2.03	15.9	1.5
S7.000	50.00	4.50	6.600	0.010	0.0	0.0	0.0	0.34	2.7	1.4
S7.001	50.00	4.61	6.580	0.010	0.0	0.0	0.0	1.53	12.1	1.4
S8.000	50.00	4.49	6.600	0.011	0.0	0.0	0.0	0.34	2.7	1.5
S8.001	50.00	4.51	6.580	0.011	0.0	0.0	0.0	2.48	19.5	1.5

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S9.000	8.061	0.016	500.0	0.010	4.00	0.0	0.600	o	100	Pipe/Conduit	
S9.001	10.668	0.372	28.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S6.002	17.499	1.233	14.2	0.025	0.00	0.0	0.600	o	150	Pipe/Conduit	
S10.000	9.004	0.018	500.0	0.032	4.00	0.0	0.600	o	150	Pipe/Conduit	
S10.001	4.844	1.444	3.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S11.000	6.937	0.014	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S11.001	14.446	1.598	9.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S12.000	6.936	0.014	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S12.001	31.116	1.598	19.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S13.000	6.934	0.014	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S13.001	47.933	1.448	33.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S1.005	67.722	0.176	385.0	0.048	0.00	0.0	0.600	o	450	Pipe/Conduit	
S14.000	8.557	0.017	500.0	0.011	4.00	0.0	0.600	o	100	Pipe/Conduit	
S14.001	5.483	0.129	42.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S9.000	50.00	4.40	6.600	0.010	0.0	0.0	0.0	0.34	2.7	1.4
S9.001	50.00	4.52	6.584	0.010	0.0	0.0	0.0	1.45	11.4	1.4
S6.002	50.00	4.71	6.162	0.067	0.0	0.0	0.0	2.69	47.5	9.1
S10.000	50.00	4.34	6.350	0.032	0.0	0.0	0.0	0.44	7.8	4.3
S10.001	50.00	4.35	6.332	0.032	0.0	0.0	0.0	5.54	98.0	4.3
S11.000	50.00	4.34	6.550	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S11.001	50.00	4.44	6.536	0.009	0.0	0.0	0.0	2.59	20.3	1.2
S12.000	50.00	4.34	6.550	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S12.001	50.00	4.64	6.536	0.009	0.0	0.0	0.0	1.76	13.8	1.2
S13.000	50.00	4.34	6.400	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S13.001	50.00	4.94	6.386	0.009	0.0	0.0	0.0	1.35	10.6	1.2
S1.005	44.35	8.10	4.588	0.416	0.0	0.0	0.0	1.03	163.8	49.9
S14.000	50.00	4.42	5.950	0.011	0.0	0.0	0.0	0.34	2.7	1.5
S14.001	50.00	4.50	5.933	0.011	0.0	0.0	0.0	1.19	9.3	1.5

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S15.000	8.488	0.017	500.0	0.010	4.00	0.0	0.600	o	100	Pipe/Conduit	
S15.001	11.218	0.529	21.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S16.000	7.291	0.015	500.0	0.024	4.00	0.0	0.600	o	150	Pipe/Conduit	
S16.001	9.808	0.531	18.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S14.002	17.458	1.110	15.7	0.024	0.00	0.0	0.600	o	150	Pipe/Conduit	
S17.000	12.693	0.025	500.0	0.035	4.00	0.0	0.600	o	150	Pipe/Conduit	
S17.001	4.927	1.463	3.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S18.000	8.316	0.017	500.0	0.015	4.00	0.0	0.600	o	100	Pipe/Conduit	
S18.001	10.641	1.421	7.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S1.006	30.144	0.078	385.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S19.000	7.083	0.018	385.0	0.040	4.00	0.0	0.600	o	450	Pipe/Conduit	
S1.007	21.970	0.059	372.4	0.060	0.00	0.0	0.600	o	450	Pipe/Conduit	
S20.000	10.784	0.022	500.0	0.028	4.00	0.0	0.600	o	150	Pipe/Conduit	
S20.001	5.007	1.729	2.9	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S15.000	50.00	4.42	6.350	0.010	0.0	0.0	0.0	0.34	2.7	1.4
S15.001	50.00	4.53	6.333	0.010	0.0	0.0	0.0	1.68	13.2	1.4
S16.000	50.00	4.27	6.350	0.024	0.0	0.0	0.0	0.44	7.8	3.2
S16.001	50.00	4.34	6.335	0.024	0.0	0.0	0.0	2.35	41.6	3.2
S14.002	50.00	4.64	5.754	0.069	0.0	0.0	0.0	2.55	45.1	9.4
S17.000	50.00	4.48	6.200	0.035	0.0	0.0	0.0	0.44	7.8	4.7
S17.001	50.00	4.49	6.175	0.035	0.0	0.0	0.0	5.53	97.8	4.7
S18.000	50.00	4.41	6.200	0.015	0.0	0.0	0.0	0.34	2.7	2.0
S18.001	50.00	4.47	6.183	0.015	0.0	0.0	0.0	2.84	22.3	2.0
S1.006	42.76	8.59	4.412	0.535	0.0	0.0	0.0	1.03	163.8	61.9
S19.000	50.00	4.11	4.352	0.040	0.0	0.0	0.0	1.03	163.8	5.5
S1.007	41.70	8.94	4.334	0.636	0.0	0.0	0.0	1.05	166.6	71.8
S20.000	50.00	4.41	6.300	0.028	0.0	0.0	0.0	0.44	7.8	3.8
S20.001	50.00	4.42	6.278	0.028	0.0	0.0	0.0	5.97	105.4	3.8

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S20.002	13.744	0.128	107.4	0.032	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.008	12.498	0.125	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S21.000	9.097	0.018	500.0	0.010	4.00	0.0	0.600	o	100	Pipe/Conduit	
S21.001	5.690	0.337	16.9	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S22.000	7.290	0.015	500.0	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
S22.001	17.619	0.340	51.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.002	28.743	0.172	167.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S23.000	11.788	0.024	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	
S23.001	5.263	0.603	8.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S24.000	6.246	0.012	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	
S24.001	18.056	0.265	68.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S25.000	10.817	0.022	500.0	0.007	4.00	0.0	0.600	o	100	Pipe/Conduit	
S25.001	30.825	0.055	560.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.003	44.311	0.265	167.0	0.045	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S20.002	50.00	4.66	4.550	0.060	0.0	0.0	0.0	0.97	17.1	8.2
S1.008	41.10	9.14	4.275	0.696	0.0	0.0	0.0	1.00	17.8«	77.5
S21.000	50.00	4.45	6.450	0.010	0.0	0.0	0.0	0.34	2.7	1.4
S21.001	50.00	4.50	6.432	0.010	0.0	0.0	0.0	1.89	14.8	1.4
S22.000	50.00	4.36	6.450	0.013	0.0	0.0	0.0	0.34	2.7	1.8
S22.001	50.00	4.63	6.435	0.013	0.0	0.0	0.0	1.07	8.4	1.8
S21.002	50.00	5.11	5.970	0.023	0.0	0.0	0.0	1.01	40.1	3.1
S23.000	50.00	4.58	6.550	0.012	0.0	0.0	0.0	0.34	2.7	1.6
S23.001	50.00	4.62	6.526	0.012	0.0	0.0	0.0	2.63	20.7	1.6
S24.000	50.00	4.31	6.200	0.012	0.0	0.0	0.0	0.34	2.7	1.6
S24.001	50.00	4.63	6.188	0.012	0.0	0.0	0.0	0.93	7.3	1.6
S25.000	50.00	4.53	6.000	0.007	0.0	0.0	0.0	0.34	2.7	0.9
S25.001	50.00	6.15	5.978	0.007	0.0	0.0	0.0	0.32	2.5	0.9
S21.003	49.13	6.88	5.798	0.099	0.0	0.0	0.0	1.01	40.1	13.2

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S26.000	11.217	0.022	500.0	0.007	4.00	0.0	0.600	o	100	Pipe/Conduit	
S26.001	5.512	0.320	17.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.004	8.274	0.035	238.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S21.005	9.187	0.039	238.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S27.000	6.926	0.014	500.0	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
S27.001	6.201	0.252	24.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.006	10.691	0.045	238.0	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S21.007	10.494	0.044	238.0	0.026	0.00	0.0	0.600	o	300	Pipe/Conduit	
S28.000	6.198	0.012	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	
S28.001	6.248	0.243	25.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.008	32.651	0.085	385.0	0.028	0.00	0.0	0.600	o	450	Pipe/Conduit	
S29.000	11.715	0.023	500.0	0.008	4.00	0.0	0.600	o	100	Pipe/Conduit	
S29.001	5.481	0.093	58.7	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S30.000	7.217	0.014	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S26.000	50.00	4.55	6.000	0.007	0.0	0.0	0.0	0.34	2.7	0.9
S26.001	50.00	4.60	5.978	0.007	0.0	0.0	0.0	1.87	14.7	0.9
S21.004	48.53	7.02	5.458	0.106	0.0	0.0	0.0	1.01	71.7	13.9
S21.005	47.89	7.17	5.423	0.106	0.0	0.0	0.0	1.01	71.7	13.9
S27.000	50.00	4.34	5.850	0.013	0.0	0.0	0.0	0.34	2.7	1.8
S27.001	50.00	4.41	5.836	0.013	0.0	0.0	0.0	1.56	12.3	1.8
S21.006	47.16	7.34	5.385	0.119	0.0	0.0	0.0	1.01	71.7	15.2
S21.007	46.48	7.52	5.340	0.145	0.0	0.0	0.0	1.01	71.7	18.2
S28.000	50.00	4.31	5.750	0.012	0.0	0.0	0.0	0.34	2.7	1.6
S28.001	50.00	4.37	5.738	0.012	0.0	0.0	0.0	1.53	12.0	1.6
S21.008	44.54	8.04	5.145	0.185	0.0	0.0	0.0	1.03	163.8	22.3
S29.000	50.00	4.58	6.100	0.008	0.0	0.0	0.0	0.34	2.7	1.1
S29.001	50.00	4.67	6.077	0.008	0.0	0.0	0.0	1.01	7.9	1.1
S30.000	50.00	4.36	5.950	0.012	0.0	0.0	0.0	0.34	2.7	1.6

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S30.001	6.406	0.526	12.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S21.009	36.376	0.094	385.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S31.000	11.316	0.023	500.0	0.015	4.00	0.0	0.600	o	100	Pipe/Conduit	
S31.001	16.377	0.761	21.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S32.000	6.578	0.013	500.0	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
S32.001	9.532	0.684	13.9	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S33.000	8.608	0.024	358.7	0.000	4.00	0.0	0.600	o	450	Pipe/Conduit	
S21.010	9.072	0.024	385.0	0.028	0.00	0.0	0.600	o	450	Pipe/Conduit	
S21.011	8.639	0.022	385.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S34.000	4.800	0.010	500.0	0.016	4.00	0.0	0.600	o	100	Pipe/Conduit	
S34.001	11.461	0.536	21.4	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S35.000	7.888	0.016	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S35.001	6.022	0.330	18.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S36.000	7.955	0.016	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S30.001	50.00	4.40	5.936	0.012	0.0	0.0	0.0	2.23	17.5	1.6
S21.009	42.61	8.63	5.060	0.205	0.0	0.0	0.0	1.03	163.8	23.6
S31.000	50.00	4.56	6.100	0.015	0.0	0.0	0.0	0.34	2.7	2.0
S31.001	50.00	4.72	6.077	0.015	0.0	0.0	0.0	1.67	13.1	2.0
S32.000	50.00	4.32	6.000	0.013	0.0	0.0	0.0	0.34	2.7	1.8
S32.001	50.00	4.40	5.987	0.013	0.0	0.0	0.0	2.08	16.3	1.8
S33.000	50.00	4.13	4.990	0.000	0.0	0.0	0.0	1.07	169.8	0.0
S21.010	42.17	8.78	4.966	0.261	0.0	0.0	0.0	1.03	163.8	29.8
S21.011	41.75	8.92	4.942	0.261	0.0	0.0	0.0	1.03	163.8	29.8
S34.000	50.00	4.24	6.700	0.016	0.0	0.0	0.0	0.34	2.7	2.2
S34.001	50.00	4.35	6.690	0.016	0.0	0.0	0.0	1.68	13.2	2.2
S35.000	50.00	4.39	6.500	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S35.001	50.00	4.44	6.484	0.009	0.0	0.0	0.0	1.82	14.3	1.2
S36.000	50.00	4.39	6.500	0.009	0.0	0.0	0.0	0.34	2.7	1.2

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S36.001	9.229	0.330	28.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S37.000	12.719	0.025	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	
S37.001	13.425	0.071	189.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S34.002	40.876	0.760	53.8	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit	
S38.000	7.817	0.016	500.0	0.010	4.00	0.0	0.600	o	100	Pipe/Conduit	
S38.001	6.096	0.440	13.9	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S39.000	11.775	0.024	500.0	0.024	4.00	0.0	0.600	o	150	Pipe/Conduit	
S39.001	8.155	0.782	10.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S40.000	7.278	0.015	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S40.001	7.076	0.212	33.4	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S41.000	7.265	0.015	500.0	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
S41.001	8.813	0.212	41.6	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S42.000	57.570	0.115	500.0	0.139	4.00	0.0	0.600	o	100	Pipe/Conduit	
S42.001	10.637	0.412	25.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S36.001	50.00	4.50	6.484	0.009	0.0	0.0	0.0	1.46	11.5	1.2
S37.000	50.00	4.63	6.250	0.012	0.0	0.0	0.0	0.34	2.7	1.6
S37.001	50.00	5.03	6.225	0.012	0.0	0.0	0.0	0.56	4.4	1.6
S34.002	50.00	5.53	6.104	0.075	0.0	0.0	0.0	1.37	24.3	10.2
S38.000	50.00	4.39	5.800	0.010	0.0	0.0	0.0	0.34	2.7	1.4
S38.001	50.00	4.43	5.784	0.010	0.0	0.0	0.0	2.09	16.4	1.4
S39.000	50.00	4.44	6.150	0.024	0.0	0.0	0.0	0.44	7.8	3.2
S39.001	50.00	4.49	6.126	0.024	0.0	0.0	0.0	3.14	55.5	3.2
S40.000	50.00	4.36	6.150	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S40.001	50.00	4.45	6.135	0.009	0.0	0.0	0.0	1.34	10.5	1.2
S41.000	50.00	4.36	6.150	0.013	0.0	0.0	0.0	0.34	2.7	1.8
S41.001	50.00	4.48	6.135	0.013	0.0	0.0	0.0	1.20	9.4	1.8
S42.000	49.30	6.84	6.500	0.139	0.0	0.0	0.0	0.34	2.7«	18.6
S42.001	48.78	6.96	6.335	0.139	0.0	0.0	0.0	1.53	12.0«	18.6

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S40.002	30.809	0.184	167.4	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S43.000	12.117	0.024	500.0	0.024	4.00	0.0	0.600	o	150	Pipe/Conduit	
S43.001	10.271	0.246	41.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S40.003	7.439	0.045	167.0	0.049	0.00	0.0	0.600	o	225	Pipe/Conduit	
S44.000	19.715	0.039	505.5	0.050	4.00	0.0	0.600	o	100	Pipe/Conduit	
S44.001	6.507	0.376	17.3	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S40.004	7.565	0.045	167.0	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S45.000	11.554	0.023	500.0	0.024	4.00	0.0	0.600	o	150	Pipe/Conduit	
S45.001	26.834	0.537	50.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S46.000	7.154	0.014	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S46.001	10.995	0.496	22.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S47.000	12.099	0.024	500.0	0.007	4.00	0.0	0.600	o	100	Pipe/Conduit	
S47.001	7.306	0.386	18.9	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S40.005	58.355	0.245	238.2	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S40.002	46.67	7.47	5.798	0.181	0.0	0.0	0.0	1.01	40.1	22.8
S43.000	50.00	4.46	5.950	0.024	0.0	0.0	0.0	0.44	7.8	3.2
S43.001	50.00	4.57	5.926	0.024	0.0	0.0	0.0	1.56	27.6	3.2
S40.003	46.19	7.59	5.605	0.253	0.0	0.0	0.0	1.01	40.1	31.7
S44.000	50.00	4.98	6.100	0.050	0.0	0.0	0.0	0.34	2.6«	6.8
S44.001	50.00	5.04	6.061	0.050	0.0	0.0	0.0	1.87	14.7	6.8
S40.004	45.72	7.72	5.560	0.303	0.0	0.0	0.0	1.01	40.1	37.6
S45.000	50.00	4.43	6.250	0.024	0.0	0.0	0.0	0.44	7.8	3.2
S45.001	50.00	4.75	6.227	0.024	0.0	0.0	0.0	1.43	25.2	3.2
S46.000	50.00	4.35	6.150	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S46.001	50.00	4.46	6.136	0.009	0.0	0.0	0.0	1.65	12.9	1.2
S47.000	50.00	4.60	6.050	0.007	0.0	0.0	0.0	0.34	2.7	0.9
S47.001	50.00	4.67	6.026	0.007	0.0	0.0	0.0	1.78	14.0	0.9
S40.005	42.48	8.68	5.440	0.343	0.0	0.0	0.0	1.01	71.7	39.5

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S34.003	27.089	0.070	385.0	0.061	0.00	0.0	0.600	o	450	Pipe/Conduit	
S48.000	6.464	0.013	500.0	0.016	4.00	0.0	0.600	o	100	Pipe/Conduit	
S48.001	6.691	0.343	19.5	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S49.000	10.014	0.020	500.0	0.011	4.00	0.0	0.600	o	100	Pipe/Conduit	
S49.001	13.808	0.336	41.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S50.000	6.658	0.013	500.0	0.015	4.00	0.0	0.600	o	100	Pipe/Conduit	
S50.001	19.142	0.343	55.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S48.002	31.978	0.134	238.6	0.034	0.00	0.0	0.600	o	300	Pipe/Conduit	
S51.000	12.107	0.024	500.0	0.012	4.00	0.0	0.600	o	100	Pipe/Conduit	
S51.001	6.171	0.153	40.3	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S52.000	12.202	0.024	500.0	0.016	4.00	0.0	0.600	o	100	Pipe/Conduit	
S52.001	17.003	0.053	320.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S53.000	9.251	0.019	500.0	0.014	4.00	0.0	0.600	o	100	Pipe/Conduit	
S53.001	13.048	0.358	36.4	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S34.003	41.19	9.11	5.044	0.514	0.0	0.0	0.0	1.03	163.8	57.3
S48.000	50.00	4.32	6.150	0.016	0.0	0.0	0.0	0.34	2.7	2.2
S48.001	50.00	4.38	6.137	0.016	0.0	0.0	0.0	1.76	13.8	2.2
S49.000	50.00	4.49	6.150	0.011	0.0	0.0	0.0	0.34	2.7	1.5
S49.001	50.00	4.69	6.130	0.011	0.0	0.0	0.0	1.21	9.5	1.5
S50.000	50.00	4.33	6.150	0.015	0.0	0.0	0.0	0.34	2.7	2.0
S50.001	50.00	4.64	6.137	0.015	0.0	0.0	0.0	1.03	8.1	2.0
S48.002	50.00	5.21	5.594	0.076	0.0	0.0	0.0	1.01	71.6	10.4
S51.000	50.00	4.60	5.850	0.012	0.0	0.0	0.0	0.34	2.7	1.6
S51.001	50.00	4.68	5.826	0.012	0.0	0.0	0.0	1.22	9.6	1.6
S52.000	50.00	4.60	5.750	0.016	0.0	0.0	0.0	0.34	2.7	2.2
S52.001	50.00	5.27	5.726	0.016	0.0	0.0	0.0	0.42	3.3	2.2
S53.000	50.00	4.46	6.050	0.014	0.0	0.0	0.0	0.34	2.7	1.9
S53.001	50.00	4.63	6.031	0.014	0.0	0.0	0.0	1.28	10.1	1.9

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S48.003	28.761	0.121	237.7	0.046	0.00	0.0	0.600	o	300	Pipe/Conduit	
S48.004	6.314	0.027	233.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S48.005	6.055	0.025	242.2	0.003	0.00	0.0	0.600	o	300	Pipe/Conduit	
S48.006	6.224	0.026	239.4	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S48.007	8.597	0.036	238.8	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S54.000	4.800	0.010	500.0	0.008	4.00	0.0	0.600	o	100	Pipe/Conduit	
S54.001	5.452	0.458	11.9	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S48.008	9.794	0.041	238.9	0.000	0.00	0.0	0.600	o	300	Pipe/Conduit	
S55.000	7.199	0.014	500.0	0.009	4.00	0.0	0.600	o	100	Pipe/Conduit	
S55.001	8.063	0.595	13.6	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
S48.009	17.921	0.047	385.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S48.010	7.799	0.020	385.0	0.037	0.00	0.0	0.600	o	450	Pipe/Conduit	
S34.004	10.873	0.028	388.3	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S34.005	10.098	0.026	388.4	0.057	0.00	0.0	0.600	o	450	Pipe/Conduit	
S56.000	9.904	0.026	385.0	0.000	4.00	0.0	0.600	o	450	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S48.003	50.00	5.74	5.473	0.164	0.0	0.0	0.0	1.02	71.8	22.2
S48.004	50.00	5.85	5.346	0.164	0.0	0.0	0.0	1.02	72.4	22.2
S48.005	50.00	5.95	5.320	0.167	0.0	0.0	0.0	1.01	71.1	22.6
S48.006	50.00	6.05	5.294	0.167	0.0	0.0	0.0	1.01	71.5	22.6
S48.007	50.00	6.19	5.268	0.167	0.0	0.0	0.0	1.01	71.6	22.6
S54.000	50.00	4.24	5.900	0.008	0.0	0.0	0.0	0.34	2.7	1.1
S54.001	50.00	4.28	5.890	0.008	0.0	0.0	0.0	2.25	17.7	1.1
S48.008	50.00	6.35	5.232	0.175	0.0	0.0	0.0	1.01	71.6	23.7
S55.000	50.00	4.36	6.000	0.009	0.0	0.0	0.0	0.34	2.7	1.2
S55.001	50.00	4.42	5.986	0.009	0.0	0.0	0.0	2.11	16.6	1.2
S48.009	50.00	6.64	5.041	0.184	0.0	0.0	0.0	1.03	163.8	24.9
S48.010	49.64	6.77	4.994	0.221	0.0	0.0	0.0	1.03	163.8	29.7
S34.004	40.69	9.29	4.974	0.734	0.0	0.0	0.0	1.03	163.1	80.9
S34.005	40.25	9.45	4.946	0.792	0.0	0.0	0.0	1.03	163.1	86.3
S56.000	50.00	4.16	4.946	0.000	0.0	0.0	0.0	1.03	163.8	0.0

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Network Design Table for SW Network

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S21.012	30.351	0.079	385.0	0.000	0.00	0.0	0.600	o	450	Pipe/Conduit	
S57.000	25.581	0.051	500.0	0.029	4.00	0.0	0.600	o	150	Pipe/Conduit	
S57.001	3.607	0.449	8.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S58.000	4.786	0.100	47.9	0.022	4.00	0.0	0.600	o	150	Pipe/Conduit	
S57.002	24.814	0.359	69.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S21.013	9.129	0.091	100.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S21.012	38.99	9.95	4.920	1.052	0.0	0.0	0.0	1.03	163.8	111.1
S57.000	50.00	4.96	6.000	0.029	0.0	0.0	0.0	0.44	7.8	3.9
S57.001	50.00	4.98	5.949	0.029	0.0	0.0	0.0	3.58	63.2	3.9
S58.000	50.00	4.05	5.600	0.022	0.0	0.0	0.0	1.46	25.8	3.0
S57.002	50.00	5.32	5.500	0.051	0.0	0.0	0.0	1.21	21.4	6.9
S21.013	38.62	10.10	4.841	1.103	0.0	0.0	0.0	1.00	17.7«	115.4

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	6.935	1.355	Open Manhole	1200	S1.000	5.580	225				
S2	6.971	1.560	Open Manhole	1200	S1.001	5.411	225	S1.000	5.411	225	
S3	6.670	1.515	Open Manhole	1200	S1.002	5.155	300	S1.001	5.230	225	
S4	6.780	2.018	Open Manhole	1350	S1.003	4.762	450	S1.002	4.912	300	
S5	6.983	1.425	Open Manhole	1200	S2.000	5.558	225				
S6	7.250	1.000	Open Manhole	1200	S3.000	6.250	150				
S7	7.250	1.018	Open Manhole	1200	S3.001	6.232	150	S3.000	6.232	150	
S8	6.850	1.000	Open Manhole	1200	S4.000	5.850	100				
S9	6.850	1.013	Open Manhole	1200	S4.001	5.837	100	S4.000	5.837	100	
S10	7.300	1.000	Open Manhole	1200	S5.000	6.300	100				
S11	7.300	1.011	Open Manhole	1200	S5.001	6.289	100	S5.000	6.289	100	
S12	6.849	2.119	Open Manhole	1350	S1.004	4.731	450	S1.003	4.731	450	
								S2.000	5.236	225	280
								S3.001	5.031	150	
								S4.001	5.081	100	
								S5.001	5.081	100	
S13	7.550	1.000	Open Manhole	1200	S6.000	6.550	100				
S14	7.550	1.018	Open Manhole	1200	S6.001	6.532	100	S6.000	6.532	100	
S15	7.600	1.000	Open Manhole	1200	S7.000	6.600	100				
S16	7.600	1.020	Open Manhole	1200	S7.001	6.580	100	S7.000	6.580	100	
S17	7.600	1.000	Open Manhole	1200	S8.000	6.600	100				
S18	7.600	1.020	Open Manhole	1200	S8.001	6.580	100	S8.000	6.580	100	
S19	7.600	1.000	Open Manhole	1200	S9.000	6.600	100				
S20	7.600	1.016	Open Manhole	1200	S9.001	6.584	100	S9.000	6.584	100	
S21	7.512	1.350	Open Manhole	1200	S6.002	6.162	150	S6.001	6.212	100	
								S7.001	6.212	100	
								S8.001	6.212	100	
								S9.001	6.212	100	
S22	7.350	1.000	Open Manhole	1200	S10.000	6.350	150				
S23	7.350	1.018	Open Manhole	1200	S10.001	6.332	150	S10.000	6.332	150	
S24	7.550	1.000	Open Manhole	1200	S11.000	6.550	100				
S25	7.550	1.014	Open Manhole	1200	S11.001	6.536	100	S11.000	6.536	100	
S26	7.550	1.000	Open Manhole	1200	S12.000	6.550	100				
S27	7.550	1.014	Open Manhole	1200	S12.001	6.536	100	S12.000	6.536	100	
S28	7.400	1.000	Open Manhole	1200	S13.000	6.400	100				
S29	7.400	1.014	Open Manhole	1200	S13.001	6.386	100	S13.000	6.386	100	
S30	7.395	2.807	Open Manhole	1350	S1.005	4.588	450	S1.004	4.588	450	
								S6.002	4.929	150	41

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
								S10.001	4.888	150	
								S11.001	4.938	100	
								S12.001	4.938	100	
								S13.001	4.938	100	
S31	6.950	1.000	Open Manhole	1200	S14.000	5.950	100				
S32	6.950	1.017	Open Manhole	1200	S14.001	5.933	100	S14.000	5.933	100	
S33	7.350	1.000	Open Manhole	1200	S15.000	6.350	100				
S34	7.350	1.017	Open Manhole	1200	S15.001	6.333	100	S15.000	6.333	100	
S35	7.350	1.000	Open Manhole	1200	S16.000	6.350	150				
S36	7.350	1.015	Open Manhole	1200	S16.001	6.335	150	S16.000	6.335	150	
S37	7.204	1.450	Open Manhole	1200	S14.002	5.754	150	S14.001	5.804	100	
								S15.001	5.804	100	
								S16.001	5.804	150	50
S38	7.200	1.000	Open Manhole	1200	S17.000	6.200	150				
S39	7.200	1.025	Open Manhole	1200	S17.001	6.175	150	S17.000	6.175	150	
S40	7.200	1.000	Open Manhole	1200	S18.000	6.200	100				
S41	7.200	1.017	Open Manhole	1200	S18.001	6.183	100	S18.000	6.183	100	
S42	6.960	2.548	Open Manhole	1350	S1.006	4.412	450	S1.005	4.412	450	
								S14.002	4.644	150	
								S17.001	4.712	150	
								S18.001	4.762	100	
S43	6.700	2.348	Open Manhole	1350	S19.000	4.352	450				
S44	6.702	2.368	Open Manhole	1350	S1.007	4.334	450	S1.006	4.334	450	
								S19.000	4.334	450	
S45	7.300	1.000	Open Manhole	1200	S20.000	6.300	150				
S46	7.300	1.022	Open Manhole	1200	S20.001	6.278	150	S20.000	6.278	150	
S47	7.056	2.507	Open Manhole	1200	S20.002	4.550	150	S20.001	4.550	150	
S48	6.884	2.609	Open Manhole	1350	S1.008	4.275	150	S1.007	4.275	450	
								S20.002	4.422	150	147
S	7.000	2.850	Open Manhole	0		OUTFALL		S1.008	4.150	150	
S49	7.450	1.000	Open Manhole	1200	S21.000	6.450	100				
S50	7.450	1.018	Open Manhole	1200	S21.001	6.432	100	S21.000	6.432	100	
S51	7.450	1.000	Open Manhole	1200	S22.000	6.450	100				
S52	7.450	1.015	Open Manhole	1200	S22.001	6.435	100	S22.000	6.435	100	
S53	7.273	1.303	Open Manhole	1200	S21.002	5.970	225	S21.001	6.095	100	
								S22.001	6.095	100	
S54	7.550	1.000	Open Manhole	1200	S23.000	6.550	100				

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S55	7.550	1.024	Open Manhole	1200	S23.001	6.526	100	S23.000	6.526	100	
S56	7.200	1.000	Open Manhole	1200	S24.000	6.200	100				
S57	7.200	1.012	Open Manhole	1200	S24.001	6.188	100	S24.000	6.188	100	
S58	7.000	1.000	Open Manhole	1200	S25.000	6.000	100				
S59	7.000	1.022	Open Manhole	1200	S25.001	5.978	100	S25.000	5.978	100	
S60	7.471	1.673	Open Manhole	1200	S21.003	5.798	225	S21.002	5.798	225	
								S23.001	5.923	100	
								S24.001	5.923	100	
								S25.001	5.923	100	
S61	7.000	1.000	Open Manhole	1200	S26.000	6.000	100				
S62	7.000	1.022	Open Manhole	1200	S26.001	5.978	100	S26.000	5.978	100	
S63	6.909	1.451	Open Manhole	1200	S21.004	5.458	300	S21.003	5.533	225	
								S26.001	5.658	100	
S64	6.807	1.384	Open Manhole	1200	S21.005	5.423	300	S21.004	5.423	300	
S65	6.850	1.000	Open Manhole	1200	S27.000	5.850	100				
S66	6.850	1.014	Open Manhole	1200	S27.001	5.836	100	S27.000	5.836	100	
S67	6.695	1.311	Open Manhole	1200	S21.006	5.385	300	S21.005	5.385	300	
								S27.001	5.585	100	
S68	6.610	1.270	Open Manhole	1200	S21.007	5.340	300	S21.006	5.340	300	
S69	6.750	1.000	Open Manhole	1200	S28.000	5.750	100				
S70	6.750	1.012	Open Manhole	1200	S28.001	5.738	100	S28.000	5.738	100	
S71	6.639	1.494	Open Manhole	1350	S21.008	5.145	450	S21.007	5.296	300	1
								S28.001	5.495	100	
S72	7.100	1.000	Open Manhole	1200	S29.000	6.100	100				
S73	7.100	1.023	Open Manhole	1200	S29.001	6.077	100	S29.000	6.077	100	
S74	6.950	1.000	Open Manhole	1200	S30.000	5.950	100				
S75	6.950	1.014	Open Manhole	1200	S30.001	5.936	100	S30.000	5.936	100	
S76	7.035	1.975	Open Manhole	1350	S21.009	5.060	450	S21.008	5.060	450	
								S29.001	5.983	100	573
								S30.001	5.410	100	
S77	7.100	1.000	Open Manhole	1200	S31.000	6.100	100				
S78	7.100	1.023	Open Manhole	1200	S31.001	6.077	100	S31.000	6.077	100	
S79	7.000	1.000	Open Manhole	1200	S32.000	6.000	100				
S80	7.000	1.013	Open Manhole	1200	S32.001	5.987	100	S32.000	5.987	100	
S81	6.600	1.610	Open Manhole	1350	S33.000	4.990	450				
S82	6.727	1.761	Open Manhole	1350	S21.010	4.966	450	S21.009	4.966	450	
								S31.001	5.316	100	
								S32.001	5.303	100	

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
								S33.000	4.966	450	
S83	6.617	1.675	Open Manhole	1350	S21.011	4.942	450	S21.010	4.942	450	
S84	7.700	1.000	Open Manhole	1200	S34.000	6.700	100				
S85	7.700	1.010	Open Manhole	1200	S34.001	6.690	100	S34.000	6.690	100	
S86	7.500	1.000	Open Manhole	1200	S35.000	6.500	100				
S87	7.500	1.016	Open Manhole	1200	S35.001	6.484	100	S35.000	6.484	100	
S88	7.500	1.000	Open Manhole	1200	S36.000	6.500	100				
S89	7.500	1.016	Open Manhole	1200	S36.001	6.484	100	S36.000	6.484	100	
S90	7.250	1.000	Open Manhole	1200	S37.000	6.250	100				
S91	7.250	1.025	Open Manhole	1200	S37.001	6.225	100	S37.000	6.225	100	
S92	7.454	1.350	Open Manhole	1200	S34.002	6.104	150	S34.001	6.154	100	
								S35.001	6.154	100	
								S36.001	6.154	100	
								S37.001	6.154	100	
S93	6.800	1.000	Open Manhole	1200	S38.000	5.800	100				
S94	6.800	1.016	Open Manhole	1200	S38.001	5.784	100	S38.000	5.784	100	
S95	7.150	1.000	Open Manhole	1200	S39.000	6.150	150				
S96	7.150	1.024	Open Manhole	1200	S39.001	6.126	150	S39.000	6.126	150	
S97	7.150	1.000	Open Manhole	1200	S40.000	6.150	100				
S98	7.150	1.015	Open Manhole	1200	S40.001	6.135	100	S40.000	6.135	100	
S99	7.150	1.000	Open Manhole	1200	S41.000	6.150	100				
S100	7.150	1.015	Open Manhole	1200	S41.001	6.135	100	S41.000	6.135	100	
S101	7.500	1.000	Open Manhole	1200	S42.000	6.500	100				
S102	7.500	1.165	Open Manhole	1200	S42.001	6.335	100	S42.000	6.385	100	50
S103	7.179	1.381	Open Manhole	1200	S40.002	5.798	225	S40.001	5.923	100	
								S41.001	5.923	100	
								S42.001	5.923	100	
S104	6.950	1.000	Open Manhole	1200	S43.000	5.950	150				
S105	6.950	1.024	Open Manhole	1200	S43.001	5.926	150	S43.000	5.926	150	
S106	6.904	1.299	Open Manhole	1200	S40.003	5.605	225	S40.002	5.614	225	9
								S43.001	5.680	150	
S107	7.100	1.000	Open Manhole	1200	S44.000	6.100	100				
S108	7.100	1.039	Open Manhole	1200	S44.001	6.061	100	S44.000	6.061	100	
S109	6.977	1.417	Open Manhole	1200	S40.004	5.560	225	S40.003	5.560	225	
								S44.001	5.685	100	
S110	7.250	1.000	Open Manhole	1200	S45.000	6.250	150				
S111	7.250	1.023	Open Manhole	1200	S45.001	6.227	150	S45.000	6.227	150	
S112	7.150	1.000	Open Manhole	1200	S46.000	6.150	100				

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S113	7.150	1.014	Open Manhole	1200	S46.001	6.136	100	S46.000	6.136	100	
S114	7.050	1.000	Open Manhole	1200	S47.000	6.050	100				
S115	7.050	1.024	Open Manhole	1200	S47.001	6.026	100	S47.000	6.026	100	
S116	7.062	1.622	Open Manhole	1200	S40.005	5.440	300	S40.004	5.515	225	
								S45.001	5.690	150	100
								S46.001	5.640	100	
								S47.001	5.640	100	
S117	6.943	1.899	Open Manhole	1350	S34.003	5.044	450	S34.002	5.344	150	
								S38.001	5.344	100	
								S39.001	5.344	150	
								S40.005	5.195	300	1
S118	7.150	1.000	Open Manhole	1200	S48.000	6.150	100				
S119	7.150	1.013	Open Manhole	1200	S48.001	6.137	100	S48.000	6.137	100	
S120	7.150	1.000	Open Manhole	1200	S49.000	6.150	100				
S121	7.150	1.020	Open Manhole	1200	S49.001	6.130	100	S49.000	6.130	100	
S122	7.150	1.000	Open Manhole	1200	S50.000	6.150	100				
S123	7.150	1.013	Open Manhole	1200	S50.001	6.137	100	S50.000	6.137	100	
S124	7.154	1.560	Open Manhole	1200	S48.002	5.594	300	S48.001	5.794	100	
								S49.001	5.794	100	
								S50.001	5.794	100	
S125	6.850	1.000	Open Manhole	1200	S51.000	5.850	100				
S126	6.850	1.024	Open Manhole	1200	S51.001	5.826	100	S51.000	5.826	100	
S127	6.750	1.000	Open Manhole	1200	S52.000	5.750	100				
S128	6.750	1.024	Open Manhole	1200	S52.001	5.726	100	S52.000	5.726	100	
S129	7.050	1.000	Open Manhole	1200	S53.000	6.050	100				
S130	7.050	1.019	Open Manhole	1200	S53.001	6.031	100	S53.000	6.031	100	
S131	6.858	1.398	Open Manhole	1200	S48.003	5.473	300	S48.002	5.460	300	
								S51.001	5.673	100	
								S52.001	5.673	100	
								S53.001	5.673	100	
S132	6.732	1.386	Open Manhole	1200	S48.004	5.346	300	S48.003	5.352	300	6
S133	6.797	1.478	Open Manhole	1200	S48.005	5.320	300	S48.004	5.319	300	
S134	6.887	1.593	Open Manhole	1200	S48.006	5.294	300	S48.005	5.295	300	1
S135	6.976	1.708	Open Manhole	1200	S48.007	5.268	300	S48.006	5.268	300	
S136	6.900	1.000	Open Manhole	1200	S54.000	5.900	100				
S137	6.900	1.010	Open Manhole	1200	S54.001	5.890	100	S54.000	5.890	100	
S138	7.020	1.788	Open Manhole	1200	S48.008	5.232	300	S48.007	5.232	300	
								S54.001	5.432	100	

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Manhole Schedules for SW Network

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S139	7.000	1.000	Open Manhole	1200	S55.000	6.000	100				
S140	7.000	1.014	Open Manhole	1200	S55.001	5.986	100	S55.000	5.986	100	
S141	6.935	1.894	Open Manhole	1350	S48.009	5.041	450	S48.008	5.191	300	
								S55.001	5.391	100	
S142	6.638	1.644	Open Manhole	1350	S48.010	4.994	450	S48.009	4.994	450	
S143	6.604	1.630	Open Manhole	1350	S34.004	4.974	450	S34.003	4.974	450	
								S48.010	4.974	450	
S144	6.600	1.654	Open Manhole	1350	S34.005	4.946	450	S34.004	4.946	450	
S145	6.500	1.554	Open Manhole	1350	S56.000	4.946	450				
S146	6.526	1.606	Open Manhole	1350	S21.012	4.920	450	S21.011	4.920	450	
								S34.005	4.920	450	
								S56.000	4.920	450	
S147	7.000	1.000	Open Manhole	1200	S57.000	6.000	150				
S148	7.000	1.051	Open Manhole	1200	S57.001	5.949	150	S57.000	5.949	150	
S149	6.600	1.000	Open Manhole	1200	S58.000	5.600	150				
S149	6.400	0.900	Open Manhole	1200	S57.002	5.500	150	S57.001	5.500	150	
								S58.000	5.500	150	
S147	6.350	1.509	Open Manhole	1350	S21.013	4.841	150	S21.012	4.841	450	
								S57.002	5.141	150	300
S	7.000	2.250	Open Manhole	0		OUTFALL		S21.013	4.750	150	

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	o	225	S1	6.935	5.580	1.130	Open Manhole	1200
S1.001	o	225	S2	6.971	5.411	1.335	Open Manhole	1200
S1.002	o	300	S3	6.670	5.155	1.215	Open Manhole	1200
S1.003	o	450	S4	6.780	4.762	1.568	Open Manhole	1350
S2.000	o	225	S5	6.983	5.558	1.200	Open Manhole	1200
S3.000	o	150	S6	7.250	6.250	0.850	Open Manhole	1200
S3.001	o	150	S7	7.250	6.232	0.868	Open Manhole	1200
S4.000	o	100	S8	6.850	5.850	0.900	Open Manhole	1200
S4.001	o	100	S9	6.850	5.837	0.913	Open Manhole	1200
S5.000	o	100	S10	7.300	6.300	0.900	Open Manhole	1200
S5.001	o	100	S11	7.300	6.289	0.911	Open Manhole	1200
S1.004	o	450	S12	6.849	4.731	1.669	Open Manhole	1350
S6.000	o	100	S13	7.550	6.550	0.900	Open Manhole	1200
S6.001	o	100	S14	7.550	6.532	0.918	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.000	28.225	167.0	S2	6.971	5.411	1.335	Open Manhole	1200
S1.001	30.216	167.0	S3	6.670	5.230	1.215	Open Manhole	1200
S1.002	57.745	238.0	S4	6.780	4.912	1.568	Open Manhole	1350
S1.003	12.182	385.0	S12	6.849	4.731	1.669	Open Manhole	1350
S2.000	10.197	31.7	S12	6.849	5.236	1.388	Open Manhole	1350
S3.000	9.008	500.4	S7	7.250	6.232	0.868	Open Manhole	1200
S3.001	32.110	26.7	S12	6.849	5.031	1.668	Open Manhole	1350
S4.000	6.309	500.0	S9	6.850	5.837	0.913	Open Manhole	1200
S4.001	12.325	16.3	S12	6.849	5.081	1.669	Open Manhole	1350
S5.000	5.264	500.0	S11	7.300	6.289	0.911	Open Manhole	1200
S5.001	28.423	23.5	S12	6.849	5.081	1.669	Open Manhole	1350
S1.004	55.100	385.3	S30	7.395	4.588	2.357	Open Manhole	1350
S6.000	8.782	500.0	S14	7.550	6.532	0.918	Open Manhole	1200
S6.001	4.702	14.7	S21	7.512	6.212	1.200	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S7.000	o	100	S15	7.600	6.600	0.900	Open Manhole	1200
S7.001	o	100	S16	7.600	6.580	0.920	Open Manhole	1200
S8.000	o	100	S17	7.600	6.600	0.900	Open Manhole	1200
S8.001	o	100	S18	7.600	6.580	0.920	Open Manhole	1200
S9.000	o	100	S19	7.600	6.600	0.900	Open Manhole	1200
S9.001	o	100	S20	7.600	6.584	0.916	Open Manhole	1200
S6.002	o	150	S21	7.512	6.162	1.200	Open Manhole	1200
S10.000	o	150	S22	7.350	6.350	0.850	Open Manhole	1200
S10.001	o	150	S23	7.350	6.332	0.868	Open Manhole	1200
S11.000	o	100	S24	7.550	6.550	0.900	Open Manhole	1200
S11.001	o	100	S25	7.550	6.536	0.914	Open Manhole	1200
S12.000	o	100	S26	7.550	6.550	0.900	Open Manhole	1200
S12.001	o	100	S27	7.550	6.536	0.914	Open Manhole	1200
S13.000	o	100	S28	7.400	6.400	0.900	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S7.000	10.217	500.0	S16	7.600	6.580	0.920	Open Manhole	1200
S7.001	9.387	25.5	S21	7.512	6.212	1.201	Open Manhole	1200
S8.000	9.845	500.0	S18	7.600	6.580	0.920	Open Manhole	1200
S8.001	3.606	9.8	S21	7.512	6.212	1.200	Open Manhole	1200
S9.000	8.061	500.0	S20	7.600	6.584	0.916	Open Manhole	1200
S9.001	10.668	28.7	S21	7.512	6.212	1.201	Open Manhole	1200
S6.002	17.499	14.2	S30	7.395	4.929	2.316	Open Manhole	1350
S10.000	9.004	500.0	S23	7.350	6.332	0.868	Open Manhole	1200
S10.001	4.844	3.4	S30	7.395	4.888	2.357	Open Manhole	1350
S11.000	6.937	500.0	S25	7.550	6.536	0.914	Open Manhole	1200
S11.001	14.446	9.0	S30	7.395	4.938	2.357	Open Manhole	1350
S12.000	6.936	500.0	S27	7.550	6.536	0.914	Open Manhole	1200
S12.001	31.116	19.5	S30	7.395	4.938	2.357	Open Manhole	1350
S13.000	6.934	500.0	S29	7.400	6.386	0.914	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S13.001	o	100	S29	7.400	6.386	0.914	Open Manhole	1200
S1.005	o	450	S30	7.395	4.588	2.357	Open Manhole	1350
S14.000	o	100	S31	6.950	5.950	0.900	Open Manhole	1200
S14.001	o	100	S32	6.950	5.933	0.917	Open Manhole	1200
S15.000	o	100	S33	7.350	6.350	0.900	Open Manhole	1200
S15.001	o	100	S34	7.350	6.333	0.917	Open Manhole	1200
S16.000	o	150	S35	7.350	6.350	0.850	Open Manhole	1200
S16.001	o	150	S36	7.350	6.335	0.865	Open Manhole	1200
S14.002	o	150	S37	7.204	5.754	1.300	Open Manhole	1200
S17.000	o	150	S38	7.200	6.200	0.850	Open Manhole	1200
S17.001	o	150	S39	7.200	6.175	0.875	Open Manhole	1200
S18.000	o	100	S40	7.200	6.200	0.900	Open Manhole	1200
S18.001	o	100	S41	7.200	6.183	0.917	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S13.001	47.933	33.1	S30	7.395	4.938	2.357	Open Manhole	1350
S1.005	67.722	385.0	S42	6.960	4.412	2.098	Open Manhole	1350
S14.000	8.557	500.0	S32	6.950	5.933	0.917	Open Manhole	1200
S14.001	5.483	42.5	S37	7.204	5.804	1.301	Open Manhole	1200
S15.000	8.488	500.0	S34	7.350	6.333	0.917	Open Manhole	1200
S15.001	11.218	21.2	S37	7.204	5.804	1.300	Open Manhole	1200
S16.000	7.291	500.0	S36	7.350	6.335	0.865	Open Manhole	1200
S16.001	9.808	18.5	S37	7.204	5.804	1.250	Open Manhole	1200
S14.002	17.458	15.7	S42	6.960	4.644	2.166	Open Manhole	1350
S17.000	12.693	500.0	S39	7.200	6.175	0.875	Open Manhole	1200
S17.001	4.927	3.4	S42	6.960	4.712	2.098	Open Manhole	1350
S18.000	8.316	500.0	S41	7.200	6.183	0.917	Open Manhole	1200
S18.001	10.641	7.5	S42	6.960	4.762	2.098	Open Manhole	1350

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.006	o	450	S42	6.960	4.412	2.098	Open Manhole	1350
S19.000	o	450	S43	6.700	4.352	1.898	Open Manhole	1350
S1.007	o	450	S44	6.702	4.334	1.918	Open Manhole	1350
S20.000	o	150	S45	7.300	6.300	0.850	Open Manhole	1200
S20.001	o	150	S46	7.300	6.278	0.872	Open Manhole	1200
S20.002	o	150	S47	7.056	4.550	2.357	Open Manhole	1200
S1.008	o	150	S48	6.884	4.275	2.459	Open Manhole	1350
S21.000	o	100	S49	7.450	6.450	0.900	Open Manhole	1200
S21.001	o	100	S50	7.450	6.432	0.918	Open Manhole	1200
S22.000	o	100	S51	7.450	6.450	0.900	Open Manhole	1200
S22.001	o	100	S52	7.450	6.435	0.915	Open Manhole	1200
S21.002	o	225	S53	7.273	5.970	1.078	Open Manhole	1200
S23.000	o	100	S54	7.550	6.550	0.900	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.006	30.144	385.0	S44	6.702	4.334	1.918	Open Manhole	1350
S19.000	7.083	385.0	S44	6.702	4.334	1.918	Open Manhole	1350
S1.007	21.970	372.4	S48	6.884	4.275	2.159	Open Manhole	1350
S20.000	10.784	500.0	S46	7.300	6.278	0.872	Open Manhole	1200
S20.001	5.007	2.9	S47	7.056	4.550	2.357	Open Manhole	1200
S20.002	13.744	107.4	S48	6.884	4.422	2.312	Open Manhole	1350
S1.008	12.498	100.0	S	7.000	4.150	2.700	Open Manhole	0
S21.000	9.097	500.0	S50	7.450	6.432	0.918	Open Manhole	1200
S21.001	5.690	16.9	S53	7.273	6.095	1.078	Open Manhole	1200
S22.000	7.290	500.0	S52	7.450	6.435	0.915	Open Manhole	1200
S22.001	17.619	51.8	S53	7.273	6.095	1.078	Open Manhole	1200
S21.002	28.743	167.0	S60	7.471	5.798	1.448	Open Manhole	1200
S23.000	11.788	500.0	S55	7.550	6.526	0.924	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S23.001	o	100	S55	7.550	6.526	0.924	Open Manhole	1200
S24.000	o	100	S56	7.200	6.200	0.900	Open Manhole	1200
S24.001	o	100	S57	7.200	6.188	0.912	Open Manhole	1200
S25.000	o	100	S58	7.000	6.000	0.900	Open Manhole	1200
S25.001	o	100	S59	7.000	5.978	0.922	Open Manhole	1200
S21.003	o	225	S60	7.471	5.798	1.448	Open Manhole	1200
S26.000	o	100	S61	7.000	6.000	0.900	Open Manhole	1200
S26.001	o	100	S62	7.000	5.978	0.922	Open Manhole	1200
S21.004	o	300	S63	6.909	5.458	1.151	Open Manhole	1200
S21.005	o	300	S64	6.807	5.423	1.084	Open Manhole	1200
S27.000	o	100	S65	6.850	5.850	0.900	Open Manhole	1200
S27.001	o	100	S66	6.850	5.836	0.914	Open Manhole	1200
S21.006	o	300	S67	6.695	5.385	1.011	Open Manhole	1200
S21.007	o	300	S68	6.610	5.340	0.970	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S23.001	5.263	8.7	S60	7.471	5.923	1.447	Open Manhole	1200
S24.000	6.246	500.0	S57	7.200	6.188	0.912	Open Manhole	1200
S24.001	18.056	68.1	S60	7.471	5.923	1.448	Open Manhole	1200
S25.000	10.817	500.0	S59	7.000	5.978	0.922	Open Manhole	1200
S25.001	30.825	560.5	S60	7.471	5.923	1.447	Open Manhole	1200
S21.003	44.311	167.0	S63	6.909	5.533	1.152	Open Manhole	1200
S26.000	11.217	500.0	S62	7.000	5.978	0.922	Open Manhole	1200
S26.001	5.512	17.2	S63	6.909	5.658	1.152	Open Manhole	1200
S21.004	8.274	238.0	S64	6.807	5.423	1.084	Open Manhole	1200
S21.005	9.187	238.0	S67	6.695	5.385	1.011	Open Manhole	1200
S27.000	6.926	500.0	S66	6.850	5.836	0.914	Open Manhole	1200
S27.001	6.201	24.7	S67	6.695	5.585	1.011	Open Manhole	1200
S21.006	10.691	238.0	S68	6.610	5.340	0.970	Open Manhole	1200
S21.007	10.494	238.0	S71	6.639	5.296	1.044	Open Manhole	1350

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S28.000	o	100	S69	6.750	5.750	0.900	Open Manhole	1200
S28.001	o	100	S70	6.750	5.738	0.912	Open Manhole	1200
S21.008	o	450	S71	6.639	5.145	1.044	Open Manhole	1350
S29.000	o	100	S72	7.100	6.100	0.900	Open Manhole	1200
S29.001	o	100	S73	7.100	6.077	0.923	Open Manhole	1200
S30.000	o	100	S74	6.950	5.950	0.900	Open Manhole	1200
S30.001	o	100	S75	6.950	5.936	0.914	Open Manhole	1200
S21.009	o	450	S76	7.035	5.060	1.525	Open Manhole	1350
S31.000	o	100	S77	7.100	6.100	0.900	Open Manhole	1200
S31.001	o	100	S78	7.100	6.077	0.923	Open Manhole	1200
S32.000	o	100	S79	7.000	6.000	0.900	Open Manhole	1200
S32.001	o	100	S80	7.000	5.987	0.913	Open Manhole	1200
S33.000	o	450	S81	6.600	4.990	1.160	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S28.000	6.198	500.0	S70	6.750	5.738	0.912	Open Manhole	1200
S28.001	6.248	25.7	S71	6.639	5.495	1.045	Open Manhole	1350
S21.008	32.651	385.0	S76	7.035	5.060	1.525	Open Manhole	1350
S29.000	11.715	500.0	S73	7.100	6.077	0.923	Open Manhole	1200
S29.001	5.481	58.7	S76	7.035	5.983	0.952	Open Manhole	1350
S30.000	7.217	500.0	S75	6.950	5.936	0.914	Open Manhole	1200
S30.001	6.406	12.2	S76	7.035	5.410	1.526	Open Manhole	1350
S21.009	36.376	385.0	S82	6.727	4.966	1.311	Open Manhole	1350
S31.000	11.316	500.0	S78	7.100	6.077	0.923	Open Manhole	1200
S31.001	16.377	21.5	S82	6.727	5.316	1.310	Open Manhole	1350
S32.000	6.578	500.0	S80	7.000	5.987	0.913	Open Manhole	1200
S32.001	9.532	13.9	S82	6.727	5.303	1.324	Open Manhole	1350
S33.000	8.608	358.7	S82	6.727	4.966	1.311	Open Manhole	1350

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S21.010	o	450	S82	6.727	4.966	1.311	Open Manhole	1350
S21.011	o	450	S83	6.617	4.942	1.225	Open Manhole	1350
S34.000	o	100	S84	7.700	6.700	0.900	Open Manhole	1200
S34.001	o	100	S85	7.700	6.690	0.910	Open Manhole	1200
S35.000	o	100	S86	7.500	6.500	0.900	Open Manhole	1200
S35.001	o	100	S87	7.500	6.484	0.916	Open Manhole	1200
S36.000	o	100	S88	7.500	6.500	0.900	Open Manhole	1200
S36.001	o	100	S89	7.500	6.484	0.916	Open Manhole	1200
S37.000	o	100	S90	7.250	6.250	0.900	Open Manhole	1200
S37.001	o	100	S91	7.250	6.225	0.925	Open Manhole	1200
S34.002	o	150	S92	7.454	6.104	1.200	Open Manhole	1200
S38.000	o	100	S93	6.800	5.800	0.900	Open Manhole	1200
S38.001	o	100	S94	6.800	5.784	0.916	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S21.010	9.072	385.0	S83	6.617	4.942	1.224	Open Manhole	1350
S21.011	8.639	385.0	S146	6.526	4.920	1.156	Open Manhole	1350
S34.000	4.800	500.0	S85	7.700	6.690	0.910	Open Manhole	1200
S34.001	11.461	21.4	S92	7.454	6.154	1.200	Open Manhole	1200
S35.000	7.888	500.0	S87	7.500	6.484	0.916	Open Manhole	1200
S35.001	6.022	18.2	S92	7.454	6.154	1.200	Open Manhole	1200
S36.000	7.955	500.0	S89	7.500	6.484	0.916	Open Manhole	1200
S36.001	9.229	28.0	S92	7.454	6.154	1.200	Open Manhole	1200
S37.000	12.719	500.0	S91	7.250	6.225	0.925	Open Manhole	1200
S37.001	13.425	189.1	S92	7.454	6.154	1.200	Open Manhole	1200
S34.002	40.876	53.8	S117	6.943	5.344	1.449	Open Manhole	1350
S38.000	7.817	500.0	S94	6.800	5.784	0.916	Open Manhole	1200
S38.001	6.096	13.9	S117	6.943	5.344	1.499	Open Manhole	1350

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S39.000	o	150	S95	7.150	6.150	0.850	Open Manhole	1200
S39.001	o	150	S96	7.150	6.126	0.874	Open Manhole	1200
S40.000	o	100	S97	7.150	6.150	0.900	Open Manhole	1200
S40.001	o	100	S98	7.150	6.135	0.915	Open Manhole	1200
S41.000	o	100	S99	7.150	6.150	0.900	Open Manhole	1200
S41.001	o	100	S100	7.150	6.135	0.915	Open Manhole	1200
S42.000	o	100	S101	7.500	6.500	0.900	Open Manhole	1200
S42.001	o	100	S102	7.500	6.335	1.065	Open Manhole	1200
S40.002	o	225	S103	7.179	5.798	1.156	Open Manhole	1200
S43.000	o	150	S104	6.950	5.950	0.850	Open Manhole	1200
S43.001	o	150	S105	6.950	5.926	0.874	Open Manhole	1200
S40.003	o	225	S106	6.904	5.605	1.074	Open Manhole	1200
S44.000	o	100	S107	7.100	6.100	0.900	Open Manhole	1200
S44.001	o	100	S108	7.100	6.061	0.939	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S39.000	11.775	500.0	S96	7.150	6.126	0.874	Open Manhole	1200
S39.001	8.155	10.4	S117	6.943	5.344	1.449	Open Manhole	1350
S40.000	7.278	500.0	S98	7.150	6.135	0.915	Open Manhole	1200
S40.001	7.076	33.4	S103	7.179	5.923	1.155	Open Manhole	1200
S41.000	7.265	500.0	S100	7.150	6.135	0.915	Open Manhole	1200
S41.001	8.813	41.6	S103	7.179	5.923	1.155	Open Manhole	1200
S42.000	57.570	500.0	S102	7.500	6.385	1.015	Open Manhole	1200
S42.001	10.637	25.8	S103	7.179	5.923	1.156	Open Manhole	1200
S40.002	30.809	167.4	S106	6.904	5.614	1.065	Open Manhole	1200
S43.000	12.117	500.0	S105	6.950	5.926	0.874	Open Manhole	1200
S43.001	10.271	41.8	S106	6.904	5.680	1.074	Open Manhole	1200
S40.003	7.439	167.0	S109	6.977	5.560	1.191	Open Manhole	1200
S44.000	19.715	505.5	S108	7.100	6.061	0.939	Open Manhole	1200
S44.001	6.507	17.3	S109	6.977	5.685	1.192	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S40.004	o	225	S109	6.977	5.560	1.192	Open Manhole	1200
S45.000	o	150	S110	7.250	6.250	0.850	Open Manhole	1200
S45.001	o	150	S111	7.250	6.227	0.873	Open Manhole	1200
S46.000	o	100	S112	7.150	6.150	0.900	Open Manhole	1200
S46.001	o	100	S113	7.150	6.136	0.914	Open Manhole	1200
S47.000	o	100	S114	7.050	6.050	0.900	Open Manhole	1200
S47.001	o	100	S115	7.050	6.026	0.924	Open Manhole	1200
S40.005	o	300	S116	7.062	5.440	1.322	Open Manhole	1200
S34.003	o	450	S117	6.943	5.044	1.449	Open Manhole	1350
S48.000	o	100	S118	7.150	6.150	0.900	Open Manhole	1200
S48.001	o	100	S119	7.150	6.137	0.913	Open Manhole	1200
S49.000	o	100	S120	7.150	6.150	0.900	Open Manhole	1200
S49.001	o	100	S121	7.150	6.130	0.920	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S40.004	7.565	167.0	S116	7.062	5.515	1.322	Open Manhole	1200
S45.000	11.554	500.0	S111	7.250	6.227	0.873	Open Manhole	1200
S45.001	26.834	50.0	S116	7.062	5.690	1.222	Open Manhole	1200
S46.000	7.154	500.0	S113	7.150	6.136	0.914	Open Manhole	1200
S46.001	10.995	22.2	S116	7.062	5.640	1.322	Open Manhole	1200
S47.000	12.099	500.0	S115	7.050	6.026	0.924	Open Manhole	1200
S47.001	7.306	18.9	S116	7.062	5.640	1.322	Open Manhole	1200
S40.005	58.355	238.2	S117	6.943	5.195	1.448	Open Manhole	1350
S34.003	27.089	385.0	S143	6.604	4.974	1.180	Open Manhole	1350
S48.000	6.464	500.0	S119	7.150	6.137	0.913	Open Manhole	1200
S48.001	6.691	19.5	S124	7.154	5.794	1.260	Open Manhole	1200
S49.000	10.014	500.0	S121	7.150	6.130	0.920	Open Manhole	1200
S49.001	13.808	41.1	S124	7.154	5.794	1.260	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S50.000	o	100	S122	7.150	6.150	0.900	Open Manhole	1200
S50.001	o	100	S123	7.150	6.137	0.913	Open Manhole	1200
S48.002	o	300	S124	7.154	5.594	1.260	Open Manhole	1200
S51.000	o	100	S125	6.850	5.850	0.900	Open Manhole	1200
S51.001	o	100	S126	6.850	5.826	0.924	Open Manhole	1200
S52.000	o	100	S127	6.750	5.750	0.900	Open Manhole	1200
S52.001	o	100	S128	6.750	5.726	0.924	Open Manhole	1200
S53.000	o	100	S129	7.050	6.050	0.900	Open Manhole	1200
S53.001	o	100	S130	7.050	6.031	0.919	Open Manhole	1200
S48.003	o	300	S131	6.858	5.473	1.085	Open Manhole	1200
S48.004	o	300	S132	6.732	5.346	1.086	Open Manhole	1200
S48.005	o	300	S133	6.797	5.320	1.177	Open Manhole	1200
S48.006	o	300	S134	6.887	5.294	1.293	Open Manhole	1200
S48.007	o	300	S135	6.976	5.268	1.408	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S50.000	6.658	500.0	S123	7.150	6.137	0.913	Open Manhole	1200
S50.001	19.142	55.8	S124	7.154	5.794	1.260	Open Manhole	1200
S48.002	31.978	238.6	S131	6.858	5.460	1.098	Open Manhole	1200
S51.000	12.107	500.0	S126	6.850	5.826	0.924	Open Manhole	1200
S51.001	6.171	40.3	S131	6.858	5.673	1.085	Open Manhole	1200
S52.000	12.202	500.0	S128	6.750	5.726	0.924	Open Manhole	1200
S52.001	17.003	320.8	S131	6.858	5.673	1.085	Open Manhole	1200
S53.000	9.251	500.0	S130	7.050	6.031	0.919	Open Manhole	1200
S53.001	13.048	36.4	S131	6.858	5.673	1.084	Open Manhole	1200
S48.003	28.761	237.7	S132	6.732	5.352	1.080	Open Manhole	1200
S48.004	6.314	233.8	S133	6.797	5.319	1.178	Open Manhole	1200
S48.005	6.055	242.2	S134	6.887	5.295	1.292	Open Manhole	1200
S48.006	6.224	239.4	S135	6.976	5.268	1.408	Open Manhole	1200
S48.007	8.597	238.8	S138	7.020	5.232	1.488	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S54.000	o	100	S136	6.900	5.900	0.900	Open Manhole	1200
S54.001	o	100	S137	6.900	5.890	0.910	Open Manhole	1200
S48.008	o	300	S138	7.020	5.232	1.488	Open Manhole	1200
S55.000	o	100	S139	7.000	6.000	0.900	Open Manhole	1200
S55.001	o	100	S140	7.000	5.986	0.914	Open Manhole	1200
S48.009	o	450	S141	6.935	5.041	1.444	Open Manhole	1350
S48.010	o	450	S142	6.638	4.994	1.194	Open Manhole	1350
S34.004	o	450	S143	6.604	4.974	1.180	Open Manhole	1350
S34.005	o	450	S144	6.600	4.946	1.204	Open Manhole	1350
S56.000	o	450	S145	6.500	4.946	1.104	Open Manhole	1350
S21.012	o	450	S146	6.526	4.920	1.156	Open Manhole	1350
S57.000	o	150	S147	7.000	6.000	0.850	Open Manhole	1200
S57.001	o	150	S148	7.000	5.949	0.901	Open Manhole	1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S54.000	4.800	500.0	S137	6.900	5.890	0.910	Open Manhole	1200
S54.001	5.452	11.9	S138	7.020	5.432	1.487	Open Manhole	1200
S48.008	9.794	238.9	S141	6.935	5.191	1.444	Open Manhole	1350
S55.000	7.199	500.0	S140	7.000	5.986	0.914	Open Manhole	1200
S55.001	8.063	13.6	S141	6.935	5.391	1.444	Open Manhole	1350
S48.009	17.921	385.0	S142	6.638	4.994	1.194	Open Manhole	1350
S48.010	7.799	385.0	S143	6.604	4.974	1.180	Open Manhole	1350
S34.004	10.873	388.3	S144	6.600	4.946	1.204	Open Manhole	1350
S34.005	10.098	388.4	S146	6.526	4.920	1.156	Open Manhole	1350
S56.000	9.904	385.0	S146	6.526	4.920	1.156	Open Manhole	1350
S21.012	30.351	385.0	S147	6.350	4.841	1.059	Open Manhole	1350
S57.000	25.581	500.0	S148	7.000	5.949	0.901	Open Manhole	1200
S57.001	3.607	8.0	S149	6.400	5.500	0.750	Open Manhole	1200

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PIPELINE SCHEDULES for SW Network

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S58.000	o	150	S149	6.600	5.600	0.850	Open Manhole	1200
S57.002	o	150	S149	6.400	5.500	0.750	Open Manhole	1200
S21.013	o	150	S147	6.350	4.841	1.359	Open Manhole	1350

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S58.000	4.786	47.9	S149	6.400	5.500	0.750	Open Manhole	1200
S57.002	24.814	69.1	S147	6.350	5.141	1.059	Open Manhole	1350
S21.013	9.129	100.3	S	7.000	4.750	2.100	Open Manhole	0

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.014	0.014	0.014
1.001	User	-	100	0.027	0.027	0.027
1.002	User	-	100	0.046	0.046	0.046
1.003	User	-	100	0.021	0.021	0.021
2.000	User	-	100	0.018	0.018	0.018
3.000	-	-	100	0.021	0.021	0.021
3.001	-	-	100	0.000	0.000	0.000
4.000	-	-	100	0.019	0.019	0.019
4.001	-	-	100	0.000	0.000	0.000
5.000	-	-	100	0.000	0.000	0.000
5.001	-	-	100	0.000	0.000	0.000
1.004	User	-	100	0.075	0.075	0.075
6.000	-	-	100	0.011	0.011	0.011
6.001	-	-	100	0.000	0.000	0.000
7.000	-	-	100	0.010	0.010	0.010
7.001	-	-	100	0.000	0.000	0.000
8.000	-	-	100	0.011	0.011	0.011
8.001	-	-	100	0.000	0.000	0.000
9.000	-	-	100	0.010	0.010	0.010
9.001	-	-	100	0.000	0.000	0.000
6.002	User	-	100	0.025	0.025	0.025
10.000	-	-	100	0.032	0.032	0.032
10.001	-	-	100	0.000	0.000	0.000
11.000	-	-	100	0.009	0.009	0.009
11.001	-	-	100	0.000	0.000	0.000
12.000	-	-	100	0.009	0.009	0.009
12.001	-	-	100	0.000	0.000	0.000
13.000	-	-	100	0.009	0.009	0.009
13.001	-	-	100	0.000	0.000	0.000
1.005	User	-	100	0.035	0.035	0.035
	User	-	100	0.013	0.013	0.048
14.000	-	-	100	0.011	0.011	0.011
14.001	-	-	100	0.000	0.000	0.000
15.000	-	-	100	0.010	0.010	0.010
15.001	-	-	100	0.000	0.000	0.000
16.000	-	-	100	0.024	0.024	0.024
16.001	-	-	100	0.000	0.000	0.000
14.002	User	-	100	0.024	0.024	0.024
17.000	-	-	100	0.035	0.035	0.035
17.001	-	-	100	0.000	0.000	0.000
18.000	-	-	100	0.015	0.015	0.015
18.001	-	-	100	0.000	0.000	0.000
1.006	-	-	100	0.000	0.000	0.000
19.000	User	-	100	0.007	0.007	0.007
	User	-	100	0.024	0.024	0.031
	User	-	100	0.010	0.010	0.040
1.007	User	-	100	0.002	0.002	0.002
	User	-	100	0.002	0.002	0.005
	User	-	100	0.002	0.002	0.007
	User	-	100	0.053	0.053	0.060
20.000	-	-	100	0.028	0.028	0.028

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
20.001	-	-	100	0.000	0.000	0.000
20.002	User	-	100	0.032	0.032	0.032
1.008	-	-	100	0.000	0.000	0.000
21.000	-	-	100	0.010	0.010	0.010
21.001	-	-	100	0.000	0.000	0.000
22.000	-	-	100	0.013	0.013	0.013
22.001	-	-	100	0.000	0.000	0.000
21.002	-	-	100	0.000	0.000	0.000
23.000	-	-	100	0.012	0.012	0.012
23.001	-	-	100	0.000	0.000	0.000
24.000	-	-	100	0.012	0.012	0.012
24.001	-	-	100	0.000	0.000	0.000
25.000	-	-	100	0.007	0.007	0.007
25.001	-	-	100	0.000	0.000	0.000
21.003	User	-	100	0.045	0.045	0.045
26.000	-	-	100	0.007	0.007	0.007
26.001	-	-	100	0.000	0.000	0.000
21.004	-	-	100	0.000	0.000	0.000
21.005	-	-	100	0.000	0.000	0.000
27.000	-	-	100	0.013	0.013	0.013
27.001	-	-	100	0.000	0.000	0.000
21.006	-	-	100	0.000	0.000	0.000
21.007	User	-	100	0.026	0.026	0.026
28.000	-	-	100	0.012	0.012	0.012
28.001	-	-	100	0.000	0.000	0.000
21.008	User	-	100	0.028	0.028	0.028
29.000	-	-	100	0.008	0.008	0.008
29.001	-	-	100	0.000	0.000	0.000
30.000	-	-	100	0.012	0.012	0.012
30.001	-	-	100	0.000	0.000	0.000
21.009	-	-	100	0.000	0.000	0.000
31.000	-	-	100	0.015	0.015	0.015
31.001	-	-	100	0.000	0.000	0.000
32.000	-	-	100	0.013	0.013	0.013
32.001	-	-	100	0.000	0.000	0.000
33.000	-	-	100	0.000	0.000	0.000
21.010	User	-	100	0.028	0.028	0.028
21.011	-	-	100	0.000	0.000	0.000
34.000	-	-	100	0.016	0.016	0.016
34.001	-	-	100	0.000	0.000	0.000
35.000	-	-	100	0.009	0.009	0.009
35.001	-	-	100	0.000	0.000	0.000
36.000	-	-	100	0.009	0.009	0.009
36.001	-	-	100	0.000	0.000	0.000
37.000	-	-	100	0.012	0.012	0.012
37.001	-	-	100	0.000	0.000	0.000
34.002	User	-	100	0.029	0.029	0.029
38.000	-	-	100	0.010	0.010	0.010
38.001	-	-	100	0.000	0.000	0.000
39.000	-	-	100	0.024	0.024	0.024
39.001	-	-	100	0.000	0.000	0.000

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
40.000	-	-	100	0.009	0.009	0.009
40.001	-	-	100	0.000	0.000	0.000
41.000	-	-	100	0.013	0.013	0.013
41.001	-	-	100	0.000	0.000	0.000
42.000	-	-	100	0.139	0.139	0.139
42.001	-	-	100	0.000	0.000	0.000
40.002	User	-	100	0.020	0.020	0.020
43.000	-	-	100	0.024	0.024	0.024
43.001	-	-	100	0.000	0.000	0.000
40.003	User	-	100	0.049	0.049	0.049
44.000	-	-	100	0.050	0.050	0.050
44.001	-	-	100	0.000	0.000	0.000
40.004	-	-	100	0.000	0.000	0.000
45.000	-	-	100	0.024	0.024	0.024
45.001	-	-	100	0.000	0.000	0.000
46.000	-	-	100	0.009	0.009	0.009
46.001	-	-	100	0.000	0.000	0.000
47.000	-	-	100	0.007	0.007	0.007
47.001	-	-	100	0.000	0.000	0.000
40.005	-	-	100	0.000	0.000	0.000
34.003	User	-	100	0.033	0.033	0.033
	User	-	100	0.028	0.028	0.061
48.000	-	-	100	0.016	0.016	0.016
48.001	-	-	100	0.000	0.000	0.000
49.000	-	-	100	0.011	0.011	0.011
49.001	-	-	100	0.000	0.000	0.000
50.000	-	-	100	0.015	0.015	0.015
50.001	-	-	100	0.000	0.000	0.000
48.002	User	-	100	0.034	0.034	0.034
51.000	-	-	100	0.012	0.012	0.012
51.001	-	-	100	0.000	0.000	0.000
52.000	-	-	100	0.016	0.016	0.016
52.001	-	-	100	0.000	0.000	0.000
53.000	-	-	100	0.014	0.014	0.014
53.001	-	-	100	0.000	0.000	0.000
48.003	User	-	100	0.046	0.046	0.046
48.004	-	-	100	0.000	0.000	0.000
48.005	User	-	100	0.003	0.003	0.003
48.006	-	-	100	0.000	0.000	0.000
48.007	-	-	100	0.000	0.000	0.000
54.000	-	-	100	0.008	0.008	0.008
54.001	-	-	100	0.000	0.000	0.000
48.008	-	-	100	0.000	0.000	0.000
55.000	-	-	100	0.009	0.009	0.009
55.001	-	-	100	0.000	0.000	0.000
48.009	-	-	100	0.000	0.000	0.000
48.010	User	-	100	0.003	0.003	0.003
	User	-	100	0.034	0.034	0.037
34.004	-	-	100	0.000	0.000	0.000
34.005	User	-	100	0.038	0.038	0.038
	User	-	100	0.003	0.003	0.041

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Area Summary for SW Network

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
	User	-	100	0.016	0.016	0.057
56.000	-	-	100	0.000	0.000	0.000
21.012	-	-	100	0.000	0.000	0.000
57.000	-	-	100	0.029	0.029	0.029
57.001	-	-	100	0.000	0.000	0.000
58.000	User	-	100	0.022	0.022	0.022
57.002	-	-	100	0.000	0.000	0.000
21.013	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				1.800	1.800	1.800

Free Flowing Outfall Details for SW Network

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S1.008	S	7.000	4.150	0.000	0	0

Free Flowing Outfall Details for SW Network

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
S21.013	S	7.000	4.750	0.000	0	0

Simulation Criteria for SW Network

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m³/ha Storage	2.000
Hot Start (mins)	0	Inlet Coeffiecient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	56
Number of Online Controls	53	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	2	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.700	Storm Duration (mins)	30
Ratio R	0.354		

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Online Controls for SW Network

Orifice Manhole: S7, DS/PN: S3.001, Volume (m³): 1.3

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 6.232

Orifice Manhole: S9, DS/PN: S4.001, Volume (m³): 1.2

Diameter (m) 0.025 Discharge Coefficient 0.600 Invert Level (m) 5.837

Orifice Manhole: S11, DS/PN: S5.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.289

Orifice Manhole: S14, DS/PN: S6.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.532

Orifice Manhole: S16, DS/PN: S7.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.580

Orifice Manhole: S18, DS/PN: S8.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.580

Orifice Manhole: S20, DS/PN: S9.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.584

Orifice Manhole: S23, DS/PN: S10.001, Volume (m³): 1.3

Diameter (m) 0.035 Discharge Coefficient 0.600 Invert Level (m) 6.332

Orifice Manhole: S25, DS/PN: S11.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.536

Orifice Manhole: S27, DS/PN: S12.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.536

Orifice Manhole: S29, DS/PN: S13.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.386

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Orifice Manhole: S32, DS/PN: S14.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.933

Orifice Manhole: S34, DS/PN: S15.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.333

Orifice Manhole: S36, DS/PN: S16.001, Volume (m³): 1.3

Diameter (m) 0.070 Discharge Coefficient 0.600 Invert Level (m) 6.335

Orifice Manhole: S39, DS/PN: S17.001, Volume (m³): 1.4

Diameter (m) 0.030 Discharge Coefficient 0.600 Invert Level (m) 6.175

Orifice Manhole: S41, DS/PN: S18.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.183

Complex Manhole: S46, DS/PN: S20.001, Volume (m³): 1.3

Orifice

Diameter (m) 0.045 Discharge Coefficient 0.600 Invert Level (m) 6.278

Orifice

Diameter (m) 0.045 Discharge Coefficient 0.600 Invert Level (m) 6.278

Hydro-Brake® Optimum Manhole: S48, DS/PN: S1.008, Volume (m³): 7.2

Unit Reference	MD-SHE-0104-7000-2450-7000
Design Head (m)	2.450
Design Flow (l/s)	7.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	104
Invert Level (m)	4.275
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	**Head (m)**	**Flow (l/s)**
Design Point (Calculated)	2.450	7.0
Flush-Flo™	0.455	5.6
Kick-Flo®	0.928	4.5
Mean Flow over Head Range	-	5.5

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Hydro-Brake® Optimum Manhole: S48, DS/PN: S1.008, Volume (m³): 7.2

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	3.5	1.200	5.0	3.000	7.7	7.000	11.5
0.200	5.0	1.400	5.4	3.500	8.3	7.500	11.9
0.300	5.4	1.600	5.7	4.000	8.8	8.000	12.3
0.400	5.6	1.800	6.1	4.500	9.3	8.500	12.6
0.500	5.6	2.000	6.4	5.000	9.8	9.000	13.0
0.600	5.5	2.200	6.7	5.500	10.3	9.500	13.3
0.800	5.1	2.400	6.9	6.000	10.7		
1.000	4.6	2.600	7.2	6.500	11.1		

Orifice Manhole: S50, DS/PN: S21.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.432

Orifice Manhole: S52, DS/PN: S22.001, Volume (m³): 1.2

Diameter (m) 0.025 Discharge Coefficient 0.600 Invert Level (m) 6.435

Orifice Manhole: S55, DS/PN: S23.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.526

Orifice Manhole: S57, DS/PN: S24.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.188

Orifice Manhole: S59, DS/PN: S25.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.978

Orifice Manhole: S62, DS/PN: S26.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.978

Orifice Manhole: S66, DS/PN: S27.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.836

Orifice Manhole: S70, DS/PN: S28.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.738

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Orifice Manhole: S73, DS/PN: S29.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.077

Orifice Manhole: S75, DS/PN: S30.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.936

Orifice Manhole: S78, DS/PN: S31.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.077

Orifice Manhole: S80, DS/PN: S32.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.987

Orifice Manhole: S85, DS/PN: S34.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.690

Orifice Manhole: S87, DS/PN: S35.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.484

Orifice Manhole: S89, DS/PN: S36.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.484

Orifice Manhole: S91, DS/PN: S37.001, Volume (m³): 1.3

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.225

Orifice Manhole: S94, DS/PN: S38.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.784

Orifice Manhole: S96, DS/PN: S39.001, Volume (m³): 1.3

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.126

Orifice Manhole: S98, DS/PN: S40.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.135

Orifice Manhole: S100, DS/PN: S41.001, Volume (m³): 1.2

Diameter (m) 0.025 Discharge Coefficient 0.600 Invert Level (m) 6.135

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Orifice Manhole: S102, DS/PN: S42.001, Volume (m³): 1.8

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.385

Orifice Manhole: S105, DS/PN: S43.001, Volume (m³): 1.4

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.926

Orifice Manhole: S108, DS/PN: S44.001, Volume (m³): 1.3

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.061

Orifice Manhole: S111, DS/PN: S45.001, Volume (m³): 1.3

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.227

Orifice Manhole: S113, DS/PN: S46.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.136

Orifice Manhole: S119, DS/PN: S48.001, Volume (m³): 1.2

Diameter (m) 0.020 Discharge Coefficient 0.600 Invert Level (m) 6.137

Orifice Manhole: S121, DS/PN: S49.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 6.130

Orifice Manhole: S123, DS/PN: S50.001, Volume (m³): 1.2

Diameter (m) 0.050 Discharge Coefficient 0.600 Invert Level (m) 6.137

Orifice Manhole: S126, DS/PN: S51.001, Volume (m³): 1.2

Diameter (m) 0.015 Discharge Coefficient 0.600 Invert Level (m) 5.826

Orifice Manhole: S128, DS/PN: S52.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.726

Orifice Manhole: S130, DS/PN: S53.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 6.031

Orifice Manhole: S137, DS/PN: S54.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.890

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Orifice Manhole: S140, DS/PN: S55.001, Volume (m³): 1.2

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.986

Orifice Manhole: S148, DS/PN: S57.001, Volume (m³): 1.6

Diameter (m) 0.010 Discharge Coefficient 0.600 Invert Level (m) 5.949

Hydro-Brake® Optimum Manhole: S147, DS/PN: S21.013, Volume (m³): 7.2

Unit Reference	MD-SHE-0114-7000-1650-7000
Design Head (m)	1.650
Design Flow (l/s)	7.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	114
Invert Level (m)	4.841
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	**Head (m)**	**Flow (l/s)**
Design Point (Calculated)	1.650	7.0
Flush-Flo™	0.492	7.0
Kick-Flo®	1.008	5.6
Mean Flow over Head Range	-	6.1

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

Depth (m)	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**	**Depth (m)**	**Flow (l/s)**
0.100	4.0	1.200	6.0	3.000	9.3	7.000	13.9
0.200	6.1	1.400	6.5	3.500	10.0	7.500	14.3
0.300	6.7	1.600	6.9	4.000	10.6	8.000	14.8
0.400	6.9	1.800	7.3	4.500	11.2	8.500	15.2
0.500	7.0	2.000	7.7	5.000	11.8	9.000	15.6
0.600	6.9	2.200	8.0	5.500	12.4	9.500	16.0
0.800	6.6	2.400	8.3	6.000	12.9		
1.000	5.6	2.600	8.7	6.500	13.4		

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Storage Structures for SW Network

Porous Car Park Manhole: S6, DS/PN: S3.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.0
Max Percolation (l/s)	15.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.250	Membrane Depth (mm)	300

Porous Car Park Manhole: S8, DS/PN: S4.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	10.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.850	Membrane Depth (mm)	300

Porous Car Park Manhole: S10, DS/PN: S5.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	10.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.300	Membrane Depth (mm)	300

Porous Car Park Manhole: S13, DS/PN: S6.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	7.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.550	Membrane Depth (mm)	300

Porous Car Park Manhole: S15, DS/PN: S7.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	7.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.600	Membrane Depth (mm)	300

Porous Car Park Manhole: S17, DS/PN: S8.000

Infiltration Coefficient Base (m/hr)	0.00000	Max Percolation (l/s)	7.1
Membrane Percolation (mm/hr)	1000	Safety Factor	2.0

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Porous Car Park Manhole: S17, DS/PN: S8.000

Porosity	0.30	Slope (1:X)	500.0
Invert Level (m)	6.600	Depression Storage (mm)	5
Width (m)	3.0	Evaporation (mm/day)	3
Length (m)	8.5	Membrane Depth (mm)	300

Porous Car Park Manhole: S19, DS/PN: S9.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	7.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.600	Membrane Depth (mm)	300

Porous Car Park Manhole: S22, DS/PN: S10.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.0
Max Percolation (l/s)	15.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.350	Membrane Depth (mm)	300

Porous Car Park Manhole: S24, DS/PN: S11.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	10.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.550	Membrane Depth (mm)	300

Porous Car Park Manhole: S26, DS/PN: S12.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	10.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.550	Membrane Depth (mm)	300

Porous Car Park Manhole: S28, DS/PN: S13.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	10.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.400	Membrane Depth (mm)	300

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Porous Car Park Manhole: S31, DS/PN: S14.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	7.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.950	Membrane Depth (mm)	300

Porous Car Park Manhole: S33, DS/PN: S15.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	7.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.350	Membrane Depth (mm)	300

Porous Car Park Manhole: S35, DS/PN: S16.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	5.8	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.350	Membrane Depth (mm)	300

Porous Car Park Manhole: S38, DS/PN: S17.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	12.5
Max Percolation (l/s)	20.8	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.200	Membrane Depth (mm)	300

Porous Car Park Manhole: S40, DS/PN: S18.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	8.5
Max Percolation (l/s)	13.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.200	Membrane Depth (mm)	300

Cellular Storage Manhole: S43, DS/PN: S19.000

Invert Level (m)	4.352	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	0.00000		

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Cellular Storage Manhole: S43, DS/PN: S19.000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	144.0	144.0	1.601	0.0	227.2
1.600	144.0	227.2			

Porous Car Park Manhole: S45, DS/PN: S20.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.5
Max Percolation (l/s)	10.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.300	Membrane Depth (mm)	300

Porous Car Park Manhole: S49, DS/PN: S21.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.0
Max Percolation (l/s)	15.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.450	Membrane Depth (mm)	300

Porous Car Park Manhole: S51, DS/PN: S22.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	5.8	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.450	Membrane Depth (mm)	300

Porous Car Park Manhole: S54, DS/PN: S23.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	11.5
Max Percolation (l/s)	9.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.550	Membrane Depth (mm)	300

Porous Car Park Manhole: S56, DS/PN: S24.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	9.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.200	Membrane Depth (mm)	300

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Porous Car Park Manhole: S58, DS/PN: S25.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	11.0
Max Percolation (l/s)	7.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.000	Membrane Depth (mm)	300

Porous Car Park Manhole: S61, DS/PN: S26.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	11.0
Max Percolation (l/s)	7.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.000	Membrane Depth (mm)	300

Porous Car Park Manhole: S65, DS/PN: S27.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.0
Max Percolation (l/s)	11.1	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.850	Membrane Depth (mm)	300

Porous Car Park Manhole: S69, DS/PN: S28.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.5
Membrane Percolation (mm/hr)	1000	Length (m)	6.0
Max Percolation (l/s)	9.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.750	Membrane Depth (mm)	300

Porous Car Park Manhole: S72, DS/PN: S29.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	11.5
Max Percolation (l/s)	9.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.100	Membrane Depth (mm)	300

Porous Car Park Manhole: S74, DS/PN: S30.000

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	5.950
Membrane Percolation (mm/hr)	1000	Width (m)	5.5
Max Percolation (l/s)	10.7	Length (m)	7.0
Safety Factor	2.0	Slope (1:X)	500.0
Porosity	0.30	Depression Storage (mm)	5

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Porous Car Park Manhole: S74, DS/PN: S30.000

Evaporation (mm/day) 3 Membrane Depth (mm) 300

Porous Car Park Manhole: S77, DS/PN: S31.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	11.5
Max Percolation (l/s)	16.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.100	Membrane Depth (mm)	300

Porous Car Park Manhole: S79, DS/PN: S32.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.5
Max Percolation (l/s)	9.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.000	Membrane Depth (mm)	300

Cellular Storage Manhole: S81, DS/PN: S33.000

Invert Level (m) 4.990 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	154.0	154.0	0.801	0.0	200.4
0.800	154.0	200.4			

Porous Car Park Manhole: S84, DS/PN: S34.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.5
Max Percolation (l/s)	13.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.700	Membrane Depth (mm)	300

Porous Car Park Manhole: S86, DS/PN: S35.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.0
Max Percolation (l/s)	6.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.500	Membrane Depth (mm)	300

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Porous Car Park Manhole: S88, DS/PN: S36.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.0
Max Percolation (l/s)	6.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.500	Membrane Depth (mm)	300

Porous Car Park Manhole: S90, DS/PN: S37.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	12.5
Max Percolation (l/s)	10.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.250	Membrane Depth (mm)	300

Porous Car Park Manhole: S93, DS/PN: S38.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	8.0
Max Percolation (l/s)	6.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.800	Membrane Depth (mm)	300

Porous Car Park Manhole: S95, DS/PN: S39.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	11.5
Max Percolation (l/s)	19.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

Porous Car Park Manhole: S97, DS/PN: S40.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	11.7	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

Porous Car Park Manhole: S99, DS/PN: S41.000

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	6.150
Membrane Percolation (mm/hr)	1000	Width (m)	3.0
Max Percolation (l/s)	5.8	Length (m)	7.0
Safety Factor	2.0	Slope (1:X)	500.0
Porosity	0.30	Depression Storage (mm)	5

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Porous Car Park Manhole: S99, DS/PN: S41.000

Evaporation (mm/day) 3 Membrane Depth (mm) 300

Porous Car Park Manhole: S101, DS/PN: S42.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	14.0
Membrane Percolation (mm/hr)	1000	Length (m)	50.0
Max Percolation (l/s)	194.4	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.500	Membrane Depth (mm)	300

Porous Car Park Manhole: S104, DS/PN: S43.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	12.0
Max Percolation (l/s)	20.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.950	Membrane Depth (mm)	300

Porous Car Park Manhole: S107, DS/PN: S44.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	13.0
Membrane Percolation (mm/hr)	1000	Length (m)	20.0
Max Percolation (l/s)	72.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.100	Membrane Depth (mm)	300

Porous Car Park Manhole: S110, DS/PN: S45.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	11.5
Max Percolation (l/s)	19.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.250	Membrane Depth (mm)	300

Porous Car Park Manhole: S112, DS/PN: S46.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	7.0
Max Percolation (l/s)	5.8	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

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Porous Car Park Manhole: S114, DS/PN: S47.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	12.0
Max Percolation (l/s)	8.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.050	Membrane Depth (mm)	300

Porous Car Park Manhole: S118, DS/PN: S48.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.5
Max Percolation (l/s)	9.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

Porous Car Park Manhole: S120, DS/PN: S49.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	10.0
Max Percolation (l/s)	8.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

Porous Car Park Manhole: S122, DS/PN: S50.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	3.0
Membrane Percolation (mm/hr)	1000	Length (m)	5.0
Max Percolation (l/s)	4.2	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.150	Membrane Depth (mm)	300

Porous Car Park Manhole: S125, DS/PN: S51.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	2.5
Membrane Percolation (mm/hr)	1000	Length (m)	12.0
Max Percolation (l/s)	8.3	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.850	Membrane Depth (mm)	300

Porous Car Park Manhole: S127, DS/PN: S52.000

Infiltration Coefficient Base (m/hr)	0.00000	Invert Level (m)	5.750
Membrane Percolation (mm/hr)	1000	Width (m)	5.0
Max Percolation (l/s)	16.7	Length (m)	12.0
Safety Factor	2.0	Slope (1:X)	500.0
Porosity	0.30	Depression Storage (mm)	5

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Porous Car Park Manhole: S127, DS/PN: S52.000

Evaporation (mm/day) 3 Membrane Depth (mm) 300

Porous Car Park Manhole: S129, DS/PN: S53.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	6.0
Membrane Percolation (mm/hr)	1000	Length (m)	9.0
Max Percolation (l/s)	15.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.050	Membrane Depth (mm)	300

Porous Car Park Manhole: S136, DS/PN: S54.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	5.0
Max Percolation (l/s)	6.9	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	5.900	Membrane Depth (mm)	300

Porous Car Park Manhole: S139, DS/PN: S55.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	5.0
Membrane Percolation (mm/hr)	1000	Length (m)	6.5
Max Percolation (l/s)	9.0	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.000	Membrane Depth (mm)	300

Cellular Storage Manhole: S145, DS/PN: S56.000

Invert Level (m) 5.082 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	175.0	175.0	1.201	0.0	226.2
1.200	175.0	226.2			

Porous Car Park Manhole: S147, DS/PN: S57.000

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	10.0
Membrane Percolation (mm/hr)	1000	Length (m)	29.0
Max Percolation (l/s)	80.6	Slope (1:X)	500.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	6.000	Membrane Depth (mm)	300

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Tank or Pond Manhole: S149, DS/PN: S58.000

Invert Level (m) 5.600

Depth (m)	Area (m²)	Depth (m)	Area (m²)
0.000	40.0	1.000	178.0

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 56
Number of Online Controls 53 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 498650 101750 SU 98650 01750
C (1km)	-0.025
D1 (1km)	0.390
D2 (1km)	0.245
D3 (1km)	0.403
E (1km)	0.310
F (1km)	2.321
Cv (Summer)	0.750
Cv (Winter)	0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	1	+0%	100/30 Winter			
S1.001	S2	15 Winter	1	+0%	100/15 Summer			
S1.002	S3	15 Winter	1	+0%	100/15 Summer	100/240 Winter		
S1.003	S4	15 Winter	1	+0%	30/360 Winter			
S2.000	S5	15 Winter	1	+0%	100/30 Winter			
S3.000	S6	240 Winter	1	+0%	30/15 Winter			
S3.001	S7	240 Winter	1	+0%	30/15 Summer			
S4.000	S8	120 Winter	1	+0%	30/15 Summer			
S4.001	S9	120 Winter	1	+0%	30/15 Summer			
S5.000	S10	60 Winter	1	+0%	100/360 Winter			
S5.001	S11	60 Winter	1	+0%	100/240 Winter			

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	5.610	-0.195	0.000	0.04		1.6	OK	
S1.001	S2	5.460	-0.176	0.000	0.11		4.0	OK	
S1.002	S3	5.224	-0.231	0.000	0.12		8.2	OK	4
S1.003	S4	4.863	-0.349	0.000	0.09		9.9	OK	
S2.000	S5	5.582	-0.201	0.000	0.03		2.1	OK	
S3.000	S6	6.323	-0.077	0.000	0.04		0.2	OK	
S3.001	S7	6.322	-0.060	0.000	0.01		0.2	OK	
S4.000	S8	5.921	-0.029	0.000	0.12		0.4	OK	
S4.001	S9	5.918	-0.019	0.000	0.02		0.3	OK	
S5.000	S10	6.300	-0.100	0.000	0.00		0.0	OK	
S5.001	S11	6.289	-0.100	0.000	0.00		0.0	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.004	S12	15 Winter	1	+0%	30/240 Winter			
S6.000	S13	120 Winter	1	+0%	30/15 Summer			
S6.001	S14	120 Winter	1	+0%	30/15 Summer			
S7.000	S15	120 Winter	1	+0%	30/15 Summer			
S7.001	S16	120 Winter	1	+0%	30/15 Summer			
S8.000	S17	120 Winter	1	+0%	30/15 Summer			
S8.001	S18	120 Winter	1	+0%	30/15 Summer			
S9.000	S19	120 Winter	1	+0%	30/15 Summer			
S9.001	S20	120 Winter	1	+0%	30/15 Summer			
S6.002	S21	15 Winter	1	+0%	100/240 Summer			
S10.000	S22	60 Winter	1	+0%	30/15 Summer			
S10.001	S23	60 Winter	1	+0%	30/15 Summer			
S11.000	S24	480 Winter	1	+0%	30/30 Winter			
S11.001	S25	480 Winter	1	+0%	30/15 Winter			
S12.000	S26	480 Winter	1	+0%	30/30 Winter			
S12.001	S27	480 Winter	1	+0%	30/15 Winter			
S13.000	S28	480 Winter	1	+0%	30/30 Winter			
S13.001	S29	480 Winter	1	+0%	30/15 Winter			
S1.005	S30	15 Winter	1	+0%	30/120 Winter			
S14.000	S31	120 Winter	1	+0%	30/15 Summer			
S14.001	S32	120 Winter	1	+0%	30/15 Summer			
S15.000	S33	120 Winter	1	+0%	30/15 Summer			
S15.001	S34	120 Winter	1	+0%	30/15 Summer			
S16.000	S35	15 Winter	1	+0%	30/15 Summer			
S16.001	S36	15 Winter	1	+0%	30/15 Summer			
S14.002	S37	15 Winter	1	+0%	100/120 Winter			
S17.000	S38	120 Winter	1	+0%	30/15 Summer			
S17.001	S39	120 Winter	1	+0%	30/15 Summer			
S18.000	S40	480 Winter	1	+0%	30/15 Summer			
S18.001	S41	480 Winter	1	+0%	1/240 Winter			
S1.006	S42	30 Winter	1	+0%	30/15 Winter			
S19.000	S43	240 Winter	1	+0%	30/30 Winter	100/360 Winter		
S1.007	S44	30 Winter	1	+0%	30/15 Summer	100/360 Winter		
S20.000	S45	30 Winter	1	+0%	30/15 Summer			
S20.001	S46	30 Winter	1	+0%	30/15 Summer			
S20.002	S47	15 Winter	1	+0%	30/15 Summer			
S1.008	S48	30 Winter	1	+0%	1/15 Summer			
S21.000	S49	480 Winter	1	+0%	30/60 Winter			
S21.001	S50	480 Winter	1	+0%	30/30 Winter			
S22.000	S51	60 Winter	1	+0%	30/15 Summer			
S22.001	S52	60 Winter	1	+0%	30/15 Summer			
S21.002	S53	60 Winter	1	+0%	100/480 Winter			
S23.000	S54	240 Winter	1	+0%	30/15 Summer			
S23.001	S55	240 Winter	1	+0%	30/15 Summer			
S24.000	S56	240 Winter	1	+0%	30/15 Summer			
S24.001	S57	240 Winter	1	+0%	30/15 Summer			
S25.000	S58	360 Winter	1	+0%	30/30 Winter			
S25.001	S59	360 Winter	1	+0%	30/15 Winter			

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.004	S12	4.836	-0.345	0.000	0.12		17.7	OK	
S6.000	S13	6.616	-0.034	0.000	0.06		0.2	OK	
S6.001	S14	6.615	-0.018	0.000	0.01		0.1	OK	
S7.000	S15	6.657	-0.043	0.000	0.06		0.2	OK	
S7.001	S16	6.656	-0.023	0.000	0.01		0.1	OK	
S8.000	S17	6.665	-0.035	0.000	0.07		0.2	OK	
S8.001	S18	6.664	-0.017	0.000	0.01		0.1	OK	
S9.000	S19	6.659	-0.041	0.000	0.05		0.1	OK	
S9.001	S20	6.659	-0.025	0.000	0.01		0.1	OK	
S6.002	S21	6.185	-0.127	0.000	0.06		2.5	OK	
S10.000	S22	6.427	-0.073	0.000	0.13		0.8	OK	
S10.001	S23	6.425	-0.057	0.000	0.01		0.7	OK	
S11.000	S24	6.610	-0.040	0.000	0.02		0.1	OK	
S11.001	S25	6.610	-0.026	0.000	0.00		0.1	OK	
S12.000	S26	6.610	-0.040	0.000	0.02		0.1	OK	
S12.001	S27	6.610	-0.026	0.000	0.00		0.1	OK	
S13.000	S28	6.460	-0.040	0.000	0.02		0.1	OK	
S13.001	S29	6.460	-0.026	0.000	0.01		0.1	OK	
S1.005	S30	4.707	-0.331	0.000	0.15		23.2	OK	
S14.000	S31	6.016	-0.034	0.000	0.06		0.2	OK	
S14.001	S32	6.015	-0.018	0.000	0.02		0.1	OK	
S15.000	S33	6.409	-0.041	0.000	0.06		0.1	OK	
S15.001	S34	6.408	-0.025	0.000	0.01		0.1	OK	
S16.000	S35	6.415	-0.085	0.000	0.23		1.6	OK	
S16.001	S36	6.408	-0.078	0.000	0.04		1.6	OK	
S14.002	S37	5.784	-0.120	0.000	0.09		3.7	OK	
S17.000	S38	6.277	-0.073	0.000	0.09		0.6	OK	
S17.001	S39	6.275	-0.050	0.000	0.01		0.5	OK	
S18.000	S40	6.299	-0.001	0.000	0.03		0.1	OK	
S18.001	S41	6.299	0.015	0.000	0.00		0.1	SURCHARGED	
S1.006	S42	4.599	-0.263	0.000	0.16		22.6	OK	
S19.000	S43	4.572	-0.230	0.000	0.04		3.6	OK	2
S1.007	S44	4.577	-0.207	0.000	0.05		6.7	OK	2
S20.000	S45	6.359	-0.091	0.000	0.27		1.6	OK	
S20.001	S46	6.338	-0.090	0.000	0.02		1.6	OK	
S20.002	S47	4.601	-0.098	0.000	0.25		4.0	OK	
S1.008	S48	4.576	0.151	0.000	0.34		5.4	SURCHARGED	
S21.000	S49	6.504	-0.046	0.000	0.02		0.1	OK	
S21.001	S50	6.504	-0.028	0.000	0.00		0.1	OK	
S22.000	S51	6.510	-0.040	0.000	0.13		0.4	OK	
S22.001	S52	6.508	-0.027	0.000	0.04		0.3	OK	
S21.002	S53	5.980	-0.215	0.000	0.01		0.4	OK	
S23.000	S54	6.611	-0.039	0.000	0.06		0.1	OK	
S23.001	S55	6.609	-0.017	0.000	0.01		0.1	OK	
S24.000	S56	6.266	-0.034	0.000	0.04		0.1	OK	
S24.001	S57	6.265	-0.022	0.000	0.02		0.1	OK	
S25.000	S58	6.051	-0.049	0.000	0.03		0.1	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S25.001	S59	6.051	-0.027	0.000	0.02		0.1	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S21.003	S60	15 Winter	1	+0%	100/240 Winter			
S26.000	S61	360 Winter	1	+0%	30/30 Winter			
S26.001	S62	360 Winter	1	+0%	30/15 Summer			
S21.004	S63	15 Winter	1	+0%	100/15 Summer			
S21.005	S64	15 Winter	1	+0%	100/15 Summer			
S27.000	S65	480 Winter	1	+0%	30/15 Summer			
S27.001	S66	480 Winter	1	+0%	1/360 Winter			
S21.006	S67	15 Winter	1	+0%	100/15 Summer			
S21.007	S68	15 Winter	1	+0%	100/15 Summer			
S28.000	S69	240 Winter	1	+0%	30/15 Summer			
S28.001	S70	240 Winter	1	+0%	30/15 Summer			
S21.008	S71	15 Winter	1	+0%	100/15 Summer			
S29.000	S72	360 Winter	1	+0%	30/30 Winter			
S29.001	S73	360 Winter	1	+0%	30/15 Winter			
S30.000	S74	240 Winter	1	+0%	30/15 Summer			
S30.001	S75	240 Winter	1	+0%	30/15 Summer			
S21.009	S76	30 Winter	1	+0%	100/15 Summer			
S31.000	S77	480 Winter	1	+0%	30/15 Winter			
S31.001	S78	480 Winter	1	+0%	1/360 Winter			
S32.000	S79	240 Winter	1	+0%	30/15 Summer			
S32.001	S80	240 Winter	1	+0%	30/15 Summer			
S33.000	S81	240 Winter	1	+0%	30/480 Winter			
S21.010	S82	30 Winter	1	+0%	30/240 Winter			
S21.011	S83	30 Winter	1	+0%	30/240 Winter			
S34.000	S84	360 Winter	1	+0%	30/15 Summer			
S34.001	S85	360 Winter	1	+0%	30/15 Summer			
S35.000	S86	360 Winter	1	+0%	30/15 Summer			
S35.001	S87	360 Winter	1	+0%	30/15 Summer			
S36.000	S88	360 Winter	1	+0%	30/15 Summer			
S36.001	S89	360 Winter	1	+0%	30/15 Summer			
S37.000	S90	480 Winter	1	+0%	30/15 Summer			
S37.001	S91	480 Winter	1	+0%	1/240 Winter			
S34.002	S92	15 Winter	1	+0%	100/15 Winter			
S38.000	S93	120 Winter	1	+0%	30/15 Summer			
S38.001	S94	120 Winter	1	+0%	30/15 Summer			
S39.000	S95	360 Winter	1	+0%	30/30 Summer			
S39.001	S96	360 Winter	1	+0%	30/15 Summer			
S40.000	S97	480 Winter	1	+0%	30/30 Winter			
S40.001	S98	480 Winter	1	+0%	30/30 Summer			
S41.000	S99	60 Winter	1	+0%	30/15 Summer			
S41.001	S100	60 Winter	1	+0%	30/15 Summer			
S42.000	S101	960 Winter	1	+0%	1/240 Summer			
S42.001	S102	960 Winter	1	+0%	1/15 Summer			
S40.002	S103	15 Winter	1	+0%	100/15 Summer			
S43.000	S104	360 Winter	1	+0%	30/30 Summer			
S43.001	S105	360 Winter	1	+0%	30/15 Winter			
S40.003	S106	15 Winter	1	+0%	100/15 Summer			
S44.000	S107	960 Winter	1	+0%	1/480 Winter			

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S21.003	S60	5.848	-0.175	0.000	0.11		4.2	OK	
S26.000	S61	6.051	-0.049	0.000	0.03		0.1	OK	
S26.001	S62	6.051	-0.027	0.000	0.00		0.1	OK	
S21.004	S63	5.514	-0.244	0.000	0.08		4.3	OK	
S21.005	S64	5.478	-0.245	0.000	0.08		4.2	OK	
S27.000	S65	5.944	-0.006	0.000	0.03		0.1	OK	
S27.001	S66	5.943	0.007	0.000	0.01		0.1	SURCHARGED	
S21.006	S67	5.440	-0.245	0.000	0.08		4.3	OK	
S21.007	S68	5.406	-0.233	0.000	0.11		6.2	OK	
S28.000	S69	5.816	-0.034	0.000	0.04		0.1	OK	
S28.001	S70	5.815	-0.022	0.000	0.01		0.1	OK	
S21.008	S71	5.220	-0.375	0.000	0.06		8.4	OK	
S29.000	S72	6.153	-0.047	0.000	0.03		0.1	OK	
S29.001	S73	6.153	-0.024	0.000	0.01		0.1	OK	
S30.000	S74	6.009	-0.041	0.000	0.05		0.1	OK	
S30.001	S75	6.009	-0.027	0.000	0.01		0.1	OK	
S21.009	S76	5.162	-0.348	0.000	0.05		7.3	OK	
S31.000	S77	6.185	-0.015	0.000	0.03		0.1	OK	
S31.001	S78	6.184	0.007	0.000	0.01		0.1	SURCHARGED	
S32.000	S79	6.073	-0.027	0.000	0.05		0.1	OK	
S32.001	S80	6.072	-0.014	0.000	0.01		0.1	OK	
S33.000	S81	5.121	-0.319	0.000	0.03		2.7	OK	
S21.010	S82	5.150	-0.266	0.000	0.04		3.6	OK	
S21.011	S83	5.155	-0.237	0.000	0.03		2.5	OK	
S34.000	S84	6.778	-0.022	0.000	0.04		0.1	OK	
S34.001	S85	6.777	-0.013	0.000	0.01		0.1	OK	
S35.000	S86	6.579	-0.021	0.000	0.03		0.1	OK	
S35.001	S87	6.579	-0.006	0.000	0.00		0.1	OK	
S36.000	S88	6.579	-0.021	0.000	0.03		0.1	OK	
S36.001	S89	6.578	-0.006	0.000	0.01		0.1	OK	
S37.000	S90	6.334	-0.016	0.000	0.03		0.1	OK	
S37.001	S91	6.334	0.009	0.000	0.02		0.1	SURCHARGED	
S34.002	S92	6.138	-0.116	0.000	0.12		2.7	OK	
S38.000	S93	5.862	-0.038	0.000	0.05		0.1	OK	
S38.001	S94	5.861	-0.024	0.000	0.01		0.1	OK	
S39.000	S95	6.243	-0.057	0.000	0.03		0.2	OK	
S39.001	S96	6.243	-0.034	0.000	0.00		0.2	OK	
S40.000	S97	6.207	-0.043	0.000	0.02		0.1	OK	
S40.001	S98	6.206	-0.029	0.000	0.01		0.1	OK	
S41.000	S99	6.211	-0.039	0.000	0.13		0.4	OK	
S41.001	S100	6.208	-0.027	0.000	0.04		0.3	OK	
S42.000	S101	6.646	0.046	0.000	0.12		0.3	SURCHARGED	
S42.001	S102	6.639	0.204	0.000	0.02		0.2	SURCHARGED	
S40.002	S103	5.831	-0.192	0.000	0.05		1.9	OK	
S43.000	S104	6.041	-0.059	0.000	0.03		0.2	OK	
S43.001	S105	6.040	-0.036	0.000	0.01		0.2	OK	
S40.003	S106	5.675	-0.155	0.000	0.21		6.3	OK	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.000	S107	6.215	0.015	0.000	0.04		0.1	SURCHARGED	

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S44.001	S108	960 Winter	1	+0%	1/120 Winter			
S40.004	S109	15 Winter	1	+0%	100/15 Summer			
S45.000	S110	360 Winter	1	+0%	30/30 Summer			
S45.001	S111	360 Winter	1	+0%	30/15 Summer			
S46.000	S112	120 Winter	1	+0%	30/15 Summer			
S46.001	S113	120 Winter	1	+0%	30/15 Summer			
S47.000	S114	30 Winter	1	+0%	100/15 Summer			
S47.001	S115	30 Winter	1	+0%	100/480 Winter			
S40.005	S116	15 Winter	1	+0%	100/15 Summer			
S34.003	S117	30 Winter	1	+0%	30/15 Winter			
S48.000	S118	120 Winter	1	+0%	30/15 Summer			
S48.001	S119	120 Winter	1	+0%	30/15 Summer			
S49.000	S120	240 Winter	1	+0%	30/15 Summer			
S49.001	S121	240 Winter	1	+0%	30/15 Summer			
S50.000	S122	15 Winter	1	+0%	30/15 Summer			
S50.001	S123	15 Winter	1	+0%	30/15 Summer			
S48.002	S124	15 Winter	1	+0%	100/15 Summer			
S51.000	S125	240 Winter	1	+0%	30/15 Summer			
S51.001	S126	240 Winter	1	+0%	30/15 Summer			
S52.000	S127	480 Winter	1	+0%	30/15 Summer			
S52.001	S128	480 Winter	1	+0%	1/240 Winter			
S53.000	S129	480 Winter	1	+0%	30/15 Winter			
S53.001	S130	480 Winter	1	+0%	30/15 Summer			
S48.003	S131	15 Winter	1	+0%	100/15 Summer			
S48.004	S132	15 Winter	1	+0%	100/15 Summer			
S48.005	S133	15 Winter	1	+0%	100/15 Summer			
S48.006	S134	15 Winter	1	+0%	100/15 Summer			
S48.007	S135	15 Winter	1	+0%	100/15 Summer			
S54.000	S136	360 Winter	1	+0%	30/15 Winter			
S54.001	S137	360 Winter	1	+0%	30/15 Summer			
S48.008	S138	15 Winter	1	+0%	100/15 Summer			
S55.000	S139	480 Winter	1	+0%	30/15 Winter			
S55.001	S140	480 Winter	1	+0%	30/15 Summer			
S48.009	S141	30 Winter	1	+0%	30/480 Winter			
S48.010	S142	30 Winter	1	+0%	30/360 Winter			
S34.004	S143	30 Winter	1	+0%	30/240 Winter			
S34.005	S144	30 Winter	1	+0%	30/240 Winter			
S56.000	S145	120 Winter	1	+0%	30/240 Winter			
S21.012	S146	30 Winter	1	+0%	30/240 Winter			
S57.000	S147	960 Winter	1	+0%	100/60 Winter			
S57.001	S148	960 Winter	1	+0%	30/120 Winter			
S58.000	S149	30 Winter	1	+0%	100/240 Winter			
S57.002	S149	60 Winter	1	+0%	100/15 Winter			
S21.013	S147	30 Winter	1	+0%	1/15 Summer	100/120 Winter		

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1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.001	S108	6.214	0.053	0.000	0.01		0.1	SURCHARGED	
S40.004	S109	5.630	-0.155	0.000	0.21		6.3	OK	
S45.000	S110	6.343	-0.057	0.000	0.03		0.2	OK	
S45.001	S111	6.343	-0.034	0.000	0.01		0.2	OK	
S46.000	S112	6.209	-0.041	0.000	0.05		0.1	OK	
S46.001	S113	6.208	-0.028	0.000	0.01		0.1	OK	
S47.000	S114	6.074	-0.076	0.000	0.13		0.3	OK	
S47.001	S115	6.036	-0.089	0.000	0.03		0.3	OK	
S40.005	S116	5.502	-0.238	0.000	0.10		6.6	OK	
S34.003	S117	5.181	-0.313	0.000	0.09		12.6	OK	
S48.000	S118	6.224	-0.026	0.000	0.08		0.2	OK	
S48.001	S119	6.222	-0.015	0.000	0.02		0.2	OK	
S49.000	S120	6.209	-0.041	0.000	0.06		0.1	OK	
S49.001	S121	6.208	-0.022	0.000	0.01		0.1	OK	
S50.000	S122	6.205	-0.045	0.000	0.33		1.0	OK	
S50.001	S123	6.198	-0.038	0.000	0.12		0.9	OK	
S48.002	S124	5.642	-0.252	0.000	0.06		3.9	OK	
S51.000	S125	5.915	-0.035	0.000	0.06		0.1	OK	
S51.001	S126	5.914	-0.012	0.000	0.02		0.1	OK	
S52.000	S127	5.839	-0.011	0.000	0.03		0.1	OK	
S52.001	S128	5.838	0.013	0.000	0.02		0.1	SURCHARGED	
S53.000	S129	6.132	-0.018	0.000	0.03		0.1	OK	
S53.001	S130	6.131	0.000	0.000	0.01		0.1	OK	
S48.003	S131	5.543	-0.230	0.000	0.12		7.8	OK	
S48.004	S132	5.424	-0.222	0.000	0.15		7.8	OK	
S48.005	S133	5.401	-0.219	0.000	0.16		8.0	OK	
S48.006	S134	5.374	-0.220	0.000	0.16		8.0	OK	
S48.007	S135	5.344	-0.224	0.000	0.15		8.0	OK	
S54.000	S136	5.969	-0.031	0.000	0.02		0.1	OK	
S54.001	S137	5.969	-0.022	0.000	0.00		0.1	OK	
S48.008	S138	5.308	-0.224	0.000	0.14		8.0	OK	
S55.000	S139	6.066	-0.034	0.000	0.02		0.1	OK	
S55.001	S140	6.066	-0.020	0.000	0.00		0.1	OK	
S48.009	S141	5.176	-0.315	0.000	0.06		7.3	OK	
S48.010	S142	5.172	-0.273	0.000	0.09		8.5	OK	
S34.004	S143	5.170	-0.254	0.000	0.18		18.8	OK	
S34.005	S144	5.163	-0.233	0.000	0.21		21.2	OK	
S56.000	S145	5.133	-0.263	0.000	0.02		1.8	OK	
S21.012	S146	5.157	-0.213	0.000	0.09		12.6	OK	
S57.000	S147	6.064	-0.086	0.000	0.02		0.1	OK	
S57.001	S148	6.064	-0.035	0.000	0.00		0.1	OK	
S58.000	S149	5.620	-0.130	0.000	0.04		0.9	OK	
S57.002	S149	5.520	-0.130	0.000	0.04		0.9	OK	
S21.013	S147	5.155	0.164	0.000	0.43		6.8	SURCHARGED	11

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 56
Number of Online Controls 53 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 498650 101750 SU 98650 01750
C (1km)	-0.025
D1 (1km)	0.390
D2 (1km)	0.245
D3 (1km)	0.403
E (1km)	0.310
F (1km)	2.321
Cv (Summer)	0.750
Cv (Winter)	0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	30	+0%	100/30 Winter			
S1.001	S2	15 Winter	30	+0%	100/15 Summer			
S1.002	S3	15 Winter	30	+0%	100/15 Summer	100/240 Winter		
S1.003	S4	480 Winter	30	+0%	30/360 Winter			
S2.000	S5	15 Winter	30	+0%	100/30 Winter			
S3.000	S6	240 Winter	30	+0%	30/15 Winter			
S3.001	S7	240 Winter	30	+0%	30/15 Summer			
S4.000	S8	120 Winter	30	+0%	30/15 Summer			
S4.001	S9	120 Winter	30	+0%	30/15 Summer			
S5.000	S10	60 Winter	30	+0%	100/360 Winter			
S5.001	S11	60 Winter	30	+0%	100/240 Winter			

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m^3)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	5.636	-0.169	0.000	0.14		5.2	OK	
S1.001	S2	5.510	-0.126	0.000	0.39		14.5	OK	
S1.002	S3	5.299	-0.156	0.000	0.44		30.0	OK	4
S1.003	S4	5.283	0.071	0.000	0.04		4.4	SURCHARGED	
S2.000	S5	5.602	-0.181	0.000	0.09		6.6	OK	
S3.000	S6	6.483	0.083	0.000	0.07		0.4	SURCHARGED	
S3.001	S7	6.482	0.100	0.000	0.01		0.4	SURCHARGED	
S4.000	S8	6.090	0.140	0.000	0.22		0.7	SURCHARGED	
S4.001	S9	6.085	0.148	0.000	0.04		0.6	SURCHARGED	
S5.000	S10	6.300	-0.100	0.000	0.00		0.0	OK	
S5.001	S11	6.289	-0.100	0.000	0.00		0.0	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.004	S12	480 Winter	30	+0%	30/240 Winter			
S6.000	S13	240 Winter	30	+0%	30/15 Summer			
S6.001	S14	240 Winter	30	+0%	30/15 Summer			
S7.000	S15	120 Winter	30	+0%	30/15 Summer			
S7.001	S16	120 Winter	30	+0%	30/15 Summer			
S8.000	S17	240 Winter	30	+0%	30/15 Summer			
S8.001	S18	240 Winter	30	+0%	30/15 Summer			
S9.000	S19	240 Winter	30	+0%	30/15 Summer			
S9.001	S20	240 Winter	30	+0%	30/15 Summer			
S6.002	S21	15 Winter	30	+0%	100/240 Summer			
S10.000	S22	60 Winter	30	+0%	30/15 Summer			
S10.001	S23	60 Winter	30	+0%	30/15 Summer			
S11.000	S24	480 Winter	30	+0%	30/30 Winter			
S11.001	S25	480 Winter	30	+0%	30/15 Winter			
S12.000	S26	480 Winter	30	+0%	30/30 Winter			
S12.001	S27	480 Winter	30	+0%	30/15 Winter			
S13.000	S28	480 Winter	30	+0%	30/30 Winter			
S13.001	S29	480 Winter	30	+0%	30/15 Winter			
S1.005	S30	480 Winter	30	+0%	30/120 Winter			
S14.000	S31	240 Winter	30	+0%	30/15 Summer			
S14.001	S32	240 Winter	30	+0%	30/15 Summer			
S15.000	S33	120 Winter	30	+0%	30/15 Summer			
S15.001	S34	120 Winter	30	+0%	30/15 Summer			
S16.000	S35	15 Winter	30	+0%	30/15 Summer			
S16.001	S36	15 Winter	30	+0%	30/15 Summer			
S14.002	S37	15 Winter	30	+0%	100/120 Winter			
S17.000	S38	120 Winter	30	+0%	30/15 Summer			
S17.001	S39	120 Winter	30	+0%	30/15 Summer			
S18.000	S40	480 Winter	30	+0%	30/15 Summer			
S18.001	S41	480 Winter	30	+0%	1/240 Winter			
S1.006	S42	480 Winter	30	+0%	30/15 Winter			
S19.000	S43	480 Winter	30	+0%	30/30 Winter	100/360 Winter		
S1.007	S44	480 Winter	30	+0%	30/15 Summer	100/360 Winter		
S20.000	S45	15 Winter	30	+0%	30/15 Summer			
S20.001	S46	15 Winter	30	+0%	30/15 Summer			
S20.002	S47	480 Winter	30	+0%	30/15 Summer			
S1.008	S48	480 Winter	30	+0%	1/15 Summer			
S21.000	S49	480 Winter	30	+0%	30/60 Winter			
S21.001	S50	480 Winter	30	+0%	30/30 Winter			
S22.000	S51	60 Winter	30	+0%	30/15 Summer			
S22.001	S52	60 Winter	30	+0%	30/15 Summer			
S21.002	S53	60 Winter	30	+0%	100/480 Winter			
S23.000	S54	240 Winter	30	+0%	30/15 Summer			
S23.001	S55	240 Winter	30	+0%	30/15 Summer			
S24.000	S56	240 Winter	30	+0%	30/15 Summer			
S24.001	S57	240 Winter	30	+0%	30/15 Summer			
S25.000	S58	360 Winter	30	+0%	30/30 Winter			
S25.001	S59	360 Winter	30	+0%	30/15 Winter			

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.004	S12	5.298	0.117	0.000	0.06		8.8	SURCHARGED	
S6.000	S13	6.771	0.121	0.000	0.10		0.3	SURCHARGED	
S6.001	S14	6.769	0.137	0.000	0.02		0.2	SURCHARGED	
S7.000	S15	6.795	0.095	0.000	0.11		0.3	SURCHARGED	
S7.001	S16	6.793	0.113	0.000	0.02		0.2	SURCHARGED	
S8.000	S17	6.820	0.120	0.000	0.10		0.3	SURCHARGED	
S8.001	S18	6.818	0.137	0.000	0.01		0.2	SURCHARGED	
S9.000	S19	6.797	0.097	0.000	0.09		0.2	SURCHARGED	
S9.001	S20	6.796	0.112	0.000	0.02		0.2	SURCHARGED	
S6.002	S21	6.210	-0.102	0.000	0.22		9.8	OK	
S10.000	S22	6.611	0.111	0.000	0.24		1.4	SURCHARGED	
S10.001	S23	6.606	0.124	0.000	0.02		1.3	SURCHARGED	
S11.000	S24	6.730	0.080	0.000	0.03		0.1	SURCHARGED	
S11.001	S25	6.730	0.093	0.000	0.00		0.1	SURCHARGED	
S12.000	S26	6.730	0.080	0.000	0.03		0.1	SURCHARGED	
S12.001	S27	6.730	0.093	0.000	0.01		0.1	SURCHARGED	
S13.000	S28	6.580	0.080	0.000	0.03		0.1	SURCHARGED	
S13.001	S29	6.580	0.093	0.000	0.01		0.1	SURCHARGED	
S1.005	S30	5.314	0.276	0.000	0.08		12.8	SURCHARGED	
S14.000	S31	6.171	0.121	0.000	0.10		0.3	SURCHARGED	
S14.001	S32	6.170	0.137	0.000	0.03		0.2	SURCHARGED	
S15.000	S33	6.547	0.097	0.000	0.10		0.3	SURCHARGED	
S15.001	S34	6.545	0.112	0.000	0.02		0.2	SURCHARGED	
S16.000	S35	6.556	0.056	0.000	0.63		4.5	SURCHARGED	
S16.001	S36	6.543	0.058	0.000	0.12		4.3	SURCHARGED	
S14.002	S37	5.811	-0.093	0.000	0.30		12.5	OK	
S17.000	S38	6.452	0.102	0.000	0.16		1.0	SURCHARGED	
S17.001	S39	6.449	0.124	0.000	0.01		1.0	SURCHARGED	
S18.000	S40	6.485	0.185	0.000	0.05		0.1	SURCHARGED	
S18.001	S41	6.484	0.200	0.000	0.01		0.1	SURCHARGED	
S1.006	S42	5.310	0.448	0.000	0.11		15.7	SURCHARGED	
S19.000	S43	5.276	0.474	0.000	0.09		8.6	SURCHARGED	2
S1.007	S44	5.306	0.522	0.000	0.05		7.2	SURCHARGED	2
S20.000	S45	6.487	0.037	0.000	0.66		3.9	SURCHARGED	
S20.001	S46	6.474	0.045	0.000	0.04		3.5	SURCHARGED	
S20.002	S47	5.287	0.587	0.000	0.19		3.0	SURCHARGED	
S1.008	S48	5.320	0.895	0.000	0.35		5.6	SURCHARGED	
S21.000	S49	6.609	0.059	0.000	0.04		0.1	SURCHARGED	
S21.001	S50	6.608	0.076	0.000	0.01		0.1	SURCHARGED	
S22.000	S51	6.666	0.116	0.000	0.25		0.7	SURCHARGED	
S22.001	S52	6.661	0.126	0.000	0.07		0.6	SURCHARGED	
S21.002	S53	5.989	-0.206	0.000	0.02		0.7	OK	
S23.000	S54	6.751	0.101	0.000	0.10		0.2	SURCHARGED	
S23.001	S55	6.749	0.123	0.000	0.01		0.2	SURCHARGED	
S24.000	S56	6.412	0.112	0.000	0.08		0.2	SURCHARGED	
S24.001	S57	6.410	0.123	0.000	0.03		0.2	SURCHARGED	
S25.000	S58	6.163	0.063	0.000	0.04		0.1	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S25.001	S59	6.163	0.084	0.000	0.04		0.1	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S21.003	S60	15 Winter	30	+0%	100/240 Winter			
S26.000	S61	360 Winter	30	+0%	30/30 Winter			
S26.001	S62	360 Winter	30	+0%	30/15 Summer			
S21.004	S63	15 Winter	30	+0%	100/15 Summer			
S21.005	S64	15 Winter	30	+0%	100/15 Summer			
S27.000	S65	480 Winter	30	+0%	30/15 Summer			
S27.001	S66	480 Winter	30	+0%	1/360 Winter			
S21.006	S67	15 Winter	30	+0%	100/15 Summer			
S21.007	S68	15 Winter	30	+0%	100/15 Summer			
S28.000	S69	240 Winter	30	+0%	30/15 Summer			
S28.001	S70	240 Winter	30	+0%	30/15 Summer			
S21.008	S71	480 Winter	30	+0%	100/15 Summer			
S29.000	S72	480 Winter	30	+0%	30/30 Winter			
S29.001	S73	480 Winter	30	+0%	30/15 Winter			
S30.000	S74	240 Winter	30	+0%	30/15 Summer			
S30.001	S75	240 Winter	30	+0%	30/15 Summer			
S21.009	S76	480 Winter	30	+0%	100/15 Summer			
S31.000	S77	480 Winter	30	+0%	30/15 Winter			
S31.001	S78	480 Winter	30	+0%	1/360 Winter			
S32.000	S79	240 Winter	30	+0%	30/15 Summer			
S32.001	S80	240 Winter	30	+0%	30/15 Summer			
S33.000	S81	480 Winter	30	+0%	30/480 Winter			
S21.010	S82	480 Winter	30	+0%	30/240 Winter			
S21.011	S83	360 Winter	30	+0%	30/240 Winter			
S34.000	S84	360 Winter	30	+0%	30/15 Summer			
S34.001	S85	360 Winter	30	+0%	30/15 Summer			
S35.000	S86	360 Winter	30	+0%	30/15 Summer			
S35.001	S87	360 Winter	30	+0%	30/15 Summer			
S36.000	S88	360 Winter	30	+0%	30/15 Summer			
S36.001	S89	360 Winter	30	+0%	30/15 Summer			
S37.000	S90	480 Winter	30	+0%	30/15 Summer			
S37.001	S91	480 Winter	30	+0%	1/240 Winter			
S34.002	S92	15 Winter	30	+0%	100/15 Winter			
S38.000	S93	120 Winter	30	+0%	30/15 Summer			
S38.001	S94	120 Winter	30	+0%	30/15 Summer			
S39.000	S95	480 Winter	30	+0%	30/30 Summer			
S39.001	S96	480 Winter	30	+0%	30/15 Summer			
S40.000	S97	480 Winter	30	+0%	30/30 Winter			
S40.001	S98	480 Winter	30	+0%	30/30 Summer			
S41.000	S99	60 Winter	30	+0%	30/15 Summer			
S41.001	S100	60 Winter	30	+0%	30/15 Summer			
S42.000	S101	960 Winter	30	+0%	1/240 Summer			
S42.001	S102	960 Winter	30	+0%	1/15 Summer			
S40.002	S103	15 Winter	30	+0%	100/15 Summer			
S43.000	S104	480 Winter	30	+0%	30/30 Summer			
S43.001	S105	480 Winter	30	+0%	30/15 Winter			
S40.003	S106	15 Winter	30	+0%	100/15 Summer			
S44.000	S107	960 Winter	30	+0%	1/480 Winter			

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S21.003	S60	5.903	-0.120	0.000	0.43		16.6	OK	
S26.000	S61	6.163	0.063	0.000	0.04		0.1	SURCHARGED	
S26.001	S62	6.162	0.084	0.000	0.01		0.1	SURCHARGED	
S21.004	S63	5.573	-0.185	0.000	0.31		16.7	OK	
S21.005	S64	5.536	-0.187	0.000	0.30		16.7	OK	
S27.000	S65	6.121	0.171	0.000	0.04		0.1	SURCHARGED	
S27.001	S66	6.121	0.185	0.000	0.01		0.1	SURCHARGED	
S21.006	S67	5.506	-0.179	0.000	0.29		16.7	OK	
S21.007	S68	5.480	-0.159	0.000	0.44		25.0	OK	
S28.000	S69	5.962	0.112	0.000	0.08		0.2	SURCHARGED	
S28.001	S70	5.960	0.123	0.000	0.02		0.2	SURCHARGED	
S21.008	S71	5.467	-0.128	0.000	0.04		5.1	OK	
S29.000	S72	6.265	0.065	0.000	0.04		0.1	SURCHARGED	
S29.001	S73	6.264	0.087	0.000	0.01		0.1	SURCHARGED	
S30.000	S74	6.140	0.090	0.000	0.08		0.2	SURCHARGED	
S30.001	S75	6.139	0.103	0.000	0.01		0.2	SURCHARGED	
S21.009	S76	5.472	-0.038	0.000	0.04		5.4	OK	
S31.000	S77	6.343	0.143	0.000	0.05		0.1	SURCHARGED	
S31.001	S78	6.342	0.164	0.000	0.01		0.1	SURCHARGED	
S32.000	S79	6.235	0.135	0.000	0.09		0.3	SURCHARGED	
S32.001	S80	6.233	0.147	0.000	0.02		0.2	SURCHARGED	
S33.000	S81	5.445	0.005	0.000	0.15		15.4	SURCHARGED	
S21.010	S82	5.489	0.073	0.000	0.17		16.4	SURCHARGED	
S21.011	S83	5.503	0.111	0.000	0.11		10.2	SURCHARGED	
S34.000	S84	6.935	0.135	0.000	0.07		0.2	SURCHARGED	
S34.001	S85	6.934	0.143	0.000	0.02		0.2	SURCHARGED	
S35.000	S86	6.745	0.145	0.000	0.05		0.1	SURCHARGED	
S35.001	S87	6.744	0.160	0.000	0.01		0.1	SURCHARGED	
S36.000	S88	6.745	0.145	0.000	0.05		0.1	SURCHARGED	
S36.001	S89	6.744	0.160	0.000	0.01		0.1	SURCHARGED	
S37.000	S90	6.504	0.154	0.000	0.05		0.1	SURCHARGED	
S37.001	S91	6.503	0.179	0.000	0.03		0.1	SURCHARGED	
S34.002	S92	6.176	-0.078	0.000	0.46		10.9	OK	
S38.000	S93	6.005	0.105	0.000	0.10		0.3	SURCHARGED	
S38.001	S94	6.004	0.119	0.000	0.01		0.2	SURCHARGED	
S39.000	S95	6.430	0.130	0.000	0.04		0.3	SURCHARGED	
S39.001	S96	6.429	0.152	0.000	0.01		0.3	SURCHARGED	
S40.000	S97	6.319	0.069	0.000	0.03		0.1	SURCHARGED	
S40.001	S98	6.318	0.083	0.000	0.01		0.1	SURCHARGED	
S41.000	S99	6.366	0.116	0.000	0.25		0.7	SURCHARGED	
S41.001	S100	6.362	0.126	0.000	0.07		0.6	SURCHARGED	
S42.000	S101	6.825	0.225	0.000	0.14		0.4	SURCHARGED	
S42.001	S102	6.816	0.381	0.000	0.03		0.3	SURCHARGED	
S40.002	S103	5.867	-0.156	0.000	0.20		7.6	OK	
S43.000	S104	6.221	0.121	0.000	0.04		0.3	SURCHARGED	
S43.001	S105	6.220	0.144	0.000	0.01		0.3	SURCHARGED	
S40.003	S106	5.765	-0.065	0.000	0.83		24.9	OK	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.000	S107	6.383	0.183	0.000	0.05		0.1	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S44.001	S108	960 Winter	30	+0%	1/120 Winter			
S40.004	S109	15 Winter	30	+0%	100/15 Summer			
S45.000	S110	480 Winter	30	+0%	30/30 Summer			
S45.001	S111	480 Winter	30	+0%	30/15 Summer			
S46.000	S112	120 Winter	30	+0%	30/15 Summer			
S46.001	S113	120 Winter	30	+0%	30/15 Summer			
S47.000	S114	15 Winter	30	+0%	100/15 Summer			
S47.001	S115	15 Winter	30	+0%	100/480 Winter			
S40.005	S116	15 Winter	30	+0%	100/15 Summer			
S34.003	S117	15 Winter	30	+0%	30/15 Winter			
S48.000	S118	120 Winter	30	+0%	30/15 Summer			
S48.001	S119	120 Winter	30	+0%	30/15 Summer			
S49.000	S120	240 Winter	30	+0%	30/15 Summer			
S49.001	S121	240 Winter	30	+0%	30/15 Summer			
S50.000	S122	15 Winter	30	+0%	30/15 Summer			
S50.001	S123	15 Winter	30	+0%	30/15 Summer			
S48.002	S124	15 Winter	30	+0%	100/15 Summer			
S51.000	S125	240 Winter	30	+0%	30/15 Summer			
S51.001	S126	240 Winter	30	+0%	30/15 Summer			
S52.000	S127	480 Winter	30	+0%	30/15 Summer			
S52.001	S128	480 Winter	30	+0%	1/240 Winter			
S53.000	S129	480 Winter	30	+0%	30/15 Winter			
S53.001	S130	480 Winter	30	+0%	30/15 Summer			
S48.003	S131	15 Winter	30	+0%	100/15 Summer			
S48.004	S132	15 Winter	30	+0%	100/15 Summer			
S48.005	S133	15 Winter	30	+0%	100/15 Summer			
S48.006	S134	15 Winter	30	+0%	100/15 Summer			
S48.007	S135	15 Winter	30	+0%	100/15 Summer			
S54.000	S136	360 Winter	30	+0%	30/15 Winter			
S54.001	S137	360 Winter	30	+0%	30/15 Summer			
S48.008	S138	15 Winter	30	+0%	100/15 Summer			
S55.000	S139	480 Winter	30	+0%	30/15 Winter			
S55.001	S140	480 Winter	30	+0%	30/15 Summer			
S48.009	S141	480 Winter	30	+0%	30/480 Winter			
S48.010	S142	480 Winter	30	+0%	30/360 Winter			
S34.004	S143	480 Winter	30	+0%	30/240 Winter			
S34.005	S144	480 Winter	30	+0%	30/240 Winter			
S56.000	S145	480 Winter	30	+0%	30/240 Winter			
S21.012	S146	360 Winter	30	+0%	30/240 Winter			
S57.000	S147	960 Winter	30	+0%	100/60 Winter			
S57.001	S148	960 Winter	30	+0%	30/120 Winter			
S58.000	S149	15 Winter	30	+0%	100/240 Winter			
S57.002	S149	480 Winter	30	+0%	100/15 Winter			
S21.013	S147	360 Winter	30	+0%	1/15 Summer	100/120 Winter		

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30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.001	S108	6.381	0.220	0.000	0.01		0.1	SURCHARGED	
S40.004	S109	5.719	-0.066	0.000	0.83		25.0	OK	
S45.000	S110	6.530	0.130	0.000	0.04		0.3	SURCHARGED	
S45.001	S111	6.529	0.152	0.000	0.01		0.3	SURCHARGED	
S46.000	S112	6.348	0.098	0.000	0.10		0.3	SURCHARGED	
S46.001	S113	6.346	0.111	0.000	0.02		0.2	SURCHARGED	
S47.000	S114	6.107	-0.043	0.000	0.61		1.5	OK	
S47.001	S115	6.049	-0.077	0.000	0.12		1.5	OK	
S40.005	S116	5.569	-0.171	0.000	0.37		25.3	OK	
S34.003	S117	5.495	0.001	0.000	0.33		46.3	SURCHARGED	
S48.000	S118	6.395	0.145	0.000	0.16		0.5	SURCHARGED	
S48.001	S119	6.392	0.155	0.000	0.03		0.4	SURCHARGED	
S49.000	S120	6.349	0.099	0.000	0.10		0.2	SURCHARGED	
S49.001	S121	6.347	0.117	0.000	0.02		0.2	SURCHARGED	
S50.000	S122	6.342	0.092	0.000	0.81		2.4	SURCHARGED	
S50.001	S123	6.327	0.090	0.000	0.27		2.1	SURCHARGED	
S48.002	S124	5.690	-0.204	0.000	0.22		14.3	OK	
S51.000	S125	6.069	0.119	0.000	0.10		0.3	SURCHARGED	
S51.001	S126	6.067	0.142	0.000	0.03		0.2	SURCHARGED	
S52.000	S127	6.003	0.153	0.000	0.05		0.1	SURCHARGED	
S52.001	S128	6.002	0.177	0.000	0.03		0.1	SURCHARGED	
S53.000	S129	6.285	0.135	0.000	0.05		0.1	SURCHARGED	
S53.001	S130	6.285	0.153	0.000	0.01		0.1	SURCHARGED	
S48.003	S131	5.619	-0.154	0.000	0.46		30.2	OK	
S48.004	S132	5.562	-0.084	0.000	0.58		29.6	OK	
S48.005	S133	5.556	-0.064	0.000	0.60		29.9	OK	
S48.006	S134	5.548	-0.046	0.000	0.58		28.9	OK	
S48.007	S135	5.537	-0.031	0.000	0.51		27.4	OK	
S54.000	S136	6.110	0.110	0.000	0.03		0.1	SURCHARGED	
S54.001	S137	6.110	0.119	0.000	0.01		0.1	SURCHARGED	
S48.008	S138	5.518	-0.014	0.000	0.44		24.6	OK	
S55.000	S139	6.202	0.102	0.000	0.04		0.1	SURCHARGED	
S55.001	S140	6.201	0.115	0.000	0.01		0.1	SURCHARGED	
S48.009	S141	5.518	0.027	0.000	0.04		4.9	SURCHARGED	
S48.010	S142	5.514	0.070	0.000	0.09		8.4	SURCHARGED	
S34.004	S143	5.501	0.077	0.000	0.17		16.9	SURCHARGED	
S34.005	S144	5.509	0.113	0.000	0.17		17.0	SURCHARGED	
S56.000	S145	5.445	0.049	0.000	0.22		22.2	SURCHARGED	
S21.012	S146	5.534	0.164	0.000	0.19		26.7	SURCHARGED	
S57.000	S147	6.146	-0.004	0.000	0.02		0.1	OK	
S57.001	S148	6.146	0.047	0.000	0.00		0.1	SURCHARGED	
S58.000	S149	5.647	-0.103	0.000	0.21		4.2	OK	
S57.002	S149	5.558	-0.092	0.000	0.05		0.9	OK	
S21.013	S147	5.612	0.621	0.000	0.45		7.0	SURCHARGED	11

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
Hot Start Level (mm) 0 Inlet Coeffiecient 0.800
Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 56
Number of Online Controls 53 Number of Time/Area Diagrams 0
Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model	FEH
FEH Rainfall Version	1999
Site Location	GB 498650 101750 SU 98650 01750
C (1km)	-0.025
D1 (1km)	0.390
D2 (1km)	0.245
D3 (1km)	0.403
E (1km)	0.310
F (1km)	2.321
Cv (Summer)	0.750
Cv (Winter)	0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	480 Winter	100	+40%	100/30 Winter			
S1.001	S2	480 Winter	100	+40%	100/15 Summer			
S1.002	S3	480 Winter	100	+40%	100/15 Summer	100/240 Winter		
S1.003	S4	480 Winter	100	+40%	30/360 Winter			
S2.000	S5	480 Winter	100	+40%	100/30 Winter			
S3.000	S6	360 Winter	100	+40%	30/15 Winter			
S3.001	S7	360 Winter	100	+40%	30/15 Summer			
S4.000	S8	360 Winter	100	+40%	30/15 Summer			
S4.001	S9	360 Winter	100	+40%	30/15 Summer			
S5.000	S10	960 Winter	100	+40%	100/360 Winter			
S5.001	S11	960 Winter	100	+40%	100/240 Winter			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1	6.709	0.904	0.000	0.03		1.1	FLOOD RISK	
S1.001	S2	6.709	1.073	0.000	0.08		3.1	FLOOD RISK	
S1.002	S3	6.708	1.253	37.971	0.25		17.1	FLOOD	4
S1.003	S4	6.712	1.499	0.000	0.16		16.6	FLOOD RISK	
S2.000	S5	6.711	0.928	0.000	0.03		2.1	FLOOD RISK	
S3.000	S6	6.837	0.437	0.000	0.10		0.6	SURCHARGED	
S3.001	S7	6.836	0.454	0.000	0.02		0.6	SURCHARGED	
S4.000	S8	6.789	0.839	0.000	0.30		0.9	FLOOD RISK	
S4.001	S9	6.787	0.850	0.000	0.06		0.8	FLOOD RISK	
S5.000	S10	6.496	0.096	0.000	0.03		0.1	SURCHARGED	
S5.001	S11	6.496	0.107	0.000	0.01		0.1	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.004	S12	480 Winter	100	+40%	30/240 Winter			
S6.000	S13	240 Winter	100	+40%	30/15 Summer			
S6.001	S14	240 Winter	100	+40%	30/15 Summer			
S7.000	S15	240 Winter	100	+40%	30/15 Summer			
S7.001	S16	240 Winter	100	+40%	30/15 Summer			
S8.000	S17	240 Winter	100	+40%	30/15 Summer			
S8.001	S18	240 Winter	100	+40%	30/15 Summer			
S9.000	S19	240 Winter	100	+40%	30/15 Summer			
S9.001	S20	240 Winter	100	+40%	30/15 Summer			
S6.002	S21	360 Winter	100	+40%	100/240 Summer			
S10.000	S22	60 Winter	100	+40%	30/15 Summer			
S10.001	S23	60 Winter	100	+40%	30/15 Summer			
S11.000	S24	480 Winter	100	+40%	30/30 Winter			
S11.001	S25	480 Winter	100	+40%	30/15 Winter			
S12.000	S26	480 Winter	100	+40%	30/30 Winter			
S12.001	S27	480 Winter	100	+40%	30/15 Winter			
S13.000	S28	480 Winter	100	+40%	30/30 Winter			
S13.001	S29	480 Winter	100	+40%	30/15 Winter			
S1.005	S30	360 Winter	100	+40%	30/120 Winter			
S14.000	S31	480 Winter	100	+40%	30/15 Summer			
S14.001	S32	480 Winter	100	+40%	30/15 Summer			
S15.000	S33	360 Winter	100	+40%	30/15 Summer			
S15.001	S34	360 Winter	100	+40%	30/15 Summer			
S16.000	S35	15 Winter	100	+40%	30/15 Summer			
S16.001	S36	15 Winter	100	+40%	30/15 Summer			
S14.002	S37	480 Winter	100	+40%	100/120 Winter			
S17.000	S38	360 Winter	100	+40%	30/15 Summer			
S17.001	S39	360 Winter	100	+40%	30/15 Summer			
S18.000	S40	480 Winter	100	+40%	30/15 Summer			
S18.001	S41	480 Winter	100	+40%	1/240 Winter			
S1.006	S42	480 Winter	100	+40%	30/15 Winter			
S19.000	S43	480 Winter	100	+40%	30/30 Winter	100/360 Winter		
S1.007	S44	480 Winter	100	+40%	30/15 Summer	100/360 Winter		
S20.000	S45	15 Winter	100	+40%	30/15 Summer			
S20.001	S46	15 Winter	100	+40%	30/15 Summer			
S20.002	S47	480 Winter	100	+40%	30/15 Summer			
S1.008	S48	480 Winter	100	+40%	1/15 Summer			
S21.000	S49	480 Winter	100	+40%	30/60 Winter			
S21.001	S50	480 Winter	100	+40%	30/30 Winter			
S22.000	S51	60 Winter	100	+40%	30/15 Summer			
S22.001	S52	60 Winter	100	+40%	30/15 Summer			
S21.002	S53	960 Winter	100	+40%	100/480 Winter			
S23.000	S54	240 Winter	100	+40%	30/15 Summer			
S23.001	S55	240 Winter	100	+40%	30/15 Summer			
S24.000	S56	240 Winter	100	+40%	30/15 Summer			
S24.001	S57	240 Winter	100	+40%	30/15 Summer			
S25.000	S58	480 Winter	100	+40%	30/30 Winter			
S25.001	S59	480 Winter	100	+40%	30/15 Winter			

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PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.004	S12	6.712	1.531	0.000	0.09		14.0	FLOOD RISK	
S6.000	S13	7.053	0.403	0.000	0.15		0.4	SURCHARGED	
S6.001	S14	7.051	0.419	0.000	0.02		0.3	SURCHARGED	
S7.000	S15	7.047	0.347	0.000	0.15		0.4	SURCHARGED	
S7.001	S16	7.045	0.365	0.000	0.03		0.3	SURCHARGED	
S8.000	S17	7.101	0.401	0.000	0.16		0.4	SURCHARGED	
S8.001	S18	7.098	0.418	0.000	0.02		0.3	SURCHARGED	
S9.000	S19	7.050	0.350	0.000	0.14		0.4	SURCHARGED	
S9.001	S20	7.048	0.364	0.000	0.03		0.3	SURCHARGED	
S6.002	S21	6.718	0.406	0.000	0.08		3.4	SURCHARGED	
S10.000	S22	6.943	0.443	0.000	0.36		2.2	SURCHARGED	
S10.001	S23	6.936	0.454	0.000	0.03		2.0	SURCHARGED	
S11.000	S24	6.956	0.306	0.000	0.05		0.2	SURCHARGED	
S11.001	S25	6.955	0.319	0.000	0.01		0.1	SURCHARGED	
S12.000	S26	6.956	0.306	0.000	0.05		0.2	SURCHARGED	
S12.001	S27	6.955	0.319	0.000	0.01		0.1	SURCHARGED	
S13.000	S28	6.841	0.341	0.000	0.05		0.2	SURCHARGED	
S13.001	S29	6.841	0.354	0.000	0.01		0.1	SURCHARGED	
S1.005	S30	6.711	1.673	0.000	0.17		25.4	SURCHARGED	
S14.000	S31	6.797	0.747	0.000	0.13		0.3	FLOOD RISK	
S14.001	S32	6.796	0.763	0.000	0.04		0.3	FLOOD RISK	
S15.000	S33	6.836	0.386	0.000	0.13		0.3	SURCHARGED	
S15.001	S34	6.834	0.401	0.000	0.02		0.3	SURCHARGED	
S16.000	S35	6.859	0.359	0.000	1.06		7.6	SURCHARGED	
S16.001	S36	6.839	0.354	0.000	0.19		7.0	SURCHARGED	
S14.002	S37	6.710	0.806	0.000	0.11		4.5	SURCHARGED	
S17.000	S38	6.808	0.458	0.000	0.21		1.4	SURCHARGED	
S17.001	S39	6.809	0.484	0.000	0.02		1.3	SURCHARGED	
S18.000	S40	6.870	0.570	0.000	0.07		0.2	SURCHARGED	
S18.001	S41	6.870	0.586	0.000	0.01		0.2	SURCHARGED	
S1.006	S42	6.706	1.844	0.000	0.19		27.0	FLOOD RISK	
S19.000	S43	6.704	1.902	3.640	0.05		5.3	FLOOD	2
S1.007	S44	6.704	1.920	2.239	0.07		9.7	FLOOD	2
S20.000	S45	6.751	0.301	0.000	1.01		6.0	SURCHARGED	
S20.001	S46	6.729	0.300	0.000	0.07		5.5	SURCHARGED	
S20.002	S47	6.701	2.001	0.000	0.40		6.2	SURCHARGED	
S1.008	S48	6.758	2.333	0.000	0.43		7.0	FLOOD RISK	
S21.000	S49	6.792	0.242	0.000	0.06		0.1	SURCHARGED	
S21.001	S50	6.791	0.260	0.000	0.01		0.1	SURCHARGED	
S22.000	S51	6.948	0.398	0.000	0.43		1.2	SURCHARGED	
S22.001	S52	6.942	0.406	0.000	0.11		0.9	SURCHARGED	
S21.002	S53	6.224	0.029	0.000	0.03		1.3	SURCHARGED	
S23.000	S54	7.002	0.352	0.000	0.15		0.4	SURCHARGED	
S23.001	S55	6.999	0.373	0.000	0.02		0.3	SURCHARGED	
S24.000	S56	6.670	0.370	0.000	0.13		0.4	SURCHARGED	
S24.001	S57	6.668	0.381	0.000	0.05		0.3	SURCHARGED	
S25.000	S58	6.366	0.266	0.000	0.06		0.2	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S25.001	S59	6.365	0.286	0.000	0.05		0.1	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S21.003	S60	960 Winter	100	+40%	100/240 Winter			
S26.000	S61	480 Winter	100	+40%	30/30 Winter			
S26.001	S62	480 Winter	100	+40%	30/15 Summer			
S21.004	S63	960 Winter	100	+40%	100/15 Summer			
S21.005	S64	960 Winter	100	+40%	100/15 Summer			
S27.000	S65	480 Winter	100	+40%	30/15 Summer			
S27.001	S66	480 Winter	100	+40%	1/360 Winter			
S21.006	S67	960 Winter	100	+40%	100/15 Summer			
S21.007	S68	960 Winter	100	+40%	100/15 Summer			
S28.000	S69	480 Winter	100	+40%	30/15 Summer			
S28.001	S70	480 Winter	100	+40%	30/15 Summer			
S21.008	S71	960 Winter	100	+40%	100/15 Summer			
S29.000	S72	480 Winter	100	+40%	30/30 Winter			
S29.001	S73	480 Winter	100	+40%	30/15 Winter			
S30.000	S74	360 Winter	100	+40%	30/15 Summer			
S30.001	S75	360 Winter	100	+40%	30/15 Summer			
S21.009	S76	960 Winter	100	+40%	100/15 Summer			
S31.000	S77	480 Winter	100	+40%	30/15 Winter			
S31.001	S78	480 Winter	100	+40%	1/360 Winter			
S32.000	S79	240 Winter	100	+40%	30/15 Summer			
S32.001	S80	240 Winter	100	+40%	30/15 Summer			
S33.000	S81	960 Winter	100	+40%	30/480 Winter			
S21.010	S82	960 Winter	100	+40%	30/240 Winter			
S21.011	S83	960 Winter	100	+40%	30/240 Winter			
S34.000	S84	360 Winter	100	+40%	30/15 Summer			
S34.001	S85	360 Winter	100	+40%	30/15 Summer			
S35.000	S86	480 Winter	100	+40%	30/15 Summer			
S35.001	S87	480 Winter	100	+40%	30/15 Summer			
S36.000	S88	480 Winter	100	+40%	30/15 Summer			
S36.001	S89	480 Winter	100	+40%	30/15 Summer			
S37.000	S90	480 Winter	100	+40%	30/15 Summer			
S37.001	S91	480 Winter	100	+40%	1/240 Winter			
S34.002	S92	15 Winter	100	+40%	100/15 Winter			
S38.000	S93	240 Winter	100	+40%	30/15 Summer			
S38.001	S94	240 Winter	100	+40%	30/15 Summer			
S39.000	S95	480 Winter	100	+40%	30/30 Summer			
S39.001	S96	480 Winter	100	+40%	30/15 Summer			
S40.000	S97	480 Winter	100	+40%	30/30 Winter			
S40.001	S98	480 Winter	100	+40%	30/30 Summer			
S41.000	S99	60 Winter	100	+40%	30/15 Summer			
S41.001	S100	60 Winter	100	+40%	30/15 Summer			
S42.000	S101	960 Winter	100	+40%	1/240 Summer			
S42.001	S102	960 Winter	100	+40%	1/15 Summer			
S40.002	S103	960 Winter	100	+40%	100/15 Summer			
S43.000	S104	480 Winter	100	+40%	30/30 Summer			
S43.001	S105	480 Winter	100	+40%	30/15 Winter			
S40.003	S106	960 Winter	100	+40%	100/15 Summer			
S44.000	S107	960 Winter	100	+40%	1/480 Winter			

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S21.003	S60	6.228	0.205	0.000	0.10		3.9	SURCHARGED	
S26.000	S61	6.366	0.266	0.000	0.06		0.2	SURCHARGED	
S26.001	S62	6.365	0.287	0.000	0.01		0.1	SURCHARGED	
S21.004	S63	6.244	0.486	0.000	0.29		15.8	SURCHARGED	
S21.005	S64	6.245	0.522	0.000	0.30		16.5	SURCHARGED	
S27.000	S65	6.451	0.501	0.000	0.07		0.2	SURCHARGED	
S27.001	S66	6.451	0.514	0.000	0.01		0.2	SURCHARGED	
S21.006	S67	6.245	0.560	0.000	0.26		15.0	SURCHARGED	
S21.007	S68	6.250	0.611	0.000	0.25		14.3	SURCHARGED	
S28.000	S69	6.248	0.398	0.000	0.11		0.3	SURCHARGED	
S28.001	S70	6.249	0.411	0.000	0.03		0.3	SURCHARGED	
S21.008	S71	6.264	0.669	0.000	0.10		13.7	SURCHARGED	
S29.000	S72	6.466	0.266	0.000	0.06		0.2	SURCHARGED	
S29.001	S73	6.465	0.288	0.000	0.02		0.1	SURCHARGED	
S30.000	S74	6.374	0.324	0.000	0.12		0.3	SURCHARGED	
S30.001	S75	6.373	0.337	0.000	0.02		0.3	SURCHARGED	
S21.009	S76	6.270	0.760	0.000	0.09		13.3	SURCHARGED	
S31.000	S77	6.621	0.421	0.000	0.07		0.2	SURCHARGED	
S31.001	S78	6.620	0.442	0.000	0.01		0.1	SURCHARGED	
S32.000	S79	6.521	0.421	0.000	0.14		0.4	SURCHARGED	
S32.001	S80	6.519	0.432	0.000	0.02		0.3	SURCHARGED	
S33.000	S81	6.275	0.835	0.000	0.38		39.5	SURCHARGED	
S21.010	S82	6.274	0.858	0.000	0.45		44.6	SURCHARGED	
S21.011	S83	6.287	0.895	0.000	0.33		31.7	SURCHARGED	
S34.000	S84	7.212	0.412	0.000	0.11		0.4	SURCHARGED	
S34.001	S85	7.211	0.420	0.000	0.03		0.3	SURCHARGED	
S35.000	S86	7.037	0.437	0.000	0.07		0.2	SURCHARGED	
S35.001	S87	7.036	0.451	0.000	0.01		0.2	SURCHARGED	
S36.000	S88	7.037	0.437	0.000	0.07		0.2	SURCHARGED	
S36.001	S89	7.036	0.451	0.000	0.01		0.2	SURCHARGED	
S37.000	S90	6.799	0.449	0.000	0.08		0.2	SURCHARGED	
S37.001	S91	6.798	0.473	0.000	0.04		0.2	SURCHARGED	
S34.002	S92	6.264	0.010	0.000	0.92		21.7	SURCHARGED	
S38.000	S93	6.284	0.384	0.000	0.14		0.4	SURCHARGED	
S38.001	S94	6.283	0.399	0.000	0.02		0.3	SURCHARGED	
S39.000	S95	6.760	0.460	0.000	0.06		0.4	SURCHARGED	
S39.001	S96	6.759	0.483	0.000	0.01		0.4	SURCHARGED	
S40.000	S97	6.516	0.266	0.000	0.05		0.1	SURCHARGED	
S40.001	S98	6.515	0.280	0.000	0.01		0.1	SURCHARGED	
S41.000	S99	6.648	0.398	0.000	0.43		1.2	SURCHARGED	
S41.001	S100	6.642	0.406	0.000	0.11		0.9	SURCHARGED	
S42.000	S101	7.117	0.517	0.000	0.20		0.5	SURCHARGED	
S42.001	S102	7.106	0.671	0.000	0.04		0.4	SURCHARGED	
S40.002	S103	6.233	0.210	0.000	0.08		2.9	SURCHARGED	
S43.000	S104	6.551	0.451	0.000	0.06		0.4	SURCHARGED	
S43.001	S105	6.550	0.474	0.000	0.01		0.3	SURCHARGED	
S40.003	S106	6.232	0.402	0.000	0.49		14.7	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.000	S107	6.659	0.459	0.000	0.06		0.2	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S44.001	S108	960 Winter	100	+40%	1/120 Winter			
S40.004	S109	960 Winter	100	+40%	100/15 Summer			
S45.000	S110	480 Winter	100	+40%	30/30 Summer			
S45.001	S111	480 Winter	100	+40%	30/15 Summer			
S46.000	S112	240 Winter	100	+40%	30/15 Summer			
S46.001	S113	240 Winter	100	+40%	30/15 Summer			
S47.000	S114	960 Winter	100	+40%	100/15 Summer			
S47.001	S115	960 Winter	100	+40%	100/480 Winter			
S40.005	S116	960 Winter	100	+40%	100/15 Summer			
S34.003	S117	960 Winter	100	+40%	30/15 Winter			
S48.000	S118	120 Winter	100	+40%	30/15 Summer			
S48.001	S119	120 Winter	100	+40%	30/15 Summer			
S49.000	S120	240 Winter	100	+40%	30/15 Summer			
S49.001	S121	240 Winter	100	+40%	30/15 Summer			
S50.000	S122	15 Winter	100	+40%	30/15 Summer			
S50.001	S123	15 Winter	100	+40%	30/15 Summer			
S48.002	S124	960 Winter	100	+40%	100/15 Summer			
S51.000	S125	240 Winter	100	+40%	30/15 Summer			
S51.001	S126	240 Winter	100	+40%	30/15 Summer			
S52.000	S127	960 Winter	100	+40%	30/15 Summer			
S52.001	S128	960 Winter	100	+40%	1/240 Winter			
S53.000	S129	480 Winter	100	+40%	30/15 Winter			
S53.001	S130	480 Winter	100	+40%	30/15 Summer			
S48.003	S131	960 Winter	100	+40%	100/15 Summer			
S48.004	S132	960 Winter	100	+40%	100/15 Summer			
S48.005	S133	960 Winter	100	+40%	100/15 Summer			
S48.006	S134	960 Winter	100	+40%	100/15 Summer			
S48.007	S135	960 Winter	100	+40%	100/15 Summer			
S54.000	S136	480 Winter	100	+40%	30/15 Winter			
S54.001	S137	480 Winter	100	+40%	30/15 Summer			
S48.008	S138	960 Winter	100	+40%	100/15 Summer			
S55.000	S139	480 Winter	100	+40%	30/15 Winter			
S55.001	S140	480 Winter	100	+40%	30/15 Summer			
S48.009	S141	960 Winter	100	+40%	30/480 Winter			
S48.010	S142	960 Winter	100	+40%	30/360 Winter			
S34.004	S143	960 Winter	100	+40%	30/240 Winter			
S34.005	S144	960 Winter	100	+40%	30/240 Winter			
S56.000	S145	960 Winter	100	+40%	30/240 Winter			
S21.012	S146	960 Winter	100	+40%	30/240 Winter			
S57.000	S147	960 Winter	100	+40%	100/60 Winter			
S57.001	S148	960 Winter	100	+40%	30/120 Winter			
S58.000	S149	960 Winter	100	+40%	100/240 Winter			
S57.002	S149	960 Winter	100	+40%	100/15 Winter			
S21.013	S147	360 Winter	100	+40%	1/15 Summer	100/120 Winter		

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100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for SW Network

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S44.001	S108	6.658	0.497	0.000	0.01		0.2	SURCHARGED	
S40.004	S109	6.237	0.452	0.000	0.47		14.2	SURCHARGED	
S45.000	S110	6.860	0.460	0.000	0.06		0.4	SURCHARGED	
S45.001	S111	6.859	0.482	0.000	0.02		0.4	SURCHARGED	
S46.000	S112	6.598	0.348	0.000	0.13		0.4	SURCHARGED	
S46.001	S113	6.596	0.360	0.000	0.03		0.3	SURCHARGED	
S47.000	S114	6.177	0.027	0.000	0.27		0.7	SURCHARGED	
S47.001	S115	6.223	0.097	0.000	0.11		1.4	SURCHARGED	
S40.005	S116	6.262	0.522	0.000	0.12		8.1	SURCHARGED	
S34.003	S117	6.279	0.785	0.000	0.16		22.9	SURCHARGED	
S48.000	S118	6.698	0.448	0.000	0.25		0.8	SURCHARGED	
S48.001	S119	6.694	0.457	0.000	0.05		0.6	SURCHARGED	
S49.000	S120	6.601	0.351	0.000	0.15		0.4	SURCHARGED	
S49.001	S121	6.598	0.368	0.000	0.04		0.3	SURCHARGED	
S50.000	S122	6.619	0.369	0.000	1.42		4.2	SURCHARGED	
S50.001	S123	6.593	0.356	0.000	0.44		3.4	SURCHARGED	
S48.002	S124	6.236	0.342	0.000	0.08		5.5	SURCHARGED	
S51.000	S125	6.353	0.403	0.000	0.16		0.4	SURCHARGED	
S51.001	S126	6.351	0.425	0.000	0.04		0.3	SURCHARGED	
S52.000	S127	6.333	0.483	0.000	0.07		0.2	SURCHARGED	
S52.001	S128	6.333	0.507	0.000	0.04		0.1	SURCHARGED	
S53.000	S129	6.558	0.408	0.000	0.07		0.2	SURCHARGED	
S53.001	S130	6.557	0.426	0.000	0.02		0.1	SURCHARGED	
S48.003	S131	6.233	0.460	0.000	0.24		15.4	SURCHARGED	
S48.004	S132	6.238	0.592	0.000	0.25		12.8	SURCHARGED	
S48.005	S133	6.239	0.619	0.000	0.28		13.7	SURCHARGED	
S48.006	S134	6.240	0.646	0.000	0.28		13.9	SURCHARGED	
S48.007	S135	6.245	0.677	0.000	0.26		14.0	SURCHARGED	
S54.000	S136	6.375	0.375	0.000	0.05		0.2	SURCHARGED	
S54.001	S137	6.375	0.384	0.000	0.01		0.1	SURCHARGED	
S48.008	S138	6.256	0.724	0.000	0.29		16.3	SURCHARGED	
S55.000	S139	6.446	0.346	0.000	0.06		0.2	SURCHARGED	
S55.001	S140	6.446	0.360	0.000	0.01		0.1	SURCHARGED	
S48.009	S141	6.267	0.776	0.000	0.13		16.5	SURCHARGED	
S48.010	S142	6.268	0.824	0.000	0.23		21.9	SURCHARGED	
S34.004	S143	6.269	0.845	0.000	0.45		46.0	SURCHARGED	
S34.005	S144	6.295	0.899	0.000	0.47		46.7	SURCHARGED	
S56.000	S145	6.234	0.838	0.000	0.44		44.0	FLOOD RISK	
S21.012	S146	6.314	0.944	0.000	0.41		58.4	FLOOD RISK	
S57.000	S147	6.294	0.144	0.000	0.02		0.1	SURCHARGED	
S57.001	S148	6.296	0.197	0.000	0.00		0.1	SURCHARGED	
S58.000	S149	6.098	0.348	0.000	0.57		11.2	SURCHARGED	
S57.002	S149	6.304	0.654	0.000	0.31		6.3	FLOOD RISK	
S21.013	S147	6.350	1.359	0.481	0.45		7.0	FLOOD	11

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