

DRAINAGE DESIGN CALCULATIONS

POUND PLACE, ANGMERING

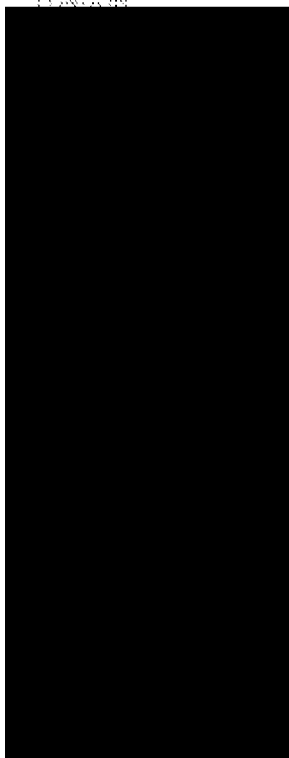
SAVISTA DESIGN AND BUILD

OCTOBER 2019

1612-ISS-XX-XX-RP-C-0001

ISSUES STRUCTURES

LONDON



DRAINAGE DESIGN CALCULATIONS

1612-ISS-XX-XX-RP-C-0001

REPORT ISSUE

Revision	Date	Notes
P01	31/10/2019	First Issue
P02	22/11/19	Second Issue Following Planner's Comments

PREPARED BY

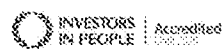
Paul Laverty October 2019

REVIEWED BY

Tom Wilson October 2019

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LONDON BRISTOL MANCHESTER

IESISGROUP



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1 SUMMARY SHEET

Design Codes	Sewers for Adoption (latest Edition) Document H~
Intended Use of Structure	Care home
FRA or DSR	Drainage Design Strategy Ref ~ 18 031 Report by Arc Engineers Key pages extracted Refer to Arc Engineers drainage plan for soakaway locations and tables for infiltration rates
Surface Water Modelling	Site modelled using Microdrainage 1yr ~ no surcharging of sewers ~ criteria met (only pipes connecting to attenuation cells surcharge) 30yr ~ sewers surcharge but no flooding - criteria met 100yr + CC ~ flooding in controlled areas and non-excessive depths ~ criteria met (0.029m ³ located to the south east corner in the soft landscaping area) MicroDrainage print outs for the 4 networks draining to separate soakaways provided (ref SE1612-ISS-XX-XX-CA-C-0051 to 0054)
Foul Water Flows	Flow rates for main runs calculated using unit discharge method. Refer to calculation sheet ref SE1612-ISS-XX-XX-CA-C-0002 for flow calculations. MicroDrainage printout ref SE1612-ISS-XX-XX-CA-C-0050.
Any Other Relevant Information (e.g. fire requirements)	

2 APPROVED STRATEGY

The Drainage Design Strategy Report (DDSR) set out the general strategy for the site to which this design has followed.

Surface water is to discharge to multiple locations across the site by means of cellular storage. Permeable paving is to be used in the parking bays to provide water quality assurances before discharging to the soakaways.

Extracts of the DDSR can be found in Appendix A that shows the location and the resulting infiltration testing for 3 trial pits.

Foul water is to drain to the network being adopted by Southern Water to the east.

Ground water monitoring was not carried out as part of the site investigation and has recently been questioned as to what the level is. The development along the Site's south boundary carried out ground water monitoring from Oct. 2011 to November 2012 during the winter period and found no traces of water to a depth of 4mbgl. An extract of the site investigation for this development (ref. Former Nursery Adjacent to Roundstone Lane, Angmering, West Sussex) is provided in Appendix A.

3 DESIGN STATEMENT

The care home is to consist of standard domestic showers, sinks, toilet facilities and a canteen kitchen. Foul flows are to gravitate to the west as requested by Southern Water via gravity if possible.

Surface water flows are to infiltrate using cellular storage crates infiltrating to the sides only as required by the Arun District Council. Infiltration rates have been calculated by IESIS Structures based on the provided data taken from the DDSR and copies of these calculations are provided in Appendix B of this report

All drainage is to be designed to Sewers For Adoption standards and Document :H~where applicable.

4 DESIGN PROCEEDURE

Microdrainage has modelled the surface water using the infiltration rates as per the DDSR with a dummy manhole downstream of the soakaway with a weir set to ground level. The results show that all storm water was held and infiltrated by the soakaway as there was no downstream discharge.

1yr Storm event - Pipes do not surcharge except the pipes connecting to the cellular storage but not excessively
30yr event - The proposed networks do not flood.

100yr event + 40% CC - One manhole floods by 0.029m³ located to the south east corner in the soft landscaping area.

Microdrainage has modelled the foul water network using base flows to represent the combined flows calculated using the unit discharge method. Southern Water has commented to the Client that they prefer the site to drain to their network to the west. A formal capacity check is being prepared for submission to formally approve the specific manhole.

The Arun District Council checklist titled Surface Water Drainage Proposal Checklist² has been completed and provided in Appendix B.

Calculations including MicroDrainage reports can be found in Appendix B. The IESIS drainage strategy, drainage construction details, impermeable area plans can be found in Appendix C. The detailed drainage plan has followed the principles of the DDSR with the appropriate amendments as the designs by the other disciplines have been detailed and refined.

APPENDIX A

ALEXANDER

LAMBERT WAY

TP01

TP02

WS02

WS04

TP03

WS01

WS03

WS05

ASHDOWN SITE INVESTIGATION LIMITED

Site: Pound Place, Angmering, West Sussex

Report No.: R18-12844

Sheet No.: 1 of 3

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

TP01 (Test 1)		TP01 (Test 2)		TP01 (Test 3)	
Time (secs)	Depth to water (m bgl)	Time (secs)	Depth to water (m bgl)	Time (secs)	Depth to water (m bgl)
0	1.90	0	1.10	0	0.96
10	2.13	10	1.54	10	1.40
20	2.33	20	1.85	20	1.67
30	2.54	30	2.13	30	1.84
40	2.73	40	2.34	40	2.00
50	Dry	50	Dry at 2.50*	50	2.16
				60	2.25
				70	Dry at 2.30*
Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 2.80m bgl		Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 2.80m bgl		Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 2.80m bgl	

Remarks: bgl - below ground level.

*Trial pit collapsed during soakage testing.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Pound Place, Angmering, West Sussex

Report No.: R18-12844

Sheet No.: 2 of 3

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

TP02 (Test 1)		TP02 (Test 2)		TP02 (Test 3)	
Time (secs)	Depth to water (m bgl)	Time (secs)	Depth to water (m bgl)	Time (secs)	Depth to water (m bgl)
0	0.95	0	0.85	0	0.87
10	1.43	10	1.25	10	1.16
20	1.73	20	1.48	20	1.32
30	2.05	30	1.70	30	1.50
40	2.22	40	1.96	40	1.70
50	2.36	50	2.05	50	1.85
60	2.43	60	2.16	60	2.00
90	2.55	90	2.33	90	2.20
120	Dry at 2.60*	120	Dry at 2.40*	120	Dry at 2.40
Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 3.00m bgl		Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 3.00m bgl		Pit Length - 0.45m Pit Width - 1.90m Pit Depth - 3.00m bgl	

Remarks: bgl - below ground level.

*Trial pit collapsed during soakage testing.

ASHDOWN SITE INVESTIGATION LIMITED

Site: Pound Place, Angmering, West Sussex

Report No.: R18-12844

Sheet No.: 3 of 3

SUMMARY OF TRIAL PIT FALLING HEAD SOAKAGE TEST RESULTS

TP03 (Test 1)		TP03 (Test 2)		TP03 (Test 3)	
Time (mins)	Depth to water (m bgl)	Time (mins)	Depth to water (m bgl)	Time (mins)	Depth to water (m bgl)
0	0.50	0	0.54	0	0.51
0.25	0.55	0.5	0.59	1	0.58
0.50	0.60	1	0.61	2	0.60
1	0.63	2	0.64	8	0.66
2	0.63	4	0.68	14	0.70
3	0.64	8	0.74	24	0.74
4	0.65	12	0.79	35	0.77
8	0.68	16	0.82	48	0.79
16	Dry at 0.75*	22	0.85	50	Dry
		28	Dry		
Pit Length - 0.30m Pit Width - 0.30m Pit Depth - 0.90m bgl		Pit Length - 0.30m Pit Width - 0.30m Pit Depth - 0.90m bgl		Pit Length - 0.30m Pit Width - 0.30m Pit Depth - 0.90m bgl	

Remarks: bgl - below ground level.

*Trial pit collapsed during soakage testing and cleared to 0.90m before start of second test.

licensed groundwater abstraction. Further information provided by the Environment Agency does not indicate the presence of any active or historical landfill sites within 500m of the site, with no indications of any other potentially contaminative land uses such as waste processing sites, fuel filling stations or pollution incidents recorded within the vicinity of the site.

The site is not indicated to be in a location or geological setting where there is considered to be an increased risk of chalk dissolution, over and above the risk on any site underlain by chalk.

Information provided by the Health Protection Agency (HPA) confirms the site to be located in an area where between 1% and 3% of houses are above the action level for radon emissions and in the vicinity of an area where between 5% and 10% of houses are affected. On this basis and following further checks of the HPA database by means of CON29 searches of the surrounding properties, radon protective measures will be required as part of the construction of new buildings.

Preliminary Conceptual Site Model Summary and Risk Assessment

Whilst the long history of agricultural use of this site is not considered to present a potentially contaminative history, the subsequent use of the site as a plant nursery may be considered to be potentially contaminative. This is due to the potential for the use and storage of a wide range of potentially contaminative oils, solvents, sprays and agricultural chemicals, pesticides, fungicides and herbicides at this site.

The absence of substantial structures such as glass houses, oil fired soil and air heating systems and the relatively 'low-key' commercial nature of the nursery at this site would, however suggest that the potential for significant storage and widespread use of potentially hazardous chemicals is perhaps rather limited. Furthermore, as most of the commonly used herbicides, fungicides and pesticides are not expected to be biologically persistent, the time that has elapsed since the use of the nursery would be expected to have mitigated the potential risk posed by any such compounds, if they have been used and stored at this site.

Whilst the site is not shown to be located within any classification of groundwater Source Protection Zone, the anticipated presence of assumed high permeability chalk soils would not be expected to mitigate the migration of any potential contamination at this site, although the depth to groundwater could reduce the potential implications of any such contamination, should they be present.

Ground Conditions

A variable thickness of topsoil and reworked topsoil with occasional brick fragments has been encountered in each of the exploratory positions to depths of between 0.20m and 0.40m. A low strength, becoming medium strength and locally high strength silty sandy clay was subsequently encountered to depths of between 1.60 m and 2.30 m below ground level.

Underlying these clay soils, variably sandy gravel was encountered and proved to the maximum depth of investigation in the boreholes at a depth of up to 4.00 m. Locally, within land adjoining the site, these granular soils have been found to be underlain by a medium strength brown sandy clay at a depth of about 5.00 m below ground level.

Groundwater was not encountered as part of the physical investigation of this site, and no visual or olfactory indications of ground contamination were noted as part of the fieldwork phase of the ground investigation.

The monitoring of the installed groundwater monitoring standpipes during the winter period from October 2011 to November 2012 has not indicated the presence of groundwater to a depth of at least 4.00 m below ground level, which is the maximum depth of investigation at this site.

APPENDIX B

$$(Q_{ww}) = Y \sqrt{\frac{1}{2} \text{ 亩侧}}$$

K = frequency factor

5- 31 1000000000 1000 1000

Frequency Factor

Usage of Appliances		k
Intermittent	i.e. dwelling, guesthouse, office	0.5
Frequent	i.e. hospital, school, restaurant, hotel	0.7
Congested	i.e. toilets/showers open to public	1
Special	i.e. laboratory	1.2

Discharge Unit	DU
Bath	0.8
Dishwasher (household)	0.8
Floor gully DN50	0.8
Floor gully DN70	1.5
Floor gully DN100	2.0
Kitchen sink	0.8
Shower with plug	0.8
Shower without plug	0.6
Slab urinal	0.2
Urinal with flushing valve	0.5
Urinal with cistern	0.8
Wash basin, bidet	0.5
Washing machine (0-6kg)	0.8
Washing machine (6-12kg)	1.5
WC with 6l cistern	2.0
WC with 7.5l cistern	2.0
WC with 9l cistern	2.5
None	

Location	Discharge Unit	Rate	No. of Units	Total DU
Main run along north side of the building and west side as well	Bath	0.8	68	54.4
	Shower without plug	0.6	68	40.8
	Wash basin, bidet	0.5	68	34
Main run along north side of the building and west side as well	Dishwasher (household)	0.8	6	4.8
	Kitchen sink	0.8	7	5.6
	None	0		0
Net discharge from Units (ij DU in l/s) =				139.6

Net discharge from Units (ij DU in l/s) =	139.6
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$$(Q_{ww}) = Y\sqrt{\frac{Q}{\mu}} = 0.5 \times (139.6)^{0.5} = 5.908 \text{ l/s}$$

Location	Discharge Unit	Rate	No. of Units	Total DU
Secondary run along south side, stacks at the start of the run	Bath	0.8	7	5.6
	Shower without plug	0.6	7	4.2
	Wash basin, bidet	0.5	7	3.5
Net discharge from Units (ij DU in l/s) =				13.3

Net discharge from Units (ij DU in l/s) =	13.3
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$$(Q_{ww}) = Y\sqrt{\omega_{侧}} = 0.5 \times (13.3)^{0.5} = 1.823 \text{ l/s}$$

Surface Water Infiltration Rates		Design/Date	Checked/Date	Ref:	Rev	Suitability
		PL/25.11.19		SE1612-ISS-XX-XX-CA-C-0003	P01	
Stage	3 - Preliminary					

Below values taken from Drainage Design Strategy Report (DDSR) by ARC Engineers

Test Pit 1

Test	1	2	3	m
Pit Length	0.45	0.45	0.45	m
Pit Width	1.90	1.90	1.90	m
Pit depth	2.80	2.50	2.30	m

Test Pit 3

1	2	3	m
0.30	0.30	0.30	m
0.30	0.30	0.30	m
0.75	0.90	0.90	m

Volume 100%	2.39	2.14	1.97	m ³
Volume 75%	1.80	1.60	1.47	m ³
Volume 25%	0.60	0.53	0.49	m ³
Volume 0%	0	0	0	m ³
Volume 75%-25%	1.20	1.07	0.98	m ³

0.07	0.08	0.08	m ³
0.05	0.06	0.06	m ³
0.02	0.02	0.02	m ³
0	0	0	m ³
0.03	0.04	0.04	m ³

Time 100%	0	0	0	s
Time 75%	37.5	37.5	52.5	s
Time 25%	12.5	12.5	17.5	s
Time 0%	50	50	70	s
Time 75% - 25%	25	25	35	s

0	0	0	min
12	21	37.5	min
4	7	12.5	min
16	28	50	min
8	14	25	min

Perimter at 50%	7.435	6.730	6.260	m ²
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0.540	0.630	0.630	m ²
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Result

0.01	0.01	0.00	m/s
23.18	22.87	16.16	m/hr
Rate to be used for western area of site =		16.16	m/hr

0.01	0.00	0.00	m/min
0.47	0.28	0.15	m/hr
Rate to be used for eastern area of site =		0.15	m/hr

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20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place, Angmering Proposed FW	
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Innovyze	Network 2018.1.1	

FOUL SEWERAGE DESIGN

Network Design Table for Foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.000	2.708	0.032	84.6	0.000	0	5.0	1.500	o	150	Pipe/Conduit	
F2.000	2.257	0.032	70.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.001	6.308	0.079	79.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F3.000	2.250	0.131	17.2	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.002	4.624	0.039	118.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F4.000	2.250	0.230	9.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.003	3.911	0.033	118.5	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F5.000	2.250	0.203	11.1	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.004	6.898	0.057	121.0	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F6.000	2.250	0.260	8.7	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F1.005	9.344	0.078	119.8	0.000	0	0.0	1.500	o	150	Pipe/Conduit	
F7.000	2.250	0.088	25.6	0.000	0	0.0	1.500	o	150	Pipe/Conduit	

Network Results Table

PN	US/IL (m)	√ Area (ha)	√ Base Flow (l/s)	√ Hse	Add Flow (l/s)	P. Dep (mm)	P. Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.000	13.950	0.000	5.0	0	0.0	56	0.83	0.95	16.8	5.0
F2.000	13.950	0.000	0.0	0	0.0	0	0.00	1.04	18.4	0.0
F1.001	13.918	0.000	5.0	0	0.0	55	0.85	0.98	17.3	5.0
F3.000	13.970	0.000	0.0	0	0.0	0	0.00	2.12	37.5	0.0
F1.002	13.839	0.000	5.0	0	0.0	61	0.73	0.80	14.2	5.0
F4.000	13.970	0.000	0.0	0	0.0	0	0.00	2.81	49.7	0.0
F1.003	13.800	0.000	5.0	0	0.0	61	0.73	0.80	14.2	5.0
F5.000	13.970	0.000	0.0	0	0.0	0	0.00	2.64	46.7	0.0
F1.004	13.767	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F6.000	13.970	0.000	0.0	0	0.0	0	0.00	2.99	52.8	0.0
F1.005	13.710	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F7.000	13.720	0.000	0.0	0	0.0	0	0.00	1.74	30.7	0.0

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FOUL SEWERAGE DESIGN

Network Design Table for Foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.006	7.114	0.059	120.6	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F8.000	2.250	0.147	15.3	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.007	8.094	0.067	120.8	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F9.000	2.250	0.214	10.5	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.008	4.035	0.034	118.7	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F10.000	2.492	0.248	10.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.009	7.541	0.063	119.7	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F11.000	3.073	0.121	25.4	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.010	7.454	0.062	120.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F12.000	2.475	0.183	13.5	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.011	5.127	0.043	119.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F13.000	2.250	0.226	10.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	

Network Results Table

PN	US/IL (m)	√ Area (ha)	√ Base Flow (l/s)	√ Hse	Add Flow (l/s)	P. Dep (mm)	P. Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.006	13.632	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F8.000	13.720	0.000	0.0	0	0.0	0	0.00	2.25	39.7	0.0
F1.007	13.573	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F9.000	13.720	0.000	0.0	0	0.0	0	0.00	2.71	47.9	0.0
F1.008	13.506	0.000	5.0	0	0.0	62	0.73	0.80	14.2	5.0
F10.000	13.720	0.000	0.0	0	0.0	0	0.00	2.77	49.0	0.0
F1.009	13.472	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F11.000	13.530	0.000	0.0	0	0.0	0	0.00	1.74	30.8	0.0
F1.010	13.469	0.000	5.0	0	0.0	62	0.73	0.80	14.1	5.0
F12.000	13.530	0.000	0.0	0	0.0	0	0.00	2.39	42.2	0.0
F1.011	13.347	0.000	5.0	0	0.0	62	0.73	0.80	14.2	5.0
F13.000	13.530	0.000	0.0	0	0.0	0	0.00	2.79	49.3	0.0

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FOUL SEWERAGE DESIGN

Network Design Table for Foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F1.012	2.722	0.023	118.3	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.013	14.265	0.143	99.8	0.000	0	0.7	1.500	o	150	Pi pe/Conduit	
F1.014	13.793	0.138	99.9	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F14.000	3.579	0.100	35.8	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.015	6.193	0.408	15.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F15.000	9.243	0.101	91.5	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.000	12.787	0.150	85.2	0.000	0	2.0	1.500	o	150	Pi pe/Conduit	
F16.001	8.862	0.130	68.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.002	7.829	0.079	99.1	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F17.000	4.113	0.359	11.5	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.003	23.350	0.234	99.8	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F18.000	2.980	0.123	24.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.004	14.368	0.144	99.8	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F19.000	6.876	0.267	25.8	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	

Network Results Table

PN	US/IL (m)	√ Area (ha)	√ Base Flow (l/s)	√ Hse	Add Flow (l/s)	P. Dep (mm)	P. Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F1.012	13.304	0.000	5.0	0	0.0	61	0.73	0.80	14.2	5.0
F1.013	13.281	0.000	5.7	0	0.0	63	0.81	0.88	15.5	5.7
F1.014	13.138	0.000	5.7	0	0.0	63	0.81	0.88	15.5	5.7
F14.000	13.970	0.000	0.0	0	0.0	0	0.00	1.47	25.9	0.0
F1.015	13.000	0.000	5.7	0	0.0	38	1.59	2.26	39.8	5.7
F15.000	13.970	0.000	0.0	0	0.0	0	0.00	0.92	16.2	0.0
F16.000	13.970	0.000	2.0	0	0.0	35	0.64	0.95	16.8	2.0
F16.001	13.820	0.000	2.0	0	0.0	33	0.69	1.06	18.8	2.0
F16.002	13.690	0.000	2.0	0	0.0	36	0.60	0.88	15.5	2.0
F17.000	13.970	0.000	0.0	0	0.0	0	0.00	2.60	45.9	0.0
F16.003	13.611	0.000	2.0	0	0.0	37	0.60	0.88	15.5	2.0
F18.000	13.500	0.000	0.0	0	0.0	0	0.00	1.78	31.5	0.0
F16.004	13.377	0.000	2.0	0	0.0	37	0.60	0.88	15.5	2.0
F19.000	13.500	0.000	0.0	0	0.0	0	0.00	1.73	30.6	0.0

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Innovyze	Network 2018.1.1	

FOUL SEWERAGE DESIGN

Network Design Table for Foul

PN	Length (m)	Fall (m)	Slope (1:X)	Area (ha)	Houses	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
F16.005	21.681	0.217	100.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F20.000	15.555	0.954	16.3	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.006	20.420	0.204	100.1	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F16.007	15.177	0.219	69.3	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.016	7.915	0.100	79.2	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.017	14.025	0.140	100.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.018	22.052	0.432	51.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F21.000	6.100	0.584	10.4	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.019	14.971	0.294	50.9	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	
F1.020	34.021	0.340	100.0	0.000	0	0.0	1.500	o	150	Pi pe/Conduit	

Network Results Table

PN	US/IL (m)	√ Area (ha)	√ Base Flow (l/s)	√ Hse Add Flow (l/s)	P. Dep (mm)	P. Vel (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
F16.005	13.233	0.000	2.0	0	0.0	37	0.60	0.88	2.0
F20.000	13.970	0.000	0.0	0	0.0	0	0.00	2.18	0.0
F16.006	13.016	0.000	2.0	0	0.0	37	0.60	0.88	2.0
F16.007	12.812	0.000	2.0	0	0.0	33	0.68	1.05	2.0
F1.016	12.592	0.000	7.7	0	0.0	70	0.95	0.99	7.7
F1.017	12.492	0.000	7.7	0	0.0	75	0.87	0.88	7.7
F1.018	12.352	0.000	7.7	0	0.0	62	1.12	1.23	7.7
F21.000	12.520	0.000	0.0	0	0.0	0	0.00	2.72	0.0
F1.019	11.920	0.000	7.7	0	0.0	62	1.12	1.23	7.7
F1.020	11.626	0.000	7.7	0	0.0	75	0.87	0.88	7.7

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Manhole Schedules for Foul												
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Di am, L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Di ameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Di ameter (mm)	Backdrop (mm)	
F1.01	15.220	1.270	Open Manhole	450	F1.000	13.950	150					
F1.10	14.750	0.800	Open Manhole	450	F2.000	13.950	150					
FNODE1	15.155	1.237	Junction		F1.001	13.918	150	F1.000	13.918	150		
								F2.000	13.918	150		
F1.11	14.750	0.780	Open Manhole	450	F3.000	13.970	150					
FNODE2	15.123	1.284	Junction		F1.002	13.839	150	F1.001	13.839	150		
								F3.000	13.839	150		
F1.12	14.750	0.780	Open Manhole	450	F4.000	13.970	150					
FNODE3	15.090	1.350	Junction		F1.003	13.800	150	F1.002	13.800	150		
								F4.000	13.740	150		
F1.13	14.750	0.780	Open Manhole	450	F5.000	13.970	150					
FNODE4	15.025	1.258	Junction		F1.004	13.767	150	F1.003	13.767	150		
								F5.000	13.767	150		
F1.14	14.750	0.780	Open Manhole	450	F6.000	13.970	150					
FNODE5	14.993	1.283	Junction		F1.005	13.710	150	F1.004	13.710	150		
								F6.000	13.710	150		
F1.15	14.750	1.030	Open Manhole	450	F7.000	13.720	150					
FNODE6	14.960	1.328	Junction		F1.006	13.632	150	F1.005	13.632	150		
								F7.000	13.632	150		
F1.16	14.750	1.030	Open Manhole	450	F8.000	13.720	150					
F1.02	14.928	1.355	Open Manhole	450	F1.007	13.573	150	F1.006	13.573	150		
								F8.000	13.573	150		
F1.17	14.750	1.030	Open Manhole	450	F9.000	13.720	150					
FNODE7	14.895	1.389	Junction		F1.008	13.506	150	F1.007	13.506	150		
								F9.000	13.506	150		
F1.18	14.750	1.030	Open Manhole	450	F10.000	13.720	150					
FNODE8	14.830	1.358	Junction		F1.009	13.472	150	F1.008	13.472	150		
								F10.000	13.472	150		
F1.19	14.750	1.220	Open Manhole	450	F11.000	13.530	150					
FNODE9	14.765	1.356	Junction		F1.010	13.409	150	F1.009	13.409	150		
								F11.000	13.409	150		
F1.20	14.750	1.220	Open Manhole	450	F12.000	13.530	150					
FNODE10	14.749	1.402	Junction		F1.011	13.347	150	F1.010	13.347	150		
								F12.000	13.347	150		
F1.21	14.750	1.220	Open Manhole	450	F13.000	13.530	150					
FNODE11	14.733	1.429	Junction		F1.012	13.304	150	F1.011	13.304	150		
								F13.000	13.304	150		
F1.03	14.700	1.419	Open Manhole	450	F1.013	13.281	150	F1.012	13.281	150		
F1.04	14.650	1.512	Open Manhole	450	F1.014	13.138	150	F1.013	13.138	150		
F1.22	14.800	0.830	Open Manhole	450	F14.000	13.970	150					
F1.05	14.740	1.740	Open Manhole	450	F1.015	13.000	150	F1.014	13.000	150		
								F14.000	13.870	150		
F1.23	14.800	0.830	Open Manhole	450	F15.000	13.970	150					
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Manhole Schedules for Foul

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam, L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
F1.24	14.770	0.800	Open Manhole	450	F16.000	13.970	150				
F1.25	14.750	0.930	Open Manhole	450	F16.001	13.820	150	F16.000	13.820	150	
F1.26	14.740	1.050	Open Manhole	450	F16.002	13.690	150	F16.001	13.690	150	
F1.29	14.750	0.780	Open Manhole	450	F17.000	13.970	150				
FNODE12	14.740	1.129	Junction		F16.003	13.611	150	F16.002	13.611	150	
								F17.000	13.611	150	
F1.30	14.750	1.250	Open Manhole	450	F18.000	13.500	150				
FNODE13	14.740	1.363	Junction		F16.004	13.377	150	F16.003	13.377	150	
								F18.000	13.377	150	
F1.31	14.750	1.250	Open Manhole	450	F19.000	13.500	150				
F1.27	14.530	1.297	Open Manhole	450	F16.005	13.233	150	F16.004	13.233	150	
								F19.000	13.233	150	
F1.32	14.800	0.830	Open Manhole	450	F20.000	13.970	150				
FNODE14	14.530	1.514	Junction		F16.006	13.016	150	F16.005	13.016	150	
								F20.000	13.016	150	
F1.28	14.665	1.853	Open Manhole	450	F16.007	12.812	150	F16.006	12.812	150	
F1.06	14.800	2.208	Open Manhole	450	F1.016	12.592	150	F1.015	12.592	150	
								F15.000	13.869	150	
								F16.007	12.593	150	
F1.07	14.720	2.228	Open Manhole	450	F1.017	12.492	150	F1.016	12.492	150	
F1.08	14.350	1.998	Open Manhole	1200	F1.018	12.352	150	F1.017	12.352	150	
F1.33	14.800	2.280	Open Manhole	1200	F21.000	12.520	150				
FNODE15	13.600	1.680	Open Manhole	1200	F1.019	11.920	150	F1.018	11.920	150	
								F21.000	11.936	150	
F1.09	13.000	1.374	Open Manhole	1200	F1.020	11.626	150	F1.019	11.626	150	
FSOUTHERN WATER	13.050	1.764	Open Manhole	0		OUTFALL		F1.020	11.286	150	

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SW - Main West

Y - 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	2.798	0.100	28.0	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	3.585	0.024	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S2.000	2.241	0.104	21.5	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	11.836	0.079	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S3.000	2.629	0.103	25.5	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	16.343	0.105	155.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	11.377	0.100	113.8	0.008	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.005	5.912	0.147	40.2	0.004	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.000	4.497	0.100	45.0	0.005	5.00	0.0	0.600	o	150	Pipe/Conduit	
S5.000	8.208	0.100	82.1	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.006	14.474	0.090	160.8	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.007	5.339	0.050	106.8	0.016	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.000	3.948	0.325	12.1	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S7.000	5.102	0.325	15.7	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.02	13.320	0.006	0.0	0.0	0.0	1.91	33.8	0.8
S1.001	50.00	5.10	13.220	0.006	0.0	0.0	0.0	0.82	14.5	0.8
S2.000	50.00	5.02	13.300	0.009	0.0	0.0	0.0	2.18	38.5	1.3
S1.002	50.00	5.34	13.196	0.015	0.0	0.0	0.0	0.82	14.5	2.1
S3.000	50.00	5.02	13.220	0.009	0.0	0.0	0.0	2.00	35.4	1.2
S1.003	50.00	5.68	13.117	0.024	0.0	0.0	0.0	0.80	14.2	3.3
S1.004	50.00	5.88	13.012	0.032	0.0	0.0	0.0	0.94	16.6	4.4
S1.005	50.00	5.94	12.912	0.036	0.0	0.0	0.0	1.59	28.1	4.9
S4.000	50.00	5.05	13.970	0.005	0.0	0.0	0.0	1.50	26.6	0.6
S5.000	50.00	5.12	13.680	0.006	0.0	0.0	0.0	1.11	19.6	0.8
S1.006	50.00	6.18	12.690	0.047	0.0	0.0	0.0	1.03	40.9	6.4
S1.007	50.00	6.25	12.600	0.063	0.0	0.0	0.0	1.26	50.3	8.5
S6.000	50.00	5.02	13.970	0.006	0.0	0.0	0.0	2.91	51.4	0.8
S7.000	50.00	5.03	13.970	0.003	0.0	0.0	0.0	2.56	45.2	0.4

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SW - Main West

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
S6.001	3.948	0.325	12.1	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S8.000	1.780	0.070	25.4	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S8.001	10.712	0.430	24.9	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
S8.002	4.718	0.150	31.5	0.012	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.002	7.083	0.200	35.4	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S9.000	3.729	0.300	12.4	0.004	5.00	0.0	0.600	o	150	Pipe/Conduit	
S9.001	14.924	0.550	27.1	0.005	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.003	21.453	0.150	143.0	0.029	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.004	5.711	0.049	116.6	0.015	0.00	0.0	0.600	o	225	Pipe/Conduit	
S10.000	6.999	0.400	17.5	0.007	5.00	0.0	0.600	o	150	Pipe/Conduit	
S11.000	16.374	0.400	40.9	0.002	5.00	0.0	0.600	o	150	Pipe/Conduit	
S10.001	5.249	0.379	13.8	0.003	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.005	14.539	0.126	115.4	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.006	11.166	0.120	93.1	0.020	0.00	0.0	0.600	o	225	Pipe/Conduit	
S6.007	5.047	0.050	100.9	0.024	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S6.001	50.00	5.06	13.644	0.009	0.0	0.0	0.0	2.91	51.4	1.3
S8.000	50.00	5.01	13.970	0.008	0.0	0.0	0.0	2.01	35.4	1.1
S8.001	50.00	5.10	13.900	0.013	0.0	0.0	0.0	2.03	35.8	1.8
S8.002	50.00	5.15	13.470	0.025	0.0	0.0	0.0	1.80	31.8	3.4
S6.002	50.00	5.22	13.320	0.035	0.0	0.0	0.0	1.70	30.0	4.7
S9.000	50.00	5.02	13.970	0.004	0.0	0.0	0.0	2.87	50.8	0.5
S9.001	50.00	5.15	13.670	0.008	0.0	0.0	0.0	1.94	34.3	1.1
S6.003	50.00	5.64	13.120	0.072	0.0	0.0	0.0	0.84	14.8	9.7
S6.004	50.00	5.72	12.895	0.087	0.0	0.0	0.0	1.21	48.1	11.8
S10.000	50.00	5.05	13.700	0.007	0.0	0.0	0.0	2.42	42.8	0.9
S11.000	50.00	5.17	13.700	0.002	0.0	0.0	0.0	1.58	27.9	0.3
S10.001	50.00	5.21	13.300	0.012	0.0	0.0	0.0	2.72	48.1	1.6
S6.005	50.00	5.92	12.846	0.098	0.0	0.0	0.0	1.22	48.4	13.3
S6.006	50.00	6.06	12.720	0.118	0.0	0.0	0.0	1.36	53.9	16.0
S6.007	50.00	6.12	12.600	0.142	0.0	0.0	0.0	1.30	51.7	19.3

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SW - Main West

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
S1.008	1.376	-2.100	-0.7	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.008	50.00	6.43	12.550	0.205	0.0	0.0	0.0	0.12	4.97	27.8

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Innovyze					Network 2018.1.1						
Manhole Schedules for SW - Main West											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam, L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1.01	14.650	1.330	Open Manhole	450 x 600	S1.000	13.320	150				
S1.02	14.650	1.430	Open Manhole	450	S1.001	13.220	150	S1.000	13.220	150	
S1.07	14.650	1.350	Open Manhole	450 x 600	S2.000	13.300	150				
SNODE	14.650	1.454	Junction		S1.002	13.196	150	S1.001	13.196	150	
								S2.000	13.196	150	
S1.08	14.650	1.430	Open Manhole	450 x 600	S3.000	13.220	150				
SNODE	14.650	1.533	Junction		S1.003	13.117	150	S1.002	13.117	150	
								S3.000	13.117	150	
S1.03	14.650	1.638	Open Manhole	450	S1.004	13.012	150	S1.003	13.012	150	
S1.04	14.650	1.738	Open Manhole	450	S1.005	12.912	150	S1.004	12.912	150	
S1.09	14.750	0.780	Open Manhole	450	S4.000	13.970	150				
SRE1.1	14.730	1.050	Junction		S5.000	13.680	150				
S1.05	14.500	1.810	Open Manhole	1200	S1.006	12.690	225	S1.005	12.765	150	
								S4.000	13.870	150	1105
								S5.000	13.580	150	815
S1.06	14.500	1.900	Open Manhole	1200	S1.007	12.600	225	S1.006	12.600	225	
S1.10	14.750	0.780	Open Manhole	450	S6.000	13.970	150				
S1.16	14.750	0.780	Open Manhole	450	S7.000	13.970	150				
SNODE	14.710	1.066	Junction		S6.001	13.644	150	S6.000	13.645	150	1
								S7.000	13.645	150	1
SRE1.2	14.750	0.780	Open Manhole	450	S8.000	13.970	150				
S1.17	14.700	0.800	Open Manhole	450	S8.001	13.900	150	S8.000	13.900	150	
S1.18	14.685	1.215	Open Manhole	450	S8.002	13.470	150	S8.001	13.470	150	
S1.11	14.670	1.351	Open Manhole	1200	S6.002	13.320	150	S6.001	13.319	150	
								S8.002	13.320	150	
S1.19	14.750	0.780	Open Manhole	450	S9.000	13.970	150				
S1.20	14.750	1.080	Open Manhole	450	S9.001	13.670	150	S9.000	13.670	150	
S1.12	14.550	1.430	Open Manhole	1200	S6.003	13.120	150	S6.002	13.120	150	
								S9.001	13.120	150	
S1.13	14.570	1.675	Open Manhole	1200	S6.004	12.895	225	S6.003	12.970	150	
S1.21	14.750	1.050	Open Manhole	450	S10.000	13.700	150				
SRE1.3	14.750	1.050	Junction		S11.000	13.700	150				
S1.22	14.750	1.450	Open Manhole	450	S10.001	13.300	150	S10.000	13.300	150	
								S11.000	13.300	150	
SNODE	14.560	1.714	Junction		S6.005	12.846	225	S6.004	12.846	225	
								S10.001	12.921	150	
S1.14	14.550	1.830	Open Manhole	1200	S6.006	12.720	225	S6.005	12.720	225	
S1.15	14.480	1.880	Open Manhole	1200	S6.007	12.600	225	S6.006	12.600	225	
SCS1	14.500	1.950	Open Manhole	300	S1.008	12.550	225	S1.007	12.550	225	
								S6.007	12.550	225	
S	15.000	0.350	Open Manhole	0	OUTFALL			S1.008	14.650	225	
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Storage Structures for SW - Main West

Porous Car Park Manhole: S1.06, DS/PN: S1.007

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	18.0
Max Percolation (l/s)	24.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	12.050	Cap Volume Depth (m)	0.300

Porous Car Park Manhole: S1.15, DS/PN: S6.007

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	18.0
Max Percolation (l/s)	24.0	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	13.930	Cap Volume Depth (m)	0.300

Cellular Storage Manhole: SCS1, DS/PN: S1.008

Invert Level (m)	12.550	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	16.16000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	18.0	18.0	1.200	18.0	39.6	1.201	0.0	39.6

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	15 Wnter	1	+0%	100/15 Summer				13.340	-0.130
S1.001	S1.02	15 Wnter	1	+0%	100/15 Summer				13.248	-0.122
S2.000	S1.07	15 Wnter	1	+0%	100/15 Summer				13.325	-0.125
S1.002	SNODE	15 Wnter	1	+0%					13.234	-0.112
S3.000	S1.08	15 Wnter	1	+0%	100/15 Summer				13.244	-0.126
S1.003	SNODE	15 Wnter	1	+0%					13.166	-0.101
S1.004	S1.03	15 Wnter	1	+0%	100/15 Summer				13.066	-0.096
S1.005	S1.04	15 Wnter	1	+0%	30/15 Wnter				12.958	-0.104
S4.000	S1.09	120 Summer	1	+0%					13.980	-0.140
S5.000	SRE1.1	15 Wnter	1	+0%					13.700	-0.130
S1.006	S1.05	15 Wnter	1	+0%	30/15 Summer				12.752	-0.163
S1.007	S1.06	1440 Wnter	1	+0%	30/15 Summer				12.616	-0.209
S6.000	S1.10	60 Summer	1	+0%	100/15 Summer				13.981	-0.139
S7.000	S1.16	15 Wnter	1	+0%	100/15 Summer				13.979	-0.141
S6.001	SNODE	15 Wnter	1	+0%	100/15 Summer				13.663	-0.131
S8.000	SRE1.2	15 Wnter	1	+0%	100/15 Summer				13.995	-0.125
S8.001	S1.17	15 Wnter	1	+0%	100/15 Summer				13.922	-0.128
S8.002	S1.18	15 Wnter	1	+0%	100/15 Summer				13.506	-0.114
S6.002	S1.11	15 Wnter	1	+0%	30/15 Summer				13.362	-0.108
S9.000	S1.19	15 Summer	1	+0%	100/15 Wnter				13.980	-0.140
S9.001	S1.20	60 Wnter	1	+0%	100/15 Summer				13.684	-0.136
S6.003	S1.12	15 Wnter	1	+0%	30/15 Summer				13.207	-0.063
S6.004	S1.13	15 Wnter	1	+0%	30/15 Wnter				12.986	-0.134
S10.000	S1.21	60 Wnter	1	+0%					13.709	-0.141
S11.000	SRE1.3	15 Wnter	1	+0%					13.708	-0.142
S10.001	S1.22	15 Wnter	1	+0%	100/15 Summer				13.319	-0.131
S6.005	SNODE	15 Wnter	1	+0%					12.922	-0.149
S6.006	S1.14	15 Wnter	1	+0%	30/15 Summer				12.807	-0.138

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.04		0.8	OK	
S1.001	S1.02	0.000	0.08		0.8	OK	
S2.000	S1.07	0.000	0.06		1.3	OK	
S1.002	SNODE	0.000	0.15		2.1	OK*	
S3.000	S1.08	0.000	0.06		1.2	OK	
S1.003	SNODE	0.000	0.23		3.3	OK*	
S1.004	S1.03	0.000	0.28		4.3	OK	
S1.005	S1.04	0.000	0.20		4.7	OK	
S4.000	S1.09	0.000	0.01		0.3	OK	
S5.000	SRE1.1	0.000	0.04		0.8	OK*	
S1.006	S1.05	0.000	0.17		6.1	OK	
S1.007	S1.06	0.000	0.02		0.5	OK	
S6.000	S1.10	0.000	0.02		0.6	OK	
S7.000	S1.16	0.000	0.01		0.5	OK	
S6.001	SNODE	0.000	0.04		1.3	OK*	
S8.000	SRE1.2	0.000	0.07		1.1	OK	
S8.001	S1.17	0.000	0.05		1.7	OK	
S8.002	S1.18	0.000	0.13		3.1	OK	
S6.002	S1.11	0.000	0.17		4.5	OK	
S9.000	S1.19	0.000	0.01		0.5	OK	
S9.001	S1.20	0.000	0.02		0.6	OK	
S6.003	S1.12	0.000	0.64		8.9	OK	
S6.004	S1.13	0.000	0.34		10.6	OK	
S10.000	S1.21	0.000	0.01		0.5	OK	
S11.000	SRE1.3	0.000	0.01		0.3	OK*	
S10.001	S1.22	0.000	0.04		1.5	OK	
S6.005	SNODE	0.000	0.25		12.1	OK*	
S6.006	S1.14	0.000	0.31		14.3	OK	

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	15 Wnter	1	+0%	30/15 Summer				12.744	-0.081
S1.008	SCS1	480 Summer	1	+0%	30/15 Summer				12.628	-0.147

		Flooded		Pipe		Level	
PN	US/MH Name	Volume (mE)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Exceeded
S6.007	S1.15	0.000	0.53		16.7	OK	
S1.008	SCS1	0.000	0.00		0.0	OK	

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	15 W nter	30	+0%	100/15 Summer				13.352	-0.118
S1.001	S1.02	15 W nter	30	+0%	100/15 Summer				13.268	-0.102
S2.000	S1.07	15 W nter	30	+0%	100/15 Summer				13.340	-0.110
S1.002	SNODE	15 W nter	30	+0%					13.259	-0.087
S3.000	S1.08	15 W nter	30	+0%	100/15 Summer				13.259	-0.111
S1.003	SNODE	15 W nter	30	+0%					13.199	-0.068
S1.004	S1.03	15 W nter	30	+0%	100/15 Summer				13.109	-0.053
S1.005	S1.04	15 W nter	30	+0%	30/15 W nter				13.082	0.020
S4.000	S1.09	15 W nter	30	+0%					13.998	-0.122
S5.000	SRE1.1	15 W nter	30	+0%					13.712	-0.118
S1.006	S1.05	15 W nter	30	+0%	30/15 Summer				13.074	0.159
S1.007	S1.06	480 W nter	30	+0%	30/15 Summer				12.740	-0.085
S6.000	S1.10	15 W nter	30	+0%	100/15 Summer				13.994	-0.126
S7.000	S1.16	120 Summer	30	+0%	100/15 Summer				13.979	-0.141
S6.001	SNODE	15 W nter	30	+0%	100/15 Summer				13.674	-0.120
S8.000	SRE1.2	15 W nter	30	+0%	100/15 Summer				14.010	-0.110
S8.001	S1.17	15 W nter	30	+0%	100/15 Summer				13.938	-0.112
S8.002	S1.18	15 W nter	30	+0%	100/15 Summer				13.557	-0.063
S6.002	S1.11	30 Summer	30	+0%	30/15 Summer				13.458	-0.012
S9.000	S1.19	15 W nter	30	+0%	100/15 W nter				13.988	-0.132
S9.001	S1.20	15 W nter	30	+0%	100/15 Summer				13.701	-0.119
S6.003	S1.12	15 W nter	30	+0%	30/15 Summer				13.505	0.235
S6.004	S1.13	15 W nter	30	+0%	30/15 W nter				13.125	0.005
S10.000	S1.21	15 W nter	30	+0%					13.724	-0.126
S11.000	SRE1.3	60 W nter	30	+0%					13.710	-0.140
S10.001	S1.22	15 W nter	30	+0%	100/15 Summer				13.332	-0.118
S6.005	SNODE	15 W nter	30	+0%					13.071	0.000
S6.006	S1.14	15 W nter	30	+0%	30/15 Summer				13.094	0.149

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.10		2.0	OK	
S1.001	S1.02	0.000	0.18		2.0	OK	
S2.000	S1.07	0.000	0.16		3.2	OK	
S1.002	SNODE	0.000	0.36		5.2	OK*	
S3.000	S1.08	0.000	0.15		3.0	OK	
S1.003	SNODE	0.000	0.58		8.2	OK*	
S1.004	S1.03	0.000	0.73		10.9	OK	
S1.005	S1.04	0.000	0.52		12.2	SURCHARGED	
S4.000	S1.09	0.000	0.08		1.6	OK	
S5.000	SRE1.1	0.000	0.10		2.0	OK*	
S1.006	S1.05	0.000	0.44		15.8	SURCHARGED	
S1.007	S1.06	0.000	0.07		2.3	OK	
S6.000	S1.10	0.000	0.06		2.1	OK	
S7.000	S1.16	0.000	0.01		0.5	OK	
S6.001	SNODE	0.000	0.09		3.2	OK*	
S8.000	SRE1.2	0.000	0.16		2.7	OK	
S8.001	S1.17	0.000	0.14		4.5	OK	
S8.002	S1.18	0.000	0.37		9.0	OK	
S6.002	S1.11	0.000	0.39		10.0	OK	
S9.000	S1.19	0.000	0.04		1.2	OK	
S9.001	S1.20	0.000	0.09		3.0	OK	
S6.003	S1.12	0.000	1.59		22.2	SURCHARGED	
S6.004	S1.13	0.000	0.83		25.9	SURCHARGED	
S10.000	S1.21	0.000	0.06		2.2	OK	
S11.000	SRE1.3	0.000	0.01		0.4	OK*	
S10.001	S1.22	0.000	0.10		4.0	OK	
S6.005	SNODE	0.000	0.60		29.1	SURCHARGED*	
S6.006	S1.14	0.000	0.74		33.7	SURCHARGED	

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Innovyze	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	15 Winter	30	+0%	30/15 Summer				13.074	0.249
S1.008	SCS1	960 Summer	30	+0%	30/15 Summer				12.701	-0.074

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S6.007	S1.15	0.000	1.24		39.2	SURCHARGED	
S1.008	SCS1	0.000	0.00		0.0	OK	

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	15 W nter	100	+40%	100/15 Summer				13.601	0.131
S1.001	S1.02	15 Summer	100	+40%	100/15 Summer				13.479	0.109
S2.000	S1.07	15 W nter	100	+40%	100/15 Summer				13.600	0.150
S1.002	SNODE	15 W nter	100	+40%					13.346	0.000
S3.000	S1.08	15 W nter	100	+40%	100/15 Summer				13.592	0.222
S1.003	SNODE	30 Summer	100	+40%					13.267	0.000
S1.004	S1.03	30 Summer	100	+40%	100/15 Summer				13.584	0.422
S1.005	S1.04	15 W nter	100	+40%	30/15 W nter				13.558	0.496
S4.000	S1.09	15 W nter	100	+40%					14.008	-0.112
S5.000	SRE1.1	15 W nter	100	+40%					13.724	-0.106
S1.006	S1.05	15 W nter	100	+40%	30/15 Summer				13.545	0.630
S1.007	S1.06	15 Summer	100	+40%	30/15 Summer				13.427	0.602
S6.000	S1.10	15 W nter	100	+40%	100/15 Summer				14.269	0.149
S7.000	S1.16	15 W nter	100	+40%	100/15 Summer				14.267	0.147
S6.001	SNODE	15 Summer	100	+40%	100/15 Summer				13.795	0.001
S8.000	SRE1.2	15 W nter	100	+40%	100/15 Summer				14.307	0.187
S8.001	S1.17	15 Summer	100	+40%	100/15 Summer				14.191	0.141
S8.002	S1.18	15 W nter	100	+40%	100/15 Summer				14.284	0.664
S6.002	S1.11	15 Summer	100	+40%	30/15 Summer				14.139	0.669
S9.000	S1.19	15 W nter	100	+40%	100/15 W nter				14.226	0.106
S9.001	S1.20	15 W nter	100	+40%	100/15 Summer				14.223	0.403
S6.003	S1.12	15 Summer	100	+40%	30/15 Summer				14.092	0.822
S6.004	S1.13	15 Summer	100	+40%	30/15 W nter				13.568	0.448
S10.000	S1.21	15 W nter	100	+40%					13.733	-0.117
S11.000	SRE1.3	15 W nter	100	+40%					13.722	-0.128
S10.001	S1.22	15 Summer	100	+40%	100/15 Summer				13.550	0.100
S6.005	SNODE	15 W nter	100	+40%					13.071	0.000
S6.006	S1.14	15 W nter	100	+40%	30/15 Summer				13.630	0.685

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW
- Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.19		3.7	SURCHARGED	
S1.001	S1.02	0.000	0.31		3.4	SURCHARGED	
S2.000	S1.07	0.000	0.29		5.8	SURCHARGED	
S1.002	SNODE	0.000	0.59		8.5	SURCHARGED*	
S3.000	S1.08	0.000	0.27		5.3	SURCHARGED	
S1.003	SNODE	0.000	0.80		11.3	SURCHARGED*	
S1.004	S1.03	0.000	0.93		14.0	SURCHARGED	
S1.005	S1.04	0.000	0.73		17.2	SURCHARGED	
S4.000	S1.09	0.000	0.14		2.9	OK	
S5.000	SRE1.1	0.000	0.19		3.7	OK*	
S1.006	S1.05	0.000	0.62		22.4	SURCHARGED	
S1.007	S1.06	0.000	0.68		21.5	SURCHARGED	
S6.000	S1.10	0.000	0.10		3.6	SURCHARGED	
S7.000	S1.16	0.000	0.05		1.9	SURCHARGED	
S6.001	SNODE	0.000	0.14		5.0	SURCHARGED*	
S8.000	SRE1.2	0.000	0.27		4.4	SURCHARGED	
S8.001	S1.17	0.000	0.23		7.5	SURCHARGED	
S8.002	S1.18	0.000	0.54		13.2	SURCHARGED	
S6.002	S1.11	0.000	0.57		14.5	SURCHARGED	
S9.000	S1.19	0.000	0.06		2.0	SURCHARGED	
S9.001	S1.20	0.000	0.13		4.3	SURCHARGED	
S6.003	S1.12	0.000	1.99		27.9	SURCHARGED	
S6.004	S1.13	0.000	1.08		33.7	SURCHARGED	
S10.000	S1.21	0.000	0.11		4.1	OK	
S11.000	SRE1.3	0.000	0.05		1.4	OK*	
S10.001	S1.22	0.000	0.18		7.0	SURCHARGED	
S6.005	SNODE	0.000	0.75		36.4	SURCHARGED*	
S6.006	S1.14	0.000	1.00		45.6	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	15 Winter	100	+40%	30/15 Summer				13.578	0.753
S1.008	SCS1	360 Summer	100	+40%	30/15 Summer				13.071	0.296

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S6.007	S1.15	0.000	1.83		57.7	SURCHARGED	
S1.008	SCS1	0.000	0.00		0.0	SURCHARGED	

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	60 W nter	1	+0%	100/15 Summer				13.335	-0.135
S1.001	S1.02	60 W nter	1	+0%	100/15 Summer				13.239	-0.131
S2.000	S1.07	60 W nter	1	+0%	100/15 Summer				13.318	-0.132
S1.002	SNODE	60 W nter	1	+0%					13.224	-0.122
S3.000	S1.08	60 W nter	1	+0%	100/15 Summer				13.237	-0.133
S1.003	SNODE	60 W nter	1	+0%					13.152	-0.115
S1.004	S1.03	60 W nter	1	+0%	100/15 Summer				13.051	-0.111
S1.005	S1.04	60 W nter	1	+0%	30/15 W nter				12.945	-0.117
S4.000	S1.09	60 W nter	1	+0%					13.982	-0.138
S5.000	SRE1.1	60 W nter	1	+0%					13.695	-0.135
S1.006	S1.05	60 W nter	1	+0%	30/15 Summer				12.736	-0.179
S1.007	S1.06	60 W nter	1	+0%	30/15 Summer				12.627	-0.198
S6.000	S1.10	60 W nter	1	+0%	100/15 Summer				13.979	-0.141
S7.000	S1.16	60 W nter	1	+0%	100/15 Summer				13.975	-0.145
S6.001	SNODE	60 W nter	1	+0%	100/15 Summer				13.658	-0.136
S8.000	SRE1.2	60 W nter	1	+0%	100/15 Summer				13.988	-0.132
S8.001	S1.17	60 W nter	1	+0%	100/15 Summer				13.917	-0.133
S8.002	S1.18	60 W nter	1	+0%	100/15 Summer				13.497	-0.123
S6.002	S1.11	60 W nter	1	+0%	30/15 Summer				13.351	-0.119
S9.000	S1.19	60 W nter	1	+0%	100/15 W nter				13.975	-0.145
S9.001	S1.20	60 W nter	1	+0%	100/15 Summer				13.684	-0.136
S6.003	S1.12	60 W nter	1	+0%	30/15 Summer				13.183	-0.087
S6.004	S1.13	60 W nter	1	+0%	30/15 W nter				12.963	-0.157
S10.000	S1.21	60 W nter	1	+0%					13.709	-0.141
S11.000	SRE1.3	60 W nter	1	+0%					13.704	-0.146
S10.001	S1.22	60 W nter	1	+0%	100/15 Summer				13.315	-0.135
S6.005	SNODE	60 W nter	1	+0%					12.903	-0.168
S6.006	S1.14	60 W nter	1	+0%	30/15 Summer				12.785	-0.160

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.02		0.4	OK	
S1.001	S1.02	0.000	0.04		0.4	OK	
S2.000	S1.07	0.000	0.03		0.7	OK	
S1.002	SNODE	0.000	0.08		1.1	OK*	
S3.000	S1.08	0.000	0.03		0.6	OK	
S1.003	SNODE	0.000	0.12		1.8	OK*	
S1.004	S1.03	0.000	0.16		2.4	OK	
S1.005	S1.04	0.000	0.11		2.6	OK	
S4.000	S1.09	0.000	0.02		0.3	OK	
S5.000	SRE1.1	0.000	0.02		0.4	OK*	
S1.006	S1.05	0.000	0.09		3.4	OK	
S1.007	S1.06	0.000	0.03		0.8	OK	
S6.000	S1.10	0.000	0.01		0.5	OK	
S7.000	S1.16	0.000	0.01		0.2	OK	
S6.001	SNODE	0.000	0.02		0.7	OK*	
S8.000	SRE1.2	0.000	0.03		0.6	OK	
S8.001	S1.17	0.000	0.03		0.9	OK	
S8.002	S1.18	0.000	0.08		1.8	OK	
S6.002	S1.11	0.000	0.10		2.5	OK	
S9.000	S1.19	0.000	0.01		0.3	OK	
S9.001	S1.20	0.000	0.02		0.6	OK	
S6.003	S1.12	0.000	0.37		5.2	OK	
S6.004	S1.13	0.000	0.20		6.2	OK	
S10.000	S1.21	0.000	0.01		0.5	OK	
S11.000	SRE1.3	0.000	0.01		0.2	OK*	
S10.001	S1.22	0.000	0.02		0.8	OK	
S6.005	SNODE	0.000	0.15		7.0	OK*	
S6.006	S1.14	0.000	0.19		8.5	OK	

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	60 Wnter	1	+0%	30/15 Summer				12.715	-0.110
S1.008	SCS1	60 Wnter	1	+0%	30/15 Summer				12.708	-0.067

		Flooded		Pipe		Level	
PN	US/MH Name	Volume (mE)	Flow / Cap.	Overflow (l/s)	Flow (l/s)	Status	Exceeded
S6.007	S1.15	0.000	0.32		9.9	OK	
S1.008	SCS1	0.000	0.00		0.0	OK	

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	60 Wnter	30	+0%	100/15	Summer			13.342	-0.128
S1.001	S1.02	60 Wnter	30	+0%	100/15	Summer			13.251	-0.119
S2.000	S1.07	60 Wnter	30	+0%	100/15	Summer			13.329	-0.121
S1.002	SNODE	60 Wnter	30	+0%					13.240	-0.106
S3.000	S1.08	60 Wnter	30	+0%	100/15	Summer			13.247	-0.123
S1.003	SNODE	60 Wnter	30	+0%					13.173	-0.094
S1.004	S1.03	60 Wnter	30	+0%	100/15	Summer			13.120	-0.042
S1.005	S1.04	60 Wnter	30	+0%	30/15	Winter			13.108	0.046
S4.000	S1.09	60 Wnter	30	+0%					13.989	-0.131
S5.000	SRE1.1	60 Wnter	30	+0%					13.702	-0.128
S1.006	S1.05	60 Wnter	30	+0%	30/15	Summer			13.099	0.184
S1.007	S1.06	60 Wnter	30	+0%	30/15	Summer			13.090	0.265
S6.000	S1.10	60 Wnter	30	+0%	100/15	Summer			13.987	-0.133
S7.000	S1.16	60 Wnter	30	+0%	100/15	Summer			13.981	-0.139
S6.001	SNODE	60 Wnter	30	+0%	100/15	Summer			13.665	-0.129
S8.000	SRE1.2	60 Wnter	30	+0%	100/15	Summer			13.999	-0.121
S8.001	S1.17	60 Wnter	30	+0%	100/15	Summer			13.926	-0.124
S8.002	S1.18	60 Wnter	30	+0%	100/15	Summer			13.513	-0.107
S6.002	S1.11	60 Wnter	30	+0%	30/15	Summer			13.370	-0.100
S9.000	S1.19	60 Wnter	30	+0%	100/15	Winter			13.983	-0.137
S9.001	S1.20	60 Wnter	30	+0%	100/15	Summer			13.691	-0.129
S6.003	S1.12	60 Wnter	30	+0%	30/15	Summer			13.232	-0.038
S6.004	S1.13	60 Wnter	30	+0%	30/15	Winter			13.140	0.020
S10.000	S1.21	60 Wnter	30	+0%					13.717	-0.133
S11.000	SRE1.3	60 Wnter	30	+0%					13.710	-0.140
S10.001	S1.22	60 Wnter	30	+0%	100/15	Summer			13.322	-0.128
S6.005	SNODE	60 Wnter	30	+0%					13.071	0.000
S6.006	S1.14	60 Wnter	30	+0%	30/15	Summer			13.114	0.169

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.05		1.0	OK	
S1.001	S1.02	0.000	0.10		1.0	OK	
S2.000	S1.07	0.000	0.08		1.7	OK	
S1.002	SNODE	0.000	0.19		2.7	OK*	
S3.000	S1.08	0.000	0.08		1.5	OK	
S1.003	SNODE	0.000	0.30		4.2	OK*	
S1.004	S1.03	0.000	0.38		5.7	OK	
S1.005	S1.04	0.000	0.27		6.4	SURCHARGED	
S4.000	S1.09	0.000	0.04		0.8	OK	
S5.000	SRE1.1	0.000	0.05		1.1	OK*	
S1.006	S1.05	0.000	0.21		7.6	SURCHARGED	
S1.007	S1.06	0.000	0.27		8.4	SURCHARGED	
S6.000	S1.10	0.000	0.03		1.1	OK	
S7.000	S1.16	0.000	0.02		0.6	OK	
S6.001	SNODE	0.000	0.05		1.7	OK*	
S8.000	SRE1.2	0.000	0.08		1.4	OK	
S8.001	S1.17	0.000	0.07		2.3	OK	
S8.002	S1.18	0.000	0.19		4.5	OK	
S6.002	S1.11	0.000	0.24		6.2	OK	
S9.000	S1.19	0.000	0.02		0.6	OK	
S9.001	S1.20	0.000	0.05		1.5	OK	
S6.003	S1.12	0.000	0.91		12.7	OK	
S6.004	S1.13	0.000	0.49		15.3	SURCHARGED	
S10.000	S1.21	0.000	0.03		1.2	OK	
S11.000	SRE1.3	0.000	0.01		0.4	OK*	
S10.001	S1.22	0.000	0.05		2.0	OK	
S6.005	SNODE	0.000	0.35		17.0	SURCHARGED*	
S6.006	S1.14	0.000	0.41		18.6	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	60 Wnter	30	+0%	30/15 Summer				13.096	0.271
S1.008	SCS1	60 Wnter	30	+0%	30/15 Summer				13.084	0.309

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S6.007	S1.15	0.000	0.70		21.9	SURCHARGED	
S1.008	SCS1	0.000	0.00		0.0	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

Simulation Criteria

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

Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 0
 Number of Online Controls 0 Number of Storage Structures 3 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S1.01	60 W nter	100	+40%	100/15 Summer				13.663	0.193
S1.001	S1.02	60 W nter	100	+40%	100/15 Summer				13.661	0.291
S2.000	S1.07	60 W nter	100	+40%	100/15 Summer				13.661	0.211
S1.002	SNODE	60 W nter	100	+40%					13.346	0.000
S3.000	S1.08	60 W nter	100	+40%	100/15 Summer				13.651	0.281
S1.003	SNODE	60 W nter	100	+40%					13.267	0.000
S1.004	S1.03	60 W nter	100	+40%	100/15 Summer				13.630	0.468
S1.005	S1.04	60 W nter	100	+40%	30/15 W nter				13.607	0.545
S4.000	S1.09	60 W nter	100	+40%					13.997	-0.123
S5.000	SRE1.1	60 W nter	100	+40%					13.711	-0.119
S1.006	S1.05	60 W nter	100	+40%	30/15 Summer				13.592	0.677
S1.007	S1.06	60 W nter	100	+40%	30/15 Summer				13.576	0.751
S6.000	S1.10	60 W nter	100	+40%	100/15 Summer				13.993	-0.127
S7.000	S1.16	60 W nter	100	+40%	100/15 Summer				13.987	-0.133
S6.001	SNODE	60 W nter	100	+40%	100/15 Summer				13.795	0.001
S8.000	SRE1.2	60 W nter	100	+40%	100/15 Summer				14.009	-0.111
S8.001	S1.17	60 W nter	100	+40%	100/15 Summer				13.948	-0.102
S8.002	S1.18	60 W nter	100	+40%	100/15 Summer				13.937	0.317
S6.002	S1.11	60 W nter	100	+40%	30/15 Summer				13.925	0.455
S9.000	S1.19	60 W nter	100	+40%	100/15 W nter				13.988	-0.132
S9.001	S1.20	60 W nter	100	+40%	100/15 Summer				13.912	0.092
S6.003	S1.12	60 W nter	100	+40%	30/15 Summer				13.904	0.634
S6.004	S1.13	60 W nter	100	+40%	30/15 W nter				13.695	0.575
S10.000	S1.21	60 W nter	100	+40%					13.723	-0.127
S11.000	SRE1.3	60 W nter	100	+40%					13.716	-0.134
S10.001	S1.22	60 W nter	100	+40%	100/15 Summer				13.684	0.234
S6.005	SNODE	60 W nter	100	+40%					13.071	0.000
S6.006	S1.14	60 W nter	100	+40%	30/15 Summer				13.646	0.701

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S1.01	0.000	0.09		1.9	SURCHARGED	
S1.001	S1.02	0.000	0.16		1.8	SURCHARGED	
S2.000	S1.07	0.000	0.15		3.0	SURCHARGED	
S1.002	SNODE	0.000	0.31		4.5	SURCHARGED*	
S3.000	S1.08	0.000	0.13		2.7	SURCHARGED	
S1.003	SNODE	0.000	0.46		6.6	SURCHARGED*	
S1.004	S1.03	0.000	0.55		8.3	SURCHARGED	
S1.005	S1.04	0.000	0.36		8.3	SURCHARGED	
S4.000	S1.09	0.000	0.08		1.5	OK	
S5.000	SRE1.1	0.000	0.10		1.9	OK*	
S1.006	S1.05	0.000	0.29		10.3	SURCHARGED	
S1.007	S1.06	0.000	0.44		13.9	SURCHARGED	
S6.000	S1.10	0.000	0.06		2.0	OK	
S7.000	S1.16	0.000	0.03		1.1	OK	
S6.001	SNODE	0.000	0.08		3.0	SURCHARGED*	
S8.000	SRE1.2	0.000	0.15		2.5	OK	
S8.001	S1.17	0.000	0.13		4.2	OK	
S8.002	S1.18	0.000	0.32		7.7	SURCHARGED	
S6.002	S1.11	0.000	0.35		8.9	SURCHARGED	
S9.000	S1.19	0.000	0.03		1.2	OK	
S9.001	S1.20	0.000	0.09		2.7	SURCHARGED	
S6.003	S1.12	0.000	1.27		17.8	SURCHARGED	
S6.004	S1.13	0.000	0.68		21.2	SURCHARGED	
S10.000	S1.21	0.000	0.06		2.1	OK	
S11.000	SRE1.3	0.000	0.03		0.7	OK*	
S10.001	S1.22	0.000	0.09		3.5	SURCHARGED	
S6.005	SNODE	0.000	0.48		23.1	SURCHARGED*	
S6.006	S1.14	0.000	0.61		28.0	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW - Main West

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S6.007	S1.15	60 Winter	100	+40%	30/15 Summer				13.609	0.784
S1.008	SCS1	60 Winter	100	+40%	30/15 Summer				13.567	0.792

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S6.007	S1.15	0.000	1.08		34.2	SURCHARGED	
S1.008	SCS1	0.000	0.00		0.0	SURCHARGED	

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SW2 - Main East N

Y - 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	2.773	0.100	27.7	0.009	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	18.840	0.128	147.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S2.000	3.429	0.128	26.8	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	8.412	0.056	150.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S3.000	1.999	0.184	10.9	0.006	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	6.928	0.046	150.6	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	6.753	0.100	67.5	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S4.000	10.296	0.100	103.0	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	
S5.000	6.274	0.095	66.0	0.004	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.005	7.069	0.100	70.7	0.003	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.006	1.888	-2.100	-0.9	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.02	13.300	0.009	0.0	0.0	0.0	1.92	33.9	1.3
S1.001	50.00	5.40	13.200	0.009	0.0	0.0	0.0	0.83	14.6	1.3
S2.000	50.00	5.03	13.200	0.013	0.0	0.0	0.0	1.95	34.5	1.8
S1.002	50.00	5.58	13.072	0.023	0.0	0.0	0.0	0.82	14.5	3.1
S3.000	50.00	5.01	13.200	0.006	0.0	0.0	0.0	3.07	54.3	0.9
S1.003	50.00	5.72	13.016	0.029	0.0	0.0	0.0	0.82	14.4	3.9
S1.004	50.00	5.81	12.970	0.029	0.0	0.0	0.0	1.23	21.7	3.9
S4.000	50.00	5.17	13.750	0.003	0.0	0.0	0.0	0.99	17.5	0.4
S5.000	50.00	5.08	13.970	0.004	0.0	0.0	0.0	1.24	21.9	0.5
S1.005	50.00	5.88	12.800	0.038	0.0	0.0	0.0	1.56	61.9	5.2
S1.006	50.00	6.14	12.200	0.038	0.0	0.0	0.0	0.12	4.91	5.2

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Manhole Schedules for SW2 - Main East N

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam, L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S2.01	14.750	1.450	Open Manhole	450 x 600	S1.000	13.300	150				
S2.02	14.650	1.450	Open Manhole	450	S1.001	13.200	150	S1.000	13.200	150	
S2.05	14.750	1.550	Open Manhole	450 x 600	S2.000	13.200	150				
SNODE	14.650	1.578	Junction		S1.002	13.072	150	S1.001	13.072	150	
								S2.000	13.072	150	
S2.06	14.750	1.550	Open Manhole	450 x 600	S3.000	13.200	150				
SNODE	14.650	1.634	Junction		S1.003	13.016	150	S1.002	13.016	150	
								S3.000	13.016	150	
S2.03	14.650	1.680	Open Manhole	450	S1.004	12.970	150	S1.003	12.970	150	
SRE2.1	14.750	1.000	Junction		S4.000	13.750	150				
SRE2.2	14.750	0.780	Junction		S5.000	13.970	150				
S2.04	14.650	1.850	Open Manhole	1200	S1.005	12.800	225	S1.004	12.870	150	
								S4.000	13.650	150	775
								S5.000	13.875	150	1000
SCS2	14.640	2.440	Open Manhole	300	S1.006	12.200	225	S1.005	12.700	225	500
S	15.200	0.900	Open Manhole	0		OUTFALL		S1.006	14.300	225	

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FSR M5-60 (mm)	20.000	Cv (Summer)	0.750	
Region	England and Wales	Ratio R	0.400	Cv (Winter)	0.840

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

Profile(s)

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	15 Wnter	1	+0%	100/60 Wnter				13.325	-0.125
S1.001	S2.02	15 Wnter	1	+0%	100/60 Wnter				13.231	-0.119
S2.000	S2.05	15 Wnter	1	+0%	100/60 Wnter				13.229	-0.121
S1.002	SNODE	15 Wnter	1	+0%					13.119	-0.103
S3.000	S2.06	15 Wnter	1	+0%	100/60 Wnter				13.218	-0.132
S1.003	SNODE	15 Wnter	1	+0%					13.072	-0.094
S1.004	S2.03	15 Wnter	1	+0%	30/240 Wnter				13.017	-0.103
S4.000	SRE2.1	60 Summer	1	+0%					13.760	-0.140
S5.000	SRE2.2	60 Wnter	1	+0%					13.979	-0.141
S1.005	S2.04	15 Wnter	1	+0%	30/120 Wnter				12.851	-0.174
S1.006	SCS2	960 Summer	1	+0%	1/30 Summer				12.643	0.218

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.07		1.3	OK	
S1.001	S2.02	0.000	0.09		1.3	OK	
S2.000	S2.05	0.000	0.08		1.9	OK	
S1.002	SNODE	0.000	0.22		3.1	OK*	
S3.000	S2.06	0.000	0.03		0.9	OK	
S1.003	SNODE	0.000	0.30		4.0	OK*	
S1.004	S2.03	0.000	0.22		4.0	OK	
S4.000	SRE2.1	0.000	0.01		0.2	OK*	
S5.000	SRE2.2	0.000	0.01		0.3	OK*	
S1.005	S2.04	0.000	0.12		5.2	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	15 Wnter	30	+0%	100/60 Wnter				13.340	-0.110
S1.001	S2.02	15 Wnter	30	+0%	100/60 Wnter				13.249	-0.101
S2.000	S2.05	15 Wnter	30	+0%	100/60 Wnter				13.246	-0.104
S1.002	SNODE	15 Wnter	30	+0%					13.151	-0.071
S3.000	S2.06	15 Wnter	30	+0%	100/60 Wnter				13.229	-0.121
S1.003	SNODE	15 Wnter	30	+0%					13.112	-0.054
S1.004	S2.03	15 Wnter	30	+0%	30/240 Wnter				13.048	-0.072
S4.000	SRE2.1	15 Wnter	30	+0%					13.772	-0.128
S5.000	SRE2.2	15 Wnter	30	+0%					13.994	-0.126
S1.005	S2.04	15 Wnter	30	+0%	30/120 Wnter				12.882	-0.143
S1.006	SCS2	480 Wnter	30	+0%	1/30 Summer				13.155	0.730

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.16		3.2	OK	
S1.001	S2.02	0.000	0.23		3.1	OK	
S2.000	S2.05	0.000	0.20		4.6	OK	
S1.002	SNODE	0.000	0.53		7.6	OK*	
S3.000	S2.06	0.000	0.08		2.2	OK	
S1.003	SNODE	0.000	0.73		9.9	OK*	
S1.004	S2.03	0.000	0.54		9.9	OK	
S4.000	SRE2.1	0.000	0.05		0.9	OK*	
S5.000	SRE2.2	0.000	0.06		1.2	OK*	
S1.005	S2.04	0.000	0.29		12.9	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	15 Wnter	100	+40%	100/60 Wnter				13.355	-0.095
S1.001	S2.02	15 Wnter	100	+40%	100/60 Wnter				13.268	-0.082
S2.000	S2.05	15 Wnter	100	+40%	100/60 Wnter				13.263	-0.087
S1.002	SNODE	30 Summer	100	+40%					13.207	-0.015
S3.000	S2.06	15 Wnter	100	+40%	100/60 Wnter				13.239	-0.111
S1.003	SNODE	15 Wnter	100	+40%					13.166	0.000
S1.004	S2.03	15 Wnter	100	+40%	30/240 Wnter				13.084	-0.036
S4.000	SRE2.1	15 Wnter	100	+40%					13.781	-0.119
S5.000	SRE2.2	15 Wnter	100	+40%					14.004	-0.116
S1.005	S2.04	15 Wnter	100	+40%	30/120 Wnter				13.077	0.052
S1.006	SCS2	240 Wnter	100	+40%	1/30 Summer				14.368	1.943

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.29		5.8	OK	
S1.001	S2.02	0.000	0.41		5.7	OK	
S2.000	S2.05	0.000	0.37		8.3	OK	
S1.002	SNODE	0.000	0.81		11.7	OK*	
S3.000	S2.06	0.000	0.15		4.0	OK	
S1.003	SNODE	0.000	1.26		16.9	SURCHARGED*	
S1.004	S2.03	0.000	0.93		17.0	OK	
S4.000	SRE2.1	0.000	0.09		1.6	OK*	
S5.000	SRE2.2	0.000	0.11		2.2	OK*	
S1.005	S2.04	0.000	0.49		21.9	SURCHARGED	
S1.006	SCS2	0.000	0.09		2.7	FLOOD RISK	

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	1	+0%	100/60 W nter				13.318	-0.132
S1.001	S2.02	60 W nter	1	+0%	100/60 W nter				13.221	-0.129
S2.000	S2.05	60 W nter	1	+0%	100/60 W nter				13.220	-0.130
S1.002	SNODE	60 W nter	1	+0%					13.106	-0.116
S3.000	S2.06	60 W nter	1	+0%	100/60 W nter				13.212	-0.138
S1.003	SNODE	60 W nter	1	+0%					13.056	-0.110
S1.004	S2.03	60 W nter	1	+0%	30/240 W nter				13.004	-0.116
S4.000	SRE2.1	60 W nter	1	+0%					13.758	-0.142
S5.000	SRE2.2	60 W nter	1	+0%					13.979	-0.141
S1.005	S2.04	60 W nter	1	+0%	30/120 W nter				12.836	-0.189
S1.006	SCS2	60 W nter	1	+0%	1/30 Summer				12.541	0.116

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.03		0.7	OK	
S1.001	S2.02	0.000	0.05		0.7	OK	
S2.000	S2.05	0.000	0.04		1.0	OK	
S1.002	SNODE	0.000	0.11		1.7	OK*	
S3.000	S2.06	0.000	0.02		0.5	OK	
S1.003	SNODE	0.000	0.16		2.1	OK*	
S1.004	S2.03	0.000	0.12		2.1	OK	
S4.000	SRE2.1	0.000	0.01		0.2	OK*	
S5.000	SRE2.2	0.000	0.01		0.3	OK*	
S1.005	S2.04	0.000	0.06		2.8	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	30	+0%	100/60 W nter				13.329	-0.121
S1.001	S2.02	60 W nter	30	+0%	100/60 W nter				13.234	-0.116
S2.000	S2.05	60 W nter	30	+0%	100/60 W nter				13.232	-0.118
S1.002	SNODE	60 W nter	30	+0%					13.125	-0.097
S3.000	S2.06	60 W nter	30	+0%	100/60 W nter				13.220	-0.130
S1.003	SNODE	60 W nter	30	+0%					13.080	-0.086
S1.004	S2.03	60 W nter	30	+0%	30/240 W nter				13.024	-0.096
S4.000	SRE2.1	60 W nter	30	+0%					13.766	-0.134
S5.000	SRE2.2	60 W nter	30	+0%					13.987	-0.133
S1.005	S2.04	60 W nter	30	+0%	30/120 W nter				12.979	-0.046
S1.006	SCS2	60 W nter	30	+0%	1/30 Summer				12.979	0.554

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.08		1.6	OK	
S1.001	S2.02	0.000	0.12		1.6	OK	
S2.000	S2.05	0.000	0.10		2.3	OK	
S1.002	SNODE	0.000	0.28		4.0	OK*	
S3.000	S2.06	0.000	0.04		1.1	OK	
S1.003	SNODE	0.000	0.38		5.1	OK*	
S1.004	S2.03	0.000	0.28		5.1	OK	
S4.000	SRE2.1	0.000	0.03		0.5	OK*	
S5.000	SRE2.2	0.000	0.03		0.6	OK*	
S1.005	S2.04	0.000	0.15		6.7	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	100	+40%	100/60 W nter				13.480	0.030
S1.001	S2.02	60 W nter	100	+40%	100/60 W nter				13.478	0.128
S2.000	S2.05	60 W nter	100	+40%	100/60 W nter				13.478	0.128
S1.002	SNODE	60 W nter	100	+40%					13.222	0.000
S3.000	S2.06	60 W nter	100	+40%	100/60 W nter				13.463	0.113
S1.003	SNODE	60 W nter	100	+40%					13.166	0.000
S1.004	S2.03	60 W nter	100	+40%	30/240 W nter				13.511	0.391
S4.000	SRE2.1	60 W nter	100	+40%					13.771	-0.129
S5.000	SRE2.2	60 W nter	100	+40%					13.993	-0.127
S1.005	S2.04	60 W nter	100	+40%	30/120 W nter				13.532	0.507
S1.006	SCS2	60 W nter	100	+40%	1/30 Summer				13.705	1.280

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.15		3.0	SURCHARGED	
S1.001	S2.02	0.000	0.22		3.0	SURCHARGED	
S2.000	S2.05	0.000	0.19		4.3	SURCHARGED	
S1.002	SNODE	0.000	0.51		7.3	SURCHARGED*	
S3.000	S2.06	0.000	0.08		2.1	SURCHARGED	
S1.003	SNODE	0.000	0.70		9.4	SURCHARGED*	
S1.004	S2.03	0.000	0.51		9.4	SURCHARGED	
S4.000	SRE2.1	0.000	0.05		0.9	OK*	
S5.000	SRE2.2	0.000	0.06		1.1	OK*	
S1.005	S2.04	0.000	0.27		11.9	SURCHARGED	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SWB - Main East S

Y - 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	7.961	0.680	11.7	0.005	5.00	0.0	0.600	o	150	Pipe/Conduit	
S2.000	10.807	0.650	16.6	0.020	5.00	0.0	0.600	o	150	Pipe/Conduit	
S2.001	3.080	0.100	30.8	0.003	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	11.337	0.076	149.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S3.000	9.697	0.100	97.0	0.013	5.00	0.0	0.600	o	150	Pipe/Conduit	
S4.000	6.522	0.100	65.2	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	
S3.001	3.696	0.100	37.0	0.003	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	15.184	0.100	151.8	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	4.416	0.100	44.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S5.000	4.138	0.200	20.7	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.004	2.498	0.100	25.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.005	8.696	0.100	87.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
S6.000	3.843	0.100	38.4	0.003	5.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.04	13.900	0.005	0.0	0.0	0.0	2.96	52.3	0.6
S2.000	50.00	5.07	13.970	0.020	0.0	0.0	0.0	2.48	43.9	2.7
S2.001	50.00	5.10	13.320	0.023	0.0	0.0	0.0	1.82	32.2	3.1
S1.001	50.00	5.33	13.220	0.027	0.0	0.0	0.0	0.82	14.5	3.7
S3.000	50.00	5.16	13.300	0.013	0.0	0.0	0.0	1.02	18.0	1.7
S4.000	50.00	5.09	13.800	0.003	0.0	0.0	0.0	1.25	22.0	0.5
S3.001	50.00	5.20	13.200	0.019	0.0	0.0	0.0	1.66	29.4	2.6
S1.002	50.00	5.64	13.100	0.046	0.0	0.0	0.0	0.81	14.4	6.3
S1.003	50.00	5.69	13.000	0.046	0.0	0.0	0.0	1.52	26.8	6.3
S5.000	50.00	5.03	13.970	0.003	0.0	0.0	0.0	2.22	39.3	0.4
S1.004	50.00	5.71	12.900	0.049	0.0	0.0	0.0	2.02	35.8	6.6
S1.005	50.00	5.85	12.800	0.049	0.0	0.0	0.0	1.08	19.1	6.6
S6.000	50.00	5.04	12.800	0.003	0.0	0.0	0.0	1.63	28.8	0.4

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SWB - Main East S

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
S1.006	2.523	0.095	26.6	0.012	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.007	6.785	0.300	22.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	
S1.008	1.347	-2.400	-0.6	0.000	0.00	0.0	0.600	o	225	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T. C. (mins)	US/IL (m)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.006	50.00	5.87	12.700	0.064	0.0	0.0	0.0	1.96	34.7	8.7
S1.007	50.00	5.91	12.530	0.064	0.0	0.0	0.0	2.76	109.9	8.7
S1.008	50.00	6.09	12.230	0.064	0.0	0.0	0.0	0.12	4.91	8.7

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Manhole Schedules for SWB - Main East S											
MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam, L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S3.01	14.740	0.840	Open Manhole	450	S1.000	13.900	150				
S3.08	14.740	0.770	Open Manhole	450	S2.000	13.970	150				
S3.09	14.740	1.420	Open Manhole	450	S2.001	13.320	150	S2.000	13.320	150	
S3.02	14.700	1.480	Open Manhole	450	S1.001	13.220	150	S1.000	13.220	150	
								S2.001	13.220	150	
S3.10	14.740	1.440	Open Manhole	450 x 600	S3.000	13.300	150				
SRE3.1	14.740	0.940	Junction		S4.000	13.800	150				
S3.11	14.740	1.540	Open Manhole	450 x 600	S3.001	13.200	150	S3.000	13.200	150	
								S4.000	13.700	150	500
SNODE	14.670	1.570	Junction		S1.002	13.100	150	S1.001	13.144	150	44
								S3.001	13.100	150	
S3.03	14.670	1.670	Open Manhole	450	S1.003	13.000	150	S1.002	13.000	150	
S3.12	14.670	0.700	Open Manhole	450	S5.000	13.970	150				
S3.04	14.670	1.770	Open Manhole	1200	S1.004	12.900	150	S1.003	12.900	150	
								S5.000	13.770	150	870
S3.05	14.670	1.870	Open Manhole	450	S1.005	12.800	150	S1.004	12.800	150	
S3.13	14.740	1.940	Open Manhole	450 x 600	S6.000	12.800	150				
S3.06	14.740	2.040	Open Manhole	450	S1.006	12.700	150	S1.005	12.700	150	
								S6.000	12.700	150	
S3.07	14.740	2.210	Open Manhole	1200	S1.007	12.530	225	S1.006	12.605	150	
SCS3	14.740	2.510	Open Manhole	300	S1.008	12.230	225	S1.007	12.230	225	
S	15.200	0.570	Open Manhole	0		OUTFALL		S1.008	14.630	225	
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Storage Structures for SWB - Main East S

Cellular Storage Manhole: SCS3, DS/PN: S1.008

Invert Level (m) 12.230 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.15000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	16.0	16.0	1.600	16.0	41.6	1.601	0.0	41.6

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S3.01	15 Wnter	1	+0%	100/120 Wnter				13.910
S2.000	S3.08	15 Wnter	1	+0%	100/120 Wnter				13.996
S2.001	S3.09	15 Wnter	1	+0%	100/15 Summer				13.360
S1.001	S3.02	15 Wnter	1	+0%	30/360 Wnter				13.275
S3.000	S3.10	15 Wnter	1	+0%	100/15 Summer				13.333
S4.000	SRE3.1	60 Wnter	1	+0%					13.809
S3.001	S3.11	15 Wnter	1	+0%	30/240 Wnter				13.236
S1.002	SNODE	15 Wnter	1	+0%	30/15 Wnter				13.170
S1.003	S3.03	15 Wnter	1	+0%	30/120 Summer				13.058
S5.000	S3.12	15 Wnter	1	+0%	100/120 Wnter				13.980
S1.004	S3.04	15 Wnter	1	+0%	30/60 Summer				12.960
S1.005	S3.05	15 Wnter	1	+0%	30/30 Wnter				12.866
S6.000	S3.13	60 Summer	1	+0%	30/30 Wnter				12.809
S1.006	S3.06	15 Wnter	1	+0%	30/15 Wnter				12.770
S1.007	S3.07	15 Wnter	1	+0%	1/240 Wnter				12.579
S1.008	SCS3	1440 Wnter	1	+0%	1/15 Summer	100/120 Wnter			12.814

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Pipe Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.140	0.000	0.01		0.6	OK	
S2.000	S3.08	-0.124	0.000	0.07		2.7	OK	
S2.001	S3.09	-0.110	0.000	0.16		3.1	OK	
S1.001	S3.02	-0.095	0.000	0.28		3.7	OK	
S3.000	S3.10	-0.117	0.000	0.11		1.8	OK	
S4.000	SRE3.1	-0.141	0.000	0.01		0.3	OK*	

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

PN	US/MH Name	Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (mE)	Flow	Volume					
S3.001	S3.11	-0.114	0.000	0.13				2.5	OK	
S1.002	SNODE	-0.080	0.000	0.44				6.3	OK*	
S1.003	S3.03	-0.092	0.000	0.32				6.3	OK	
S5.000	S3.12	-0.140	0.000	0.01				0.4	OK	
S1.004	S3.04	-0.090	0.000	0.33				6.6	OK	
S1.005	S3.05	-0.084	0.000	0.39				6.6	OK	
S6.000	S3.13	-0.141	0.000	0.01				0.3	OK	
S1.006	S3.06	-0.080	0.000	0.43				8.3	OK	
S1.007	S3.07	-0.176	0.000	0.11				8.4	OK	
S1.008	SCS3	0.359	0.000	0.00				0.0	SURCHARGED	5

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S3.01	15 Winter	30	+0%	100/120 Winter				13.918
S2.000	S3.08	15 Winter	30	+0%	100/120 Winter				14.012
S2.001	S3.09	15 Winter	30	+0%	100/15 Summer				13.386
S1.001	S3.02	15 Winter	30	+0%	30/360 Winter				13.315
S3.000	S3.10	15 Winter	30	+0%	100/15 Summer				13.353
S4.000	SRE3.1	15 Winter	30	+0%					13.824
S3.001	S3.11	15 Summer	30	+0%	30/240 Winter				13.258
S1.002	SNODE	30 Summer	30	+0%	30/15 Winter				13.215
S1.003	S3.03	15 Winter	30	+0%	30/120 Summer				13.099
S5.000	S3.12	120 Summer	30	+0%	100/120 Winter				13.980
S1.004	S3.04	15 Summer	30	+0%	30/60 Summer				13.000
S1.005	S3.05	30 Summer	30	+0%	30/30 Winter				12.923
S6.000	S3.13	15 Summer	30	+0%	30/30 Winter				12.849
S1.006	S3.06	30 Summer	30	+0%	30/15 Winter				12.922
S1.007	S3.07	15 Winter	30	+0%	1/240 Winter				12.839
S1.008	SCS3	240 Winter	30	+0%	1/15 Summer	100/120 Winter			13.358

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Pipe Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.132	0.000	0.03		1.6	OK	
S2.000	S3.08	-0.108	0.000	0.17		6.8	OK	
S2.001	S3.09	-0.084	0.000	0.39		7.8	OK	
S1.001	S3.02	-0.055	0.000	0.71		9.3	OK	
S3.000	S3.10	-0.097	0.000	0.27		4.4	OK	
S4.000	SRE3.1	-0.126	0.000	0.06		1.2	OK*	

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

PN	US/MH Name	Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (mE)	Flow	Volume					
S3.001	S3.11	-0.092	0.000	0.31				6.2	OK	
S1.002	SNODE	-0.035	0.000	0.94				13.5	OK*	
S1.003	S3.03	-0.051	0.000	0.76				15.1	OK	
S5.000	S3.12	-0.140	0.000	0.01				0.4	OK	
S1.004	S3.04	-0.050	0.000	0.77				15.3	OK	
S1.005	S3.05	-0.027	0.000	0.86				14.4	OK	
S6.000	S3.13	-0.101	0.000	0.04				0.9	OK	
S1.006	S3.06	0.072	0.000	0.95				18.3	SURCHARGED	
S1.007	S3.07	0.084	0.000	0.25				19.5	SURCHARGED	
S1.008	SCS3	0.903	0.000	0.00				0.0	SURCHARGED	5

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S3.01	15 W nter	100	+40%	100/120 W nter				13.924
S2.000	S3.08	15 W nter	100	+40%	100/120 W nter				14.028
S2.001	S3.09	15 Summer	100	+40%	100/15 Summer				13.740
S1.001	S3.02	15 W nter	100	+40%	30/360 W nter				13.783
S3.000	S3.10	15 W nter	100	+40%	100/15 Summer				13.744
S4.000	SRE3.1	15 W nter	100	+40%					13.833
S3.001	S3.11	30 Summer	100	+40%	30/240 W nter				13.588
S1.002	SNOE	15 W nter	100	+40%	30/15 W nter				13.294
S1.003	S3.03	15 W nter	100	+40%	30/120 Summer				13.482
S5.000	S3.12	15 W nter	100	+40%	100/120 W nter				13.994
S1.004	S3.04	15 W nter	100	+40%	30/60 Summer				13.381
S1.005	S3.05	15 W nter	100	+40%	30/30 W nter				13.278
S6.000	S3.13	15 W nter	100	+40%	30/30 W nter				13.252
S1.006	S3.06	15 W nter	100	+40%	30/15 W nter				13.252
S1.007	S3.07	15 Summer	100	+40%	1/240 W nter				13.163
S1.008	SCS3	360 W nter	100	+40%	1/15 Summer	100/120 W nter			14.740

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.126	0.000	0.06		2.9	OK	
S2.000	S3.08	-0.092	0.000	0.31		12.3	OK	
S2.001	S3.09	0.270	0.000	0.64		12.6	SURCHARGED	
S1.001	S3.02	0.413	0.000	1.13		14.8	SURCHARGED	
S3.000	S3.10	0.294	0.000	0.43		6.9	SURCHARGED	
S4.000	SRE3.1	-0.117	0.000	0.11		2.2	OK*	

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SWB - Main East S

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S3.001	S3.11	0.238	0.000	0.43		8.5	SURCHARGED	
S1.002	S3.02	0.044	0.000	1.58		22.7	SURCHARGED*	
S1.003	S3.03	0.332	0.000	1.14		22.6	SURCHARGED	
S5.000	S3.12	-0.126	0.000	0.06		1.7	OK	
S1.004	S3.04	0.331	0.000	1.16		22.9	SURCHARGED	
S1.005	S3.05	0.328	0.000	1.36		22.7	SURCHARGED	
S6.000	S3.13	0.302	0.000	0.08		1.6	SURCHARGED	
S1.006	S3.06	0.402	0.000	1.50		29.0	SURCHARGED	
S1.007	S3.07	0.408	0.000	0.34		26.2	SURCHARGED	
S1.008	SCS3	2.285	0.029	0.06		1.7	FLOOD	5

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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.	Water Level (m)
S1.000	S3.01	60 W nter	1	+0%	100/120 W nter				13.905
S2.000	S3.08	60 W nter	1	+0%	100/120 W nter				13.988
S2.001	S3.09	60 W nter	1	+0%	100/15 Summer				13.349
S1.001	S3.02	60 W nter	1	+0%	30/360 W nter				13.259
S3.000	S3.10	60 W nter	1	+0%	100/15 Summer				13.323
S4.000	SRE3.1	60 W nter	1	+0%					13.809
S3.001	S3.11	60 W nter	1	+0%	30/240 W nter				13.226
S1.002	SNODE	60 W nter	1	+0%	30/15 W nter				13.149
S1.003	S3.03	60 W nter	1	+0%	30/120 Summer				13.041
S5.000	S3.12	60 W nter	1	+0%	100/120 W nter				13.975
S1.004	S3.04	60 W nter	1	+0%	30/60 Summer				12.943
S1.005	S3.05	60 W nter	1	+0%	30/30 W nter				12.847
S6.000	S3.13	60 W nter	1	+0%	30/30 W nter				12.808
S1.006	S3.06	60 W nter	1	+0%	30/15 W nter				12.750
S1.007	S3.07	60 W nter	1	+0%	1/240 W nter				12.640
S1.008	SCS3	60 W nter	1	+0%	1/15 Summer	100/120 W nter			12.639

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Pipe Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.145	0.000	0.01		0.3	OK	
S2.000	S3.08	-0.132	0.000	0.04		1.4	OK	
S2.001	S3.09	-0.121	0.000	0.08		1.7	OK	
S1.001	S3.02	-0.111	0.000	0.15		2.0	OK	
S3.000	S3.10	-0.127	0.000	0.06		0.9	OK	
S4.000	SRE3.1	-0.141	0.000	0.01		0.3	OK*	

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SWB - Main East S

PN	US/MH Name	Surcharged		Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (mE)						
S3.001	S3.11	-0.124	0.000	0.07			1.4	OK	
S1.002	SNODE	-0.101	0.000	0.23			3.4	OK*	
S1.003	S3.03	-0.109	0.000	0.17			3.4	OK	
S5.000	S3.12	-0.145	0.000	0.01			0.2	OK	
S1.004	S3.04	-0.107	0.000	0.18			3.6	OK	
S1.005	S3.05	-0.103	0.000	0.21			3.6	OK	
S6.000	S3.13	-0.142	0.000	0.01			0.2	OK	
S1.006	S3.06	-0.100	0.000	0.24			4.6	OK	
S1.007	S3.07	-0.115	0.000	0.06			4.6	OK	
S1.008	SCS3	0.184	0.000	0.00			0.0	SURCHARGED	5

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model	FSR M5-60 (mm)	20.000	Cv (Summer)	0.750	
Region	England and Wales	Ratio R	0.400	Cv (Winter)	0.840

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

Profile(s)

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

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S3.01	60 W nter	30	+0%	100/120 W nter				13.913
S2.000	S3.08	60 W nter	30	+0%	100/120 W nter				14.000
S2.001	S3.09	60 W nter	30	+0%	100/15 Summer				13.366
S1.001	S3.02	60 W nter	30	+0%	30/360 W nter				13.283
S3.000	S3.10	60 W nter	30	+0%	100/15 Summer				13.337
S4.000	SRE3.1	60 W nter	30	+0%					13.817
S3.001	S3.11	60 W nter	30	+0%	30/240 W nter				13.241
S1.002	SNODE	60 W nter	30	+0%	30/15 W nter				13.181
S1.003	S3.03	60 W nter	30	+0%	30/120 Summer				13.145
S5.000	S3.12	60 W nter	30	+0%	100/120 W nter				13.982
S1.004	S3.04	60 W nter	30	+0%	30/60 Summer				13.144
S1.005	S3.05	60 W nter	30	+0%	30/30 W nter				13.143
S6.000	S3.13	60 W nter	30	+0%	30/30 W nter				13.142
S1.006	S3.06	60 W nter	30	+0%	30/15 W nter				13.142
S1.007	S3.07	60 W nter	30	+0%	1/240 W nter				13.142
S1.008	SCS3	60 W nter	30	+0%	1/15 Summer	100/120 W nter			13.142

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Pipe Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.137	0.000	0.02		0.8	OK	
S2.000	S3.08	-0.120	0.000	0.09		3.5	OK	
S2.001	S3.09	-0.104	0.000	0.20		4.0	OK	
S1.001	S3.02	-0.087	0.000	0.37		4.8	OK	
S3.000	S3.10	-0.113	0.000	0.14		2.2	OK	
S4.000	SRE3.1	-0.133	0.000	0.03		0.6	OK*	

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for
SWB - Main East S

PN	US/MH Name	Surcharged		Flooded		Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
		Depth (m)	Volume (mE)	Flow	Volume					
S3.001	S3.11	-0.109	0.000	0.17				3.3	OK	
S1.002	SNODE	-0.069	0.000	0.57				8.2	OK*	
S1.003	S3.03	-0.005	0.000	0.41				8.2	OK	
S5.000	S3.12	-0.138	0.000	0.02				0.5	OK	
S1.004	S3.04	0.094	0.000	0.44				8.6	SURCHARGED	
S1.005	S3.05	0.193	0.000	0.52				8.7	SURCHARGED	
S6.000	S3.13	0.192	0.000	0.03				0.5	SURCHARGED	
S1.006	S3.06	0.292	0.000	0.58				11.2	SURCHARGED	
S1.007	S3.07	0.387	0.000	0.13				10.4	SURCHARGED	
S1.008	SCS3	0.687	0.000	0.00				0.0	SURCHARGED	5

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SWB - Main East S

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.000	S3.01	60 Wnter	100	+40%	100/120 Wnter				13.918
S2.000	S3.08	60 Wnter	100	+40%	100/120 Wnter				14.010
S2.001	S3.09	60 Wnter	100	+40%	100/15 Summer				13.780
S1.001	S3.02	60 Wnter	100	+40%	30/360 Wnter				13.779
S3.000	S3.10	60 Wnter	100	+40%	100/15 Summer				13.778
S4.000	SRE3.1	60 Wnter	100	+40%					13.823
S3.001	S3.11	60 Wnter	100	+40%	30/240 Wnter				13.777
S1.002	SNODE	60 Wnter	100	+40%	30/15 Wnter				13.294
S1.003	S3.03	60 Wnter	100	+40%	30/120 Summer				13.772
S5.000	S3.12	60 Wnter	100	+40%	100/120 Wnter				13.987
S1.004	S3.04	60 Wnter	100	+40%	30/60 Summer				13.770
S1.005	S3.05	60 Wnter	100	+40%	30/30 Wnter				13.769
S6.000	S3.13	60 Wnter	100	+40%	30/30 Wnter				13.767
S1.006	S3.06	60 Wnter	100	+40%	30/15 Wnter				13.767
S1.007	S3.07	60 Wnter	100	+40%	1/240 Wnter				13.767
S1.008	SCS3	360 Wnter	100	+40%	1/15 Summer	100/120 Wnter			14.740

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S3.01	-0.132	0.000	0.03		1.5	OK	
S2.000	S3.08	-0.110	0.000	0.16		6.4	OK	
S2.001	S3.09	0.310	0.000	0.37		7.4	SURCHARGED	
S1.001	S3.02	0.409	0.000	0.67		8.8	SURCHARGED	
S3.000	S3.10	0.328	0.000	0.26		4.1	SURCHARGED	
S4.000	SRE3.1	-0.127	0.000	0.06		1.1	OK*	

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for
SWB - Main East S

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S3.001	S3.11	0.427	0.000	0.30		6.0	SURCHARGED	
S1.002	SNODE	0.044	0.000	0.97		13.9	SURCHARGED*	
S1.003	S3.03	0.622	0.000	0.67		13.2	SURCHARGED	
S5.000	S3.12	-0.133	0.000	0.03		0.9	OK	
S1.004	S3.04	0.720	0.000	0.65		13.0	SURCHARGED	
S1.005	S3.05	0.819	0.000	0.75		12.6	SURCHARGED	
S6.000	S3.13	0.817	0.000	0.04		0.7	SURCHARGED	
S1.006	S3.06	0.917	0.000	0.85		16.4	SURCHARGED	
S1.007	S3.07	1.012	0.000	0.20		15.2	SURCHARGED	
S1.008	SCS3	2.285	0.029	0.06		1.7	FLOOD	5

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STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for SW4 - Entrance

Y - 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	13.308	0.180	73.9	0.008	5.00	0.0	0.600	o	150	Pipe/Conduit	
S1.001	17.414	0.150	116.1	0.009	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.002	5.087	0.100	50.9	0.027	0.00	0.0	0.600	o	150	Pipe/Conduit	
S1.003	0.720	-3.000	-0.2	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)	√ I. Area (ha)	√ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.19	12.300	0.008	0.0	0.0	0.0	1.17	20.7	1.0
S1.001	50.00	5.50	12.120	0.017	0.0	0.0	0.0	0.93	16.5	2.3
S1.002	50.00	5.56	11.970	0.044	0.0	0.0	0.0	1.41	25.0	6.0
S1.003	50.00	5.69	11.870	0.044	0.0	0.0	0.0	0.09	1.6	6.0

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Manhole Schedules for SW4 - Entrance

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Di am, L*W (mm)	PN	Pipe Out Invert Level (m)	Di ameter (mm)	PN	Pipes In Invert Level (m)	Di ameter (mm)	Backdrop (mm)
S4.01	13.390	1.090	Open Manhole	1200	S1.000	12.300	150				
S4.02	14.000	1.880	Open Manhole	1200	S1.001	12.120	150	S1.000	12.120	150	
S4.03	14.700	2.730	Open Manhole	1200	S1.002	11.970	150	S1.001	11.970	150	
SCS3	14.700	2.830	Open Manhole	300	S1.003	11.870	150	S1.002	11.870	150	
S	15.200	0.330	Open Manhole	0		OUTFALL		S1.003	14.870	150	

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Storage Structures for SW4 - Entrance

Porous Car Park Manhole: S4.03, DS/PN: S1.002

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	4.8
Membrane Percolation (mm/hr)	1000	Length (m)	14.4
Max Percolation (l/s)	19.2	Slope (1:X)	0.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	14.150	Cap Volume Depth (m)	0.300

Cellular Storage Manhole: SCS3, DS/PN: S1.003

Invert Level (m)	11.870	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.95
Infiltration Coefficient Side (m/hr)	16.16000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	2.0	2.0	0.800	2.0	6.8	0.801	0.0	6.8

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1 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surcharged	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	15 Winter	1	+0%	30/15 Summer				12.323	-0.127
S1.001	S4.02	15 Winter	1	+0%	30/15 Summer				12.158	-0.112
S1.002	S4.03	15 Summer	1	+0%	1/15 Winter				12.112	-0.008
S1.003	SCS3	1440 Winter	1	+0%	1/15 Summer				11.896	-0.124

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.06		1.1	OK	
S1.001	S4.02	0.000	0.14		2.2	OK	
S1.002	S4.03	0.000	0.21		4.1	OK	
S1.003	SCS3	0.000	0.00		0.0	OK	

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30 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	15 Summer	30	+0%	30/15 Summer				12.477	0.027
S1.001	S4.02	15 Summer	30	+0%	30/15 Summer				12.469	0.199
S1.002	S4.03	15 Winter	30	+0%	1/15 Winter				12.503	0.383
S1.003	SCS3	1440 Summer	30	+0%	1/15 Summer				11.943	-0.077

		Flooded		Pipe			
PN	US/MH Name	Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.12		2.3	SURCHARGED	
S1.001	S4.02	0.000	0.23		3.6	SURCHARGED	
S1.002	S4.03	0.000	0.47		9.3	SURCHARGED	
S1.003	SCS3	0.000	0.00		0.0	OK	

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100 year Return Period Summary of Critical Results by Maximum Velocity (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surcharged	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	15 Winter	100	+40%	30/15 Summer				13.315	0.865
S1.001	S4.02	15 Winter	100	+40%	30/15 Summer				13.301	1.031
S1.002	S4.03	30 Winter	100	+40%	1/15 Winter				13.324	1.204
S1.003	SCS3	1440 Summer	100	+40%	1/15 Summer				12.000	-0.020

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.20		3.9	FLOOD RISK	
S1.001	S4.02	0.000	0.45		6.8	SURCHARGED	
S1.002	S4.03	0.000	0.65		12.9	SURCHARGED	
S1.003	SCS3	0.000	0.00		0.0	OK	

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1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	60 Wnter	1	+0%	30/15 Summer				12.317	-0.133
S1.001	S4.02	60 Wnter	1	+0%	30/15 Summer				12.148	-0.122
S1.002	S4.03	60 Wnter	1	+0%	1/15 Wnter				12.083	-0.037
S1.003	SCS3	60 Wnter	1	+0%	1/15 Summer				12.077	0.057

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.03		0.6	OK	
S1.001	S4.02	0.000	0.08		1.2	OK	
S1.002	S4.03	0.000	0.15		2.9	OK	
S1.003	SCS3	0.000	0.00		0.0	SURCHARGED	

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30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	60 Wnter	30	+0%	30/15 Summer				12.367	-0.083
S1.001	S4.02	60 Wnter	30	+0%	30/15 Summer				12.363	0.093
S1.002	S4.03	60 Wnter	30	+0%	1/15 Wnter				12.352	0.232
S1.003	SCS3	60 Wnter	30	+0%	1/15 Summer				12.339	0.319

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.07		1.3	OK	
S1.001	S4.02	0.000	0.16		2.5	SURCHARGED	
S1.002	S4.03	0.000	0.33		6.5	SURCHARGED	
S1.003	SCS3	0.000	0.00		0.0	SURCHARGED	

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100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW4 - Entrance

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S4.01	60 Wnter	100	+40%	30/15 Summer				12.848	0.398
S1.001	S4.02	60 Wnter	100	+40%	30/15 Summer				12.851	0.581
S1.002	S4.03	60 Wnter	100	+40%	1/15 Wnter				12.850	0.730
S1.003	SCS3	60 Wnter	100	+40%	1/15 Summer				12.926	0.906

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S4.01	0.000	0.13		2.4	SURCHARGED	
S1.001	S4.02	0.000	0.33		5.1	SURCHARGED	
S1.002	S4.03	0.000	0.58		11.5	SURCHARGED	
S1.003	SCS3	0.000	0.00		0.0	SURCHARGED	

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<u>Summary of Results for 100 year Return Period (+40%)</u> Half Drain Time : 8 minutes. <table><thead><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (mE)</th><th>Status</th></tr></thead><tbody><tr><td>15 min Summer</td><td>10.008</td><td>2.008</td><td>48.5</td><td>29.8</td><td>FLOOD</td></tr><tr><td>30 min Summer</td><td>10.010</td><td>2.010</td><td>48.5</td><td>31.1</td><td>FLOOD</td></tr><tr><td>60 min Summer</td><td>10.005</td><td>2.005</td><td>48.5</td><td>25.8</td><td>FLOOD</td></tr><tr><td>120 min Summer</td><td>9.084</td><td>1.084</td><td>43.8</td><td>18.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>8.872</td><td>0.872</td><td>35.2</td><td>14.9</td><td>O K</td></tr><tr><td>240 min Summer</td><td>8.731</td><td>0.731</td><td>29.5</td><td>12.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>8.559</td><td>0.559</td><td>22.6</td><td>9.6</td><td>O K</td></tr><tr><td>480 min Summer</td><td>8.458</td><td>0.458</td><td>18.5</td><td>7.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>8.391</td><td>0.391</td><td>15.8</td><td>6.7</td><td>O K</td></tr><tr><td>720 min Summer</td><td>8.341</td><td>0.341</td><td>13.8</td><td>5.8</td><td>O K</td></tr><tr><td>960 min Summer</td><td>8.275</td><td>0.275</td><td>11.1</td><td>4.7</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>8.200</td><td>0.200</td><td>8.1</td><td>3.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>8.145</td><td>0.145</td><td>5.8</td><td>2.5</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>8.115</td><td>0.115</td><td>4.6</td><td>2.0</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>8.083</td><td>0.083</td><td>3.3</td><td>1.4</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.065</td><td>0.065</td><td>2.6</td><td>1.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.055</td><td>0.055</td><td>2.2</td><td>0.9</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.047</td><td>0.047</td><td>1.9</td><td>0.8</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.041</td><td>0.041</td><td>1.7</td><td>0.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>10.012</td><td>2.012</td><td>48.5</td><td>33.5</td><td>FLOOD</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>138.153</td><td>9.3</td><td>13</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>10.6</td><td>21</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>5.3</td><td>36</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>66</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>96</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>126</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>186</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>248</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>308</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>368</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>490</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>734</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1092</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1444</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2176</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>3616</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>4400</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5120</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>13.0</td><td>13</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	10.008	2.008	48.5	29.8	FLOOD	30 min Summer	10.010	2.010	48.5	31.1	FLOOD	60 min Summer	10.005	2.005	48.5	25.8	FLOOD	120 min Summer	9.084	1.084	43.8	18.5	O K	180 min Summer	8.872	0.872	35.2	14.9	O K	240 min Summer	8.731	0.731	29.5	12.5	O K	360 min Summer	8.559	0.559	22.6	9.6	O K	480 min Summer	8.458	0.458	18.5	7.8	O K	600 min Summer	8.391	0.391	15.8	6.7	O K	720 min Summer	8.341	0.341	13.8	5.8	O K	960 min Summer	8.275	0.275	11.1	4.7	O K	1440 min Summer	8.200	0.200	8.1	3.4	O K	2160 min Summer	8.145	0.145	5.8	2.5	O K	2880 min Summer	8.115	0.115	4.6	2.0	O K	4320 min Summer	8.083	0.083	3.3	1.4	O K	5760 min Summer	8.065	0.065	2.6	1.1	O K	7200 min Summer	8.055	0.055	2.2	0.9	O K	8640 min Summer	8.047	0.047	1.9	0.8	O K	10080 min Summer	8.041	0.041	1.7	0.7	O K	15 min Winter	10.012	2.012	48.5	33.5	FLOOD	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	138.153	9.3	13	30 min Summer	90.705	10.6	21	60 min Summer	56.713	5.3	36	120 min Summer	34.246	0.0	66	180 min Summer	25.149	0.0	96	240 min Summer	20.078	0.0	126	360 min Summer	14.585	0.0	186	480 min Summer	11.622	0.0	248	600 min Summer	9.738	0.0	308	720 min Summer	8.424	0.0	368	960 min Summer	6.697	0.0	490	1440 min Summer	4.839	0.0	734	2160 min Summer	3.490	0.0	1092	2880 min Summer	2.766	0.0	1444	4320 min Summer	1.989	0.0	2176	5760 min Summer	1.573	0.0	2936	7200 min Summer	1.311	0.0	3616	8640 min Summer	1.129	0.0	4400	10080 min Summer	0.994	0.0	5120	15 min Winter	138.153	13.0	13
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20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place Angmering Proposed SW - Main Site West			
Date 25/11/2019 14:07 File SWI - MAIN WEST.SRCX		Designed by Paul Lavery Checked by			
Innovyze		Source Control 2018.1.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
30 min Winter	10.012	2.012	48.5	33.3	FLOOD
60 min Winter	10.003	2.003	48.5	24.4	FLOOD
120 min Winter	8.933	0.933	37.7	15.9	O K
180 min Winter	8.714	0.714	28.9	12.2	O K
240 min Winter	8.581	0.581	23.5	9.9	O K
360 min Winter	8.429	0.429	17.3	7.3	O K
480 min Winter	8.344	0.344	13.9	5.9	O K
600 min Winter	8.290	0.290	11.7	5.0	O K
720 min Winter	8.251	0.251	10.2	4.3	O K
960 min Winter	8.200	0.200	8.1	3.4	O K
1440 min Winter	8.145	0.145	5.8	2.5	O K
2160 min Winter	8.105	0.105	4.2	1.8	O K
2880 min Winter	8.083	0.083	3.3	1.4	O K
4320 min Winter	8.060	0.060	2.4	1.0	O K
5760 min Winter	8.047	0.047	1.9	0.8	O K
7200 min Winter	8.039	0.039	1.6	0.7	O K
8640 min Winter	8.034	0.034	1.4	0.6	O K
10080 min Winter	8.030	0.030	1.2	0.5	O K
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)		
30 min Winter	90.705	12.8	22		
60 min Winter	56.713	3.8	38		
120 min Winter	34.246	0.0	68		
180 min Winter	25.149	0.0	98		
240 min Winter	20.078	0.0	128		
360 min Winter	14.585	0.0	188		
480 min Winter	11.622	0.0	248		
600 min Winter	9.738	0.0	308		
720 min Winter	8.424	0.0	368		
960 min Winter	6.697	0.0	490		
1440 min Winter	4.839	0.0	734		
2160 min Winter	3.490	0.0	1088		
2880 min Winter	2.766	0.0	1468		
4320 min Winter	1.989	0.0	2164		
5760 min Winter	1.573	0.0	2928		
7200 min Winter	1.311	0.0	3576		
8640 min Winter	1.129	0.0	4392		
10080 min Winter	0.994	0.0	5072		
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Iesis Special Structures		Page 3																		
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place Angmering Proposed SW - Main Site West																			
Date 25/11/2019 14:07 File SW - MAIN WEST.SRCX	Designed by Paul Lavery Checked by																			
Innovyze		Source Control 2018.1.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.000 Infiltration Coefficient Base (m/hr) 0.00000 Infiltration Coefficient Side (m/hr) 16.16000 Safety Factor 2.0 Porosity 0.95 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>18.0</td> <td>18.0</td> <td>1.201</td> <td>0.0</td> <td>39.6</td> </tr> <tr> <td>1.200</td> <td>18.0</td> <td>39.6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	18.0	18.0	1.201	0.0	39.6	1.200	18.0	39.6			
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Summer</td><td>8.281</td><td>0.281</td><td>11.3</td><td>4.8</td><td>O K</td></tr><tr><td>600 min Summer</td><td>8.241</td><td>0.241</td><td>9.7</td><td>4.1</td><td>O K</td></tr><tr><td>720 min Summer</td><td>8.212</td><td>0.212</td><td>8.6</td><td>3.6</td><td>O K</td></tr><tr><td>960 min Summer</td><td>8.172</td><td>0.172</td><td>6.9</td><td>2.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>8.127</td><td>0.127</td><td>5.1</td><td>2.2</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>8.093</td><td>0.093</td><td>3.8</td><td>1.6</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>8.075</td><td>0.075</td><td>3.0</td><td>1.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>8.055</td><td>0.055</td><td>2.2</td><td>0.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.044</td><td>0.044</td><td>1.8</td><td>0.7</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.037</td><td>0.037</td><td>1.5</td><td>0.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.032</td><td>0.032</td><td>1.3</td><td>0.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.028</td><td>0.028</td><td>1.1</td><td>0.5</td><td>O K</td></tr><tr><td>15 min Winter</td><td>9.063</td><td>1.063</td><td>43.0</td><td>18.2</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>83.912</td><td>0.0</td><td>12</td></tr><tr><td>30 min Summer</td><td>54.206</td><td>0.0</td><td>20</td></tr><tr><td>60 min Summer</td><td>33.604</td><td>0.0</td><td>36</td></tr><tr><td>120 min Summer</td><td>20.311</td><td>0.0</td><td>66</td></tr><tr><td>180 min Summer</td><td>15.011</td><td>0.0</td><td>96</td></tr><tr><td>240 min Summer</td><td>12.078</td><td>0.0</td><td>126</td></tr><tr><td>360 min Summer</td><td>8.874</td><td>0.0</td><td>186</td></tr><tr><td>480 min Summer</td><td>7.126</td><td>0.0</td><td>248</td></tr><tr><td>600 min Summer</td><td>6.008</td><td>0.0</td><td>308</td></tr><tr><td>720 min Summer</td><td>5.225</td><td>0.0</td><td>368</td></tr><tr><td>960 min Summer</td><td>4.190</td><td>0.0</td><td>490</td></tr><tr><td>1440 min Summer</td><td>3.067</td><td>0.0</td><td>734</td></tr><tr><td>2160 min Summer</td><td>2.244</td><td>0.0</td><td>1092</td></tr><tr><td>2880 min Summer</td><td>1.797</td><td>0.0</td><td>1452</td></tr><tr><td>4320 min Summer</td><td>1.313</td><td>0.0</td><td>2184</td></tr><tr><td>5760 min Summer</td><td>1.051</td><td>0.0</td><td>2936</td></tr><tr><td>7200 min Summer</td><td>0.884</td><td>0.0</td><td>3648</td></tr><tr><td>8640 min Summer</td><td>0.767</td><td>0.0</td><td>4296</td></tr><tr><td>10080 min Summer</td><td>0.681</td><td>0.0</td><td>5072</td></tr><tr><td>15 min Winter</td><td>83.912</td><td>0.0</td><td>13</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	8.990	0.990	40.0	16.9	O K	30 min Summer	8.988	0.988	39.9	16.9	O K	60 min Summer	8.847	0.847	34.2	14.5	O K	120 min Summer	8.643	0.643	26.0	11.0	O K	180 min Summer	8.520	0.520	21.0	8.9	O K	240 min Summer	8.440	0.440	17.8	7.5	O K	360 min Summer	8.340	0.340	13.7	5.8	O K	480 min Summer	8.281	0.281	11.3	4.8	O K	600 min Summer	8.241	0.241	9.7	4.1	O K	720 min Summer	8.212	0.212	8.6	3.6	O K	960 min Summer	8.172	0.172	6.9	2.9	O K	1440 min Summer	8.127	0.127	5.1	2.2	O K	2160 min Summer	8.093	0.093	3.8	1.6	O K	2880 min Summer	8.075	0.075	3.0	1.3	O K	4320 min Summer	8.055	0.055	2.2	0.9	O K	5760 min Summer	8.044	0.044	1.8	0.7	O K	7200 min Summer	8.037	0.037	1.5	0.6	O K	8640 min Summer	8.032	0.032	1.3	0.5	O K	10080 min Summer	8.028	0.028	1.1	0.5	O K	15 min Winter	9.063	1.063	43.0	18.2	O K	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	83.912	0.0	12	30 min Summer	54.206	0.0	20	60 min Summer	33.604	0.0	36	120 min Summer	20.311	0.0	66	180 min Summer	15.011	0.0	96	240 min Summer	12.078	0.0	126	360 min Summer	8.874	0.0	186	480 min Summer	7.126	0.0	248	600 min Summer	6.008	0.0	308	720 min Summer	5.225	0.0	368	960 min Summer	4.190	0.0	490	1440 min Summer	3.067	0.0	734	2160 min Summer	2.244	0.0	1092	2880 min Summer	1.797	0.0	1452	4320 min Summer	1.313	0.0	2184	5760 min Summer	1.051	0.0	2936	7200 min Summer	0.884	0.0	3648	8640 min Summer	0.767	0.0	4296	10080 min Summer	0.681	0.0	5072	15 min Winter	83.912	0.0	13
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Iesis Special Structures				Page 2		
20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place Angmering Proposed SW - Main Site West				
Date 25/11/2019 14:08 File SWI - MAIN WEST.SRCX		Designed by Paul Lavery Checked by				
Innovyze		Source Control 2018.1.1				
<u>Summary of Results for 10 year Return Period (+40%)</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	
30 min Winter	9.009	1.009		40.8	17.3	O K
60 min Winter	8.796	0.796		32.1	13.6	O K
120 min Winter	8.553	0.553		22.4	9.5	O K
180 min Winter	8.426	0.426		17.2	7.3	O K
240 min Winter	8.350	0.350		14.1	6.0	O K
360 min Winter	8.261	0.261		10.6	4.5	O K
480 min Winter	8.211	0.211		8.5	3.6	O K
600 min Winter	8.179	0.179		7.2	3.1	O K
720 min Winter	8.156	0.156		6.3	2.7	O K
960 min Winter	8.125	0.125		5.1	2.1	O K
1440 min Winter	8.092	0.092		3.7	1.6	O K
2160 min Winter	8.067	0.067		2.7	1.1	O K
2880 min Winter	8.054	0.054		2.2	0.9	O K
4320 min Winter	8.040	0.040		1.6	0.7	O K
5760 min Winter	8.032	0.032		1.3	0.5	O K
7200 min Winter	8.027	0.027		1.1	0.5	O K
8640 min Winter	8.023	0.023		0.9	0.4	O K
10080 min Winter	8.021	0.021		0.8	0.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)			
30 min Winter	54.206	0.0	21			
60 min Winter	33.604	0.0	36			
120 min Winter	20.311	0.0	68			
180 min Winter	15.011	0.0	98			
240 min Winter	12.078	0.0	128			
360 min Winter	8.874	0.0	188			
480 min Winter	7.126	0.0	248			
600 min Winter	6.008	0.0	308			
720 min Winter	5.225	0.0	368			
960 min Winter	4.190	0.0	490			
1440 min Winter	3.067	0.0	734			
2160 min Winter	2.244	0.0	1076			
2880 min Winter	1.797	0.0	1468			
4320 min Winter	1.313	0.0	2160			
5760 min Winter	1.051	0.0	2888			
7200 min Winter	0.884	0.0	3656			
8640 min Winter	0.767	0.0	4336			
10080 min Winter	0.681	0.0	4984			
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Iesis Special Structures		Page 3																		
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place Angmering Proposed SW - Main Site West																			
Date 25/11/2019 14:08 File SW - MAIN WEST.SRCX	Designed by Paul Lavery Checked by																			
Innovyze		Source Control 2018.1.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.000 Infiltration Coefficient Base (m/hr) 0.00000 Infiltration Coefficient Side (m/hr) 16.16000 Safety Factor 2.0 Porosity 0.95 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>18.0</td> <td>18.0</td> <td>1.201</td> <td>0.0</td> <td>39.6</td> </tr> <tr> <td>1.200</td> <td>18.0</td> <td>39.6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	18.0	18.0	1.201	0.0	39.6	1.200	18.0	39.6			
Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)															
0.000	18.0	18.0	1.201	0.0	39.6															
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<u>Summary of Results for 10 year Return Period (+40%)</u> Half Drain Time : 445 minutes. <table><tr><th>Storm Event</th><th>Max Level (m)</th><th>Max Depth (m)</th><th>Max Infiltration (l/s)</th><th>Max Volume (mE)</th><th>Status</th></tr><tr><td>15 min Summer</td><td>8.517</td><td>0.517</td><td>0.2</td><td>5.9</td><td>O K</td></tr><tr><td>30 min Summer</td><td>8.660</td><td>0.660</td><td>0.2</td><td>7.5</td><td>O K</td></tr><tr><td>60 min Summer</td><td>8.800</td><td>0.800</td><td>0.2</td><td>9.1</td><td>O K</td></tr><tr><td>120 min Summer</td><td>8.925</td><td>0.925</td><td>0.3</td><td>10.5</td><td>O K</td></tr><tr><td>180 min Summer</td><td>8.981</td><td>0.981</td><td>0.3</td><td>11.2</td><td>O K</td></tr><tr><td>240 min Summer</td><td>9.007</td><td>1.007</td><td>0.3</td><td>11.5</td><td>O K</td></tr><tr><td>360 min Summer</td><td>9.029</td><td>1.029</td><td>0.3</td><td>11.7</td><td>O K</td></tr><tr><td>480 min Summer</td><td>9.042</td><td>1.042</td><td>0.3</td><td>11.9</td><td>O K</td></tr><tr><td>600 min Summer</td><td>9.049</td><td>1.049</td><td>0.3</td><td>12.0</td><td>O K</td></tr><tr><td>720 min Summer</td><td>9.051</td><td>1.051</td><td>0.3</td><td>12.0</td><td>O K</td></tr><tr><td>960 min Summer</td><td>9.044</td><td>1.044</td><td>0.3</td><td>11.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>9.011</td><td>1.011</td><td>0.3</td><td>11.5</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>8.949</td><td>0.949</td><td>0.3</td><td>10.8</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>8.888</td><td>0.888</td><td>0.3</td><td>10.1</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>8.785</td><td>0.785</td><td>0.2</td><td>8.9</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.704</td><td>0.704</td><td>0.2</td><td>8.0</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.640</td><td>0.640</td><td>0.2</td><td>7.3</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.588</td><td>0.588</td><td>0.2</td><td>6.7</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.545</td><td>0.545</td><td>0.2</td><td>6.2</td><td>O K</td></tr><tr><td>15 min Winter</td><td>8.579</td><td>0.579</td><td>0.2</td><td>6.6</td><td>O K</td></tr></table> <table><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr><tr><td>15 min Summer</td><td>83.912</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>54.206</td><td>0.0</td><td>33</td></tr><tr><td>60 min Summer</td><td>33.604</td><td>0.0</td><td>62</td></tr><tr><td>120 min Summer</td><td>20.311</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>15.011</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>12.078</td><td>0.0</td><td>240</td></tr><tr><td>360 min Summer</td><td>8.874</td><td>0.0</td><td>300</td></tr><tr><td>480 min Summer</td><td>7.126</td><td>0.0</td><td>360</td></tr><tr><td>600 min Summer</td><td>6.008</td><td>0.0</td><td>424</td></tr><tr><td>720 min Summer</td><td>5.225</td><td>0.0</td><td>492</td></tr><tr><td>960 min Summer</td><td>4.190</td><td>0.0</td><td>628</td></tr><tr><td>1440 min Summer</td><td>3.067</td><td>0.0</td><td>908</td></tr><tr><td>2160 min Summer</td><td>2.244</td><td>0.0</td><td>1300</td></tr><tr><td>2880 min Summer</td><td>1.797</td><td>0.0</td><td>1700</td></tr><tr><td>4320 min Summer</td><td>1.313</td><td>0.0</td><td>2464</td></tr><tr><td>5760 min Summer</td><td>1.051</td><td>0.0</td><td>3224</td></tr><tr><td>7200 min Summer</td><td>0.884</td><td>0.0</td><td>3960</td></tr><tr><td>8640 min Summer</td><td>0.767</td><td>0.0</td><td>4672</td></tr><tr><td>10080 min Summer</td><td>0.681</td><td>0.0</td><td>5440</td></tr><tr><td>15 min Winter</td><td>83.912</td><td>0.0</td><td>19</td></tr></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	8.517	0.517	0.2	5.9	O K	30 min Summer	8.660	0.660	0.2	7.5	O K	60 min Summer	8.800	0.800	0.2	9.1	O K	120 min Summer	8.925	0.925	0.3	10.5	O K	180 min Summer	8.981	0.981	0.3	11.2	O K	240 min Summer	9.007	1.007	0.3	11.5	O K	360 min Summer	9.029	1.029	0.3	11.7	O K	480 min Summer	9.042	1.042	0.3	11.9	O K	600 min Summer	9.049	1.049	0.3	12.0	O K	720 min Summer	9.051	1.051	0.3	12.0	O K	960 min Summer	9.044	1.044	0.3	11.9	O K	1440 min Summer	9.011	1.011	0.3	11.5	O K	2160 min Summer	8.949	0.949	0.3	10.8	O K	2880 min Summer	8.888	0.888	0.3	10.1	O K	4320 min Summer	8.785	0.785	0.2	8.9	O K	5760 min Summer	8.704	0.704	0.2	8.0	O K	7200 min Summer	8.640	0.640	0.2	7.3	O K	8640 min Summer	8.588	0.588	0.2	6.7	O K	10080 min Summer	8.545	0.545	0.2	6.2	O K	15 min Winter	8.579	0.579	0.2	6.6	O K	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	83.912	0.0	19	30 min Summer	54.206	0.0	33	60 min Summer	33.604	0.0	62	120 min Summer	20.311	0.0	122	180 min Summer	15.011	0.0	182	240 min Summer	12.078	0.0	240	360 min Summer	8.874	0.0	300	480 min Summer	7.126	0.0	360	600 min Summer	6.008	0.0	424	720 min Summer	5.225	0.0	492	960 min Summer	4.190	0.0	628	1440 min Summer	3.067	0.0	908	2160 min Summer	2.244	0.0	1300	2880 min Summer	1.797	0.0	1700	4320 min Summer	1.313	0.0	2464	5760 min Summer	1.051	0.0	3224	7200 min Summer	0.884	0.0	3960	8640 min Summer	0.767	0.0	4672	10080 min Summer	0.681	0.0	5440	15 min Winter	83.912	0.0	19
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480 min Summer	9.042	1.042	0.3	11.9	O K																																																																																																																																																																																																																		
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Iesis Special Structures				Page 2	
20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East N			
Date 25/11/2019 14:09 File SW2 - MAIN EAST N.SRCX		Designed by Paul Lavery Checked by			
Innovyze		Source Control 2018.1.1			
<u>Summary of Results for 10 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
30 min Winter	8.740	0.740	0.2	8.4	O K
60 min Winter	8.898	0.898	0.3	10.2	O K
120 min Winter	9.039	1.039	0.3	11.8	O K
180 min Winter	9.104	1.104	0.3	12.6	O K
240 min Winter	9.136	1.136	0.3	12.9	O K
360 min Winter	9.157	1.157	0.3	13.2	O K
480 min Winter	9.167	1.167	0.3	13.3	O K
600 min Winter	9.168	1.168	0.3	13.3	O K
720 min Winter	9.163	1.163	0.3	13.3	O K
960 min Winter	9.140	1.140	0.3	13.0	O K
1440 min Winter	9.078	1.078	0.3	12.3	O K
2160 min Winter	8.979	0.979	0.3	11.2	O K
2880 min Winter	8.892	0.892	0.3	10.2	O K
4320 min Winter	8.754	0.754	0.2	8.6	O K
5760 min Winter	8.654	0.654	0.2	7.5	O K
7200 min Winter	8.578	0.578	0.2	6.6	O K
8640 min Winter	8.519	0.519	0.2	5.9	O K
10080 min Winter	8.472	0.472	0.1	5.4	O K
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time - Peak (mins)		
30 min Winter	54.206	0.0	33		
60 min Winter	33.604	0.0	62		
120 min Winter	20.311	0.0	120		
180 min Winter	15.011	0.0	176		
240 min Winter	12.078	0.0	232		
360 min Winter	8.874	0.0	332		
480 min Winter	7.126	0.0	374		
600 min Winter	6.008	0.0	450		
720 min Winter	5.225	0.0	528		
960 min Winter	4.190	0.0	676		
1440 min Winter	3.067	0.0	966		
2160 min Winter	2.244	0.0	1384		
2880 min Winter	1.797	0.0	1788		
4320 min Winter	1.313	0.0	2552		
5760 min Winter	1.051	0.0	3344		
7200 min Winter	0.884	0.0	4104		
8640 min Winter	0.767	0.0	4840		
10080 min Winter	0.681	0.0	5552		
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Iesis Special Structures		Page 3																		
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East N																			
Date 25/11/2019 14:09 File SW2 - MAIN EAST N.SRCX	Designed by Paul Laverty Checked by																			
Innovyze		Source Control 2018.1.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.15000 <table border="1"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>12.0</td> <td>12.0</td> <td>1.201</td> <td>0.0</td> <td>28.8</td> </tr> <tr> <td>1.200</td> <td>12.0</td> <td>28.8</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	12.0	12.0	1.201	0.0	28.8	1.200	12.0	28.8			
Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)															
0.000	12.0	12.0	1.201	0.0	28.8															
1.200	12.0	28.8																		
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Iesis Special Structures		Page 1
20 Ironmonger Lane London EC2V 8EP	1612 Pound Place Proposed SW - Main Site East N	
Date 25/11/2019 14:30 File SE1612 Drainage Design P04.MDX	Designed by Paul Laverty Checked by	
Innovyze	Network 2018.1.1	

1 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	1	+0%	100/60 W nter				13.318	-0.132
S1.001	S2.02	60 W nter	1	+0%	100/60 W nter				13.221	-0.129
S2.000	S2.05	60 W nter	1	+0%	100/60 W nter				13.220	-0.130
S1.002	SNODE	60 W nter	1	+0%					13.106	-0.116
S3.000	S2.06	60 W nter	1	+0%	100/60 W nter				13.212	-0.138
S1.003	SNODE	60 W nter	1	+0%					13.056	-0.110
S1.004	S2.03	60 W nter	1	+0%	30/240 W nter				13.004	-0.116
S4.000	SRE2.1	60 W nter	1	+0%					13.758	-0.142
S5.000	SRE2.2	60 W nter	1	+0%					13.979	-0.141
S1.005	S2.04	60 W nter	1	+0%	30/120 W nter				12.836	-0.189
S1.006	SCS2	60 W nter	1	+0%	1/30 Summer				12.541	0.116

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.03		0.7	OK	
S1.001	S2.02	0.000	0.05		0.7	OK	
S2.000	S2.05	0.000	0.04		1.0	OK	
S1.002	SNODE	0.000	0.11		1.7	OK*	
S3.000	S2.06	0.000	0.02		0.5	OK	
S1.003	SNODE	0.000	0.16		2.1	OK*	
S1.004	S2.03	0.000	0.12		2.1	OK	
S4.000	SRE2.1	0.000	0.01		0.2	OK*	
S5.000	SRE2.2	0.000	0.01		0.3	OK*	
S1.005	S2.04	0.000	0.06		2.8	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

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20 Ironmonger Lane London EC2V 8EP	1612 Pound Place Proposed SW - Main Site East N	
Date 25/11/2019 14:30 File SE1612 Drainage Design P04.MDX	Designed by Paul Laverty Checked by	
Innovyze	Network 2018.1.1	

30 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	30	+0%	100/60 W nter				13.329	-0.121
S1.001	S2.02	60 W nter	30	+0%	100/60 W nter				13.234	-0.116
S2.000	S2.05	60 W nter	30	+0%	100/60 W nter				13.232	-0.118
S1.002	SNODE	60 W nter	30	+0%					13.125	-0.097
S3.000	S2.06	60 W nter	30	+0%	100/60 W nter				13.220	-0.130
S1.003	SNODE	60 W nter	30	+0%					13.080	-0.086
S1.004	S2.03	60 W nter	30	+0%	30/240 W nter				13.024	-0.096
S4.000	SRE2.1	60 W nter	30	+0%					13.766	-0.134
S5.000	SRE2.2	60 W nter	30	+0%					13.987	-0.133
S1.005	S2.04	60 W nter	30	+0%	30/120 W nter				12.979	-0.046
S1.006	SCS2	60 W nter	30	+0%	1/30 Summer				12.979	0.554

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pi pe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.08		1.6	OK	
S1.001	S2.02	0.000	0.12		1.6	OK	
S2.000	S2.05	0.000	0.10		2.3	OK	
S1.002	SNODE	0.000	0.28		4.0	OK*	
S3.000	S2.06	0.000	0.04		1.1	OK	
S1.003	SNODE	0.000	0.38		5.1	OK*	
S1.004	S2.03	0.000	0.28		5.1	OK	
S4.000	SRE2.1	0.000	0.03		0.5	OK*	
S5.000	SRE2.2	0.000	0.03		0.6	OK*	
S1.005	S2.04	0.000	0.15		6.7	OK	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

Iesis Special Structures		Page 3
20 Ironmonger Lane London EC2V 8EP	1612 Pound Place Proposed SW - Main Site East N	
Date 25/11/2019 14:30 File SE1612 Drainage Design P04.MDX	Designed by Paul Laverty Checked by	
Innovyze	Network 2018.1.1	

100 year Return Period Summary of Critical Results by Maximum Flood Volume (Rank 1) for SW2 - Main East N

Simulation Criteria

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

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 20.000 Cv (Summer) 0.750
 Region England and Wales Ratio R 0.400 Cv (Winter) 0.840

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

Profile(s)

Duration(s) (mins) Summer and Winter
 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) Surchage	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)
S1.000	S2.01	60 W nter	100	+40%	100/60 W nter				13.480	0.030
S1.001	S2.02	60 W nter	100	+40%	100/60 W nter				13.478	0.128
S2.000	S2.05	60 W nter	100	+40%	100/60 W nter				13.478	0.128
S1.002	SNODE	60 W nter	100	+40%					13.222	0.000
S3.000	S2.06	60 W nter	100	+40%	100/60 W nter				13.463	0.113
S1.003	SNODE	60 W nter	100	+40%					13.166	0.000
S1.004	S2.03	60 W nter	100	+40%	30/240 W nter				13.511	0.391
S4.000	SRE2.1	60 W nter	100	+40%					13.771	-0.129
S5.000	SRE2.2	60 W nter	100	+40%					13.993	-0.127
S1.005	S2.04	60 W nter	100	+40%	30/120 W nter				13.532	0.507
S1.006	SCS2	60 W nter	100	+40%	1/30 Summer				13.705	1.280

PN	US/MH Name	Flooded Volume (mE)	Flow / Cap.	Overflow (l/s)	Pipe Flow (l/s)	Status	Level Exceeded
S1.000	S2.01	0.000	0.15		3.0	SURCHARGED	
S1.001	S2.02	0.000	0.22		3.0	SURCHARGED	
S2.000	S2.05	0.000	0.19		4.3	SURCHARGED	
S1.002	SNODE	0.000	0.51		7.3	SURCHARGED*	
S3.000	S2.06	0.000	0.08		2.1	SURCHARGED	
S1.003	SNODE	0.000	0.70		9.4	SURCHARGED*	
S1.004	S2.03	0.000	0.51		9.4	SURCHARGED	
S4.000	SRE2.1	0.000	0.05		0.9	OK*	
S5.000	SRE2.2	0.000	0.06		1.1	OK*	
S1.005	S2.04	0.000	0.27		11.9	SURCHARGED	
S1.006	SCS2	0.000	0.00		0.0	SURCHARGED	

Iesis Special Structures				Page 1																																																																																																																																																																																																																			
20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S																																																																																																																																																																																																																					
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Summer</td><td>10.010</td><td>2.010</td><td>0.5</td><td>35.2</td><td>FLOOD</td></tr><tr><td>600 min Summer</td><td>10.011</td><td>2.011</td><td>0.5</td><td>35.2</td><td>FLOOD</td></tr><tr><td>720 min Summer</td><td>10.010</td><td>2.010</td><td>0.5</td><td>35.2</td><td>FLOOD</td></tr><tr><td>960 min Summer</td><td>10.010</td><td>2.010</td><td>0.5</td><td>34.9</td><td>FLOOD</td></tr><tr><td>1440 min Summer</td><td>10.009</td><td>2.009</td><td>0.5</td><td>33.7</td><td>FLOOD</td></tr><tr><td>2160 min Summer</td><td>10.007</td><td>2.007</td><td>0.5</td><td>31.5</td><td>FLOOD</td></tr><tr><td>2880 min Summer</td><td>10.004</td><td>2.004</td><td>0.5</td><td>29.1</td><td>FLOOD</td></tr><tr><td>4320 min Summer</td><td>10.000</td><td>2.000</td><td>0.5</td><td>24.9</td><td>FLOOD</td></tr><tr><td>5760 min Summer</td><td>9.464</td><td>1.464</td><td>0.5</td><td>22.2</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>9.326</td><td>1.326</td><td>0.4</td><td>20.2</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>9.215</td><td>1.215</td><td>0.4</td><td>18.5</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>9.123</td><td>1.123</td><td>0.4</td><td>17.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>9.206</td><td>1.206</td><td>0.4</td><td>18.3</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>138.153</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>1.8</td><td>64</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>6.3</td><td>122</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>8.4</td><td>182</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>9.6</td><td>242</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>10.7</td><td>360</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>10.9</td><td>458</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>10.9</td><td>508</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>10.9</td><td>570</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>10.5</td><td>692</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>9.4</td><td>966</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>7.1</td><td>1364</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>4.8</td><td>1760</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.6</td><td>2508</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>3232</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>3968</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>4752</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>5448</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	9.077	1.077	0.4	16.4	O K	30 min Summer	9.401	1.401	0.5	21.3	O K	60 min Summer	10.001	2.001	0.5	26.1	FLOOD	120 min Summer	10.006	2.006	0.5	30.6	FLOOD	180 min Summer	10.008	2.008	0.5	32.8	FLOOD	240 min Summer	10.009	2.009	0.5	33.9	FLOOD	360 min Summer	10.010	2.010	0.5	35.0	FLOOD	480 min Summer	10.010	2.010	0.5	35.2	FLOOD	600 min Summer	10.011	2.011	0.5	35.2	FLOOD	720 min Summer	10.010	2.010	0.5	35.2	FLOOD	960 min Summer	10.010	2.010	0.5	34.9	FLOOD	1440 min Summer	10.009	2.009	0.5	33.7	FLOOD	2160 min Summer	10.007	2.007	0.5	31.5	FLOOD	2880 min Summer	10.004	2.004	0.5	29.1	FLOOD	4320 min Summer	10.000	2.000	0.5	24.9	FLOOD	5760 min Summer	9.464	1.464	0.5	22.2	O K	7200 min Summer	9.326	1.326	0.4	20.2	O K	8640 min Summer	9.215	1.215	0.4	18.5	O K	10080 min Summer	9.123	1.123	0.4	17.1	O K	15 min Winter	9.206	1.206	0.4	18.3	O K	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	138.153	0.0	19	30 min Summer	90.705	0.0	34	60 min Summer	56.713	1.8	64	120 min Summer	34.246	6.3	122	180 min Summer	25.149	8.4	182	240 min Summer	20.078	9.6	242	360 min Summer	14.585	10.7	360	480 min Summer	11.622	10.9	458	600 min Summer	9.738	10.9	508	720 min Summer	8.424	10.9	570	960 min Summer	6.697	10.5	692	1440 min Summer	4.839	9.4	966	2160 min Summer	3.490	7.1	1364	2880 min Summer	2.766	4.8	1760	4320 min Summer	1.989	0.6	2508	5760 min Summer	1.573	0.0	3232	7200 min Summer	1.311	0.0	3968	8640 min Summer	1.129	0.0	4752	10080 min Summer	0.994	0.0	5448	15 min Winter	138.153	0.0	19
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20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S			
Date 25/11/2019 14:13 File SW2 - MAIN EAST S.SRCX		Designed by Paul Lavery Checked by			
Innovyze		Source Control 2018.1.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
30 min Winter	9.570	1.570	0.5	23.9	O K
60 min Winter	10.005	2.005	0.5	29.4	FLOOD
120 min Winter	10.010	2.010	0.5	34.5	FLOOD
180 min Winter	10.012	2.012	0.5	37.0	FLOOD
240 min Winter	10.014	2.014	0.5	38.4	FLOOD
360 min Winter	10.015	2.015	0.5	39.9	FLOOD
480 min Winter	10.016	2.016	0.5	40.4	FLOOD
600 min Winter	10.016	2.016	0.5	40.4	FLOOD
720 min Winter	10.015	2.015	0.5	40.1	FLOOD
960 min Winter	10.015	2.015	0.5	39.4	FLOOD
1440 min Winter	10.013	2.013	0.5	37.5	FLOOD
2160 min Winter	10.009	2.009	0.5	33.9	FLOOD
2880 min Winter	10.005	2.005	0.5	30.2	FLOOD
4320 min Winter	9.610	1.610	0.5	24.3	O K
5760 min Winter	9.385	1.385	0.5	21.1	O K
7200 min Winter	9.222	1.222	0.4	18.6	O K
8640 min Winter	9.094	1.094	0.4	16.6	O K
10080 min Winter	8.991	0.991	0.3	15.1	O K
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)		
30 min Winter	90.705	0.0	33		
60 min Winter	56.713	5.0	62		
120 min Winter	34.246	10.2	120		
180 min Winter	25.149	12.7	178		
240 min Winter	20.078	14.1	236		
360 min Winter	14.585	15.6	350		
480 min Winter	11.622	16.1	462		
600 min Winter	9.738	16.1	568		
720 min Winter	8.424	15.7	664		
960 min Winter	6.697	15.1	748		
1440 min Winter	4.839	13.2	1052		
2160 min Winter	3.490	9.5	1488		
2880 min Winter	2.766	5.9	1900		
4320 min Winter	1.989	0.0	2596		
5760 min Winter	1.573	0.0	3392		
7200 min Winter	1.311	0.0	4112		
8640 min Winter	1.129	0.0	4848		
10080 min Winter	0.994	0.0	5648		
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Iesis Special Structures		Page 3																		
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S																			
Date 25/11/2019 14:13 File SW2 - MAIN EAST S.SRCX	Designed by Paul Laverty Checked by																			
Innovyze		Source Control 2018.1.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.15000 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>16.0</td> <td>16.0</td> <td>1.601</td> <td>0.0</td> <td>41.6</td> </tr> <tr> <td>1.600</td> <td>16.0</td> <td>41.6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	16.0	16.0	1.601	0.0	41.6	1.600	16.0	41.6			
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Summer</td><td>9.357</td><td>1.357</td><td>0.5</td><td>20.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>9.368</td><td>1.368</td><td>0.5</td><td>20.8</td><td>O K</td></tr><tr><td>720 min Summer</td><td>9.374</td><td>1.374</td><td>0.5</td><td>20.9</td><td>O K</td></tr><tr><td>960 min Summer</td><td>9.373</td><td>1.373</td><td>0.5</td><td>20.9</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>9.344</td><td>1.344</td><td>0.4</td><td>20.4</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>9.278</td><td>1.278</td><td>0.4</td><td>19.4</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>9.207</td><td>1.207</td><td>0.4</td><td>18.3</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>9.080</td><td>1.080</td><td>0.4</td><td>16.4</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.978</td><td>0.978</td><td>0.3</td><td>14.9</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.895</td><td>0.895</td><td>0.3</td><td>13.6</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.826</td><td>0.826</td><td>0.3</td><td>12.6</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.769</td><td>0.769</td><td>0.3</td><td>11.7</td><td>O K</td></tr><tr><td>15 min Winter</td><td>8.733</td><td>0.733</td><td>0.2</td><td>11.1</td><td>O K</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>83.912</td><td>0.0</td><td>19</td></tr><tr><td>30 min Summer</td><td>54.206</td><td>0.0</td><td>34</td></tr><tr><td>60 min Summer</td><td>33.604</td><td>0.0</td><td>64</td></tr><tr><td>120 min Summer</td><td>20.311</td><td>0.0</td><td>122</td></tr><tr><td>180 min Summer</td><td>15.011</td><td>0.0</td><td>182</td></tr><tr><td>240 min Summer</td><td>12.078</td><td>0.0</td><td>240</td></tr><tr><td>360 min Summer</td><td>8.874</td><td>0.0</td><td>322</td></tr><tr><td>480 min Summer</td><td>7.126</td><td>0.0</td><td>380</td></tr><tr><td>600 min Summer</td><td>6.008</td><td>0.0</td><td>440</td></tr><tr><td>720 min Summer</td><td>5.225</td><td>0.0</td><td>506</td></tr><tr><td>960 min Summer</td><td>4.190</td><td>0.0</td><td>644</td></tr><tr><td>1440 min Summer</td><td>3.067</td><td>0.0</td><td>920</td></tr><tr><td>2160 min Summer</td><td>2.244</td><td>0.0</td><td>1320</td></tr><tr><td>2880 min Summer</td><td>1.797</td><td>0.0</td><td>1728</td></tr><tr><td>4320 min Summer</td><td>1.313</td><td>0.0</td><td>2504</td></tr><tr><td>5760 min Summer</td><td>1.051</td><td>0.0</td><td>3232</td></tr><tr><td>7200 min Summer</td><td>0.884</td><td>0.0</td><td>3968</td></tr><tr><td>8640 min Summer</td><td>0.767</td><td>0.0</td><td>4752</td></tr><tr><td>10080 min Summer</td><td>0.681</td><td>0.0</td><td>5448</td></tr><tr><td>15 min Winter</td><td>83.912</td><td>0.0</td><td>19</td></tr></tbody></table>						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	8.654	0.654	0.2	9.9	O K	30 min Summer	8.837	0.837	0.3	12.7	O K	60 min Summer	9.018	1.018	0.3	15.5	O K	120 min Summer	9.184	1.184	0.4	18.0	O K	180 min Summer	9.263	1.263	0.4	19.2	O K	240 min Summer	9.305	1.305	0.4	19.8	O K	360 min Summer	9.338	1.338	0.4	20.3	O K	480 min Summer	9.357	1.357	0.5	20.6	O K	600 min Summer	9.368	1.368	0.5	20.8	O K	720 min Summer	9.374	1.374	0.5	20.9	O K	960 min Summer	9.373	1.373	0.5	20.9	O K	1440 min Summer	9.344	1.344	0.4	20.4	O K	2160 min Summer	9.278	1.278	0.4	19.4	O K	2880 min Summer	9.207	1.207	0.4	18.3	O K	4320 min Summer	9.080	1.080	0.4	16.4	O K	5760 min Summer	8.978	0.978	0.3	14.9	O K	7200 min Summer	8.895	0.895	0.3	13.6	O K	8640 min Summer	8.826	0.826	0.3	12.6	O K	10080 min Summer	8.769	0.769	0.3	11.7	O K	15 min Winter	8.733	0.733	0.2	11.1	O K	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	83.912	0.0	19	30 min Summer	54.206	0.0	34	60 min Summer	33.604	0.0	64	120 min Summer	20.311	0.0	122	180 min Summer	15.011	0.0	182	240 min Summer	12.078	0.0	240	360 min Summer	8.874	0.0	322	480 min Summer	7.126	0.0	380	600 min Summer	6.008	0.0	440	720 min Summer	5.225	0.0	506	960 min Summer	4.190	0.0	644	1440 min Summer	3.067	0.0	920	2160 min Summer	2.244	0.0	1320	2880 min Summer	1.797	0.0	1728	4320 min Summer	1.313	0.0	2504	5760 min Summer	1.051	0.0	3232	7200 min Summer	0.884	0.0	3968	8640 min Summer	0.767	0.0	4752	10080 min Summer	0.681	0.0	5448	15 min Winter	83.912	0.0	19
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20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S				
Date 25/11/2019 14:13 File SW2 - MAIN EAST S.SRCX		Designed by Paul Lavery Checked by				
Innovyze		Source Control 2018.1.1				
<u>Summary of Results for 10 year Return Period (+40%)</u>						
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	
30 min Winter	8.938	0.938		0.3 14.3	O K	
60 min Winter	9.141	1.141		0.4 17.3	O K	
120 min Winter	9.329	1.329		0.4 20.2	O K	
180 min Winter	9.420	1.420		0.5 21.6	O K	
240 min Winter	9.469	1.469		0.5 22.3	O K	
360 min Winter	9.510	1.510		0.5 23.0	O K	
480 min Winter	9.521	1.521		0.5 23.1	O K	
600 min Winter	9.530	1.530		0.5 23.3	O K	
720 min Winter	9.529	1.529		0.5 23.2	O K	
960 min Winter	9.512	1.512		0.5 23.0	O K	
1440 min Winter	9.447	1.447		0.5 22.0	O K	
2160 min Winter	9.335	1.335		0.4 20.3	O K	
2880 min Winter	9.230	1.230		0.4 18.7	O K	
4320 min Winter	9.057	1.057		0.4 16.1	O K	
5760 min Winter	8.925	0.925		0.3 14.1	O K	
7200 min Winter	8.824	0.824		0.3 12.5	O K	
8640 min Winter	8.744	0.744		0.2 11.3	O K	
10080 min Winter	8.678	0.678		0.2 10.3	O K	
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)			
30 min Winter	54.206	0.0	33			
60 min Winter	33.604	0.0	62			
120 min Winter	20.311	0.0	120			
180 min Winter	15.011	0.0	178			
240 min Winter	12.078	0.0	234			
360 min Winter	8.874	0.0	340			
480 min Winter	7.126	0.0	386			
600 min Winter	6.008	0.0	460			
720 min Winter	5.225	0.0	536			
960 min Winter	4.190	0.0	692			
1440 min Winter	3.067	0.0	982			
2160 min Winter	2.244	0.0	1408			
2880 min Winter	1.797	0.0	1816			
4320 min Winter	1.313	0.0	2596			
5760 min Winter	1.051	0.0	3392			
7200 min Winter	0.884	0.0	4112			
8640 min Winter	0.767	0.0	4848			
10080 min Winter	0.681	0.0	5648			
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Iesis Special Structures		Page 3																		
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S																			
Date 25/11/2019 14:13 File SW2 - MAIN EAST S.SRCX	Designed by Paul Lavery Checked by																			
Innovyze		Source Control 2018.1.1																		
<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> Invert Level (m) 8.000 Safety Factor 2.0 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95 Infiltration Coefficient Side (m/hr) 0.15000 <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>16.0</td> <td>16.0</td> <td>1.601</td> <td>0.0</td> <td>41.6</td> </tr> <tr> <td>1.600</td> <td>16.0</td> <td>41.6</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	16.0	16.0	1.601	0.0	41.6	1.600	16.0	41.6			
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Summer</td><td>8.308</td><td>0.308</td><td>4.2</td><td>0.6</td><td>O K</td></tr><tr><td>600 min Summer</td><td>8.260</td><td>0.260</td><td>3.5</td><td>0.5</td><td>O K</td></tr><tr><td>720 min Summer</td><td>8.225</td><td>0.225</td><td>3.0</td><td>0.4</td><td>O K</td></tr><tr><td>960 min Summer</td><td>8.179</td><td>0.179</td><td>2.4</td><td>0.3</td><td>O K</td></tr><tr><td>1440 min Summer</td><td>8.129</td><td>0.129</td><td>1.7</td><td>0.2</td><td>O K</td></tr><tr><td>2160 min Summer</td><td>8.093</td><td>0.093</td><td>1.3</td><td>0.2</td><td>O K</td></tr><tr><td>2880 min Summer</td><td>8.074</td><td>0.074</td><td>1.0</td><td>0.1</td><td>O K</td></tr><tr><td>4320 min Summer</td><td>8.053</td><td>0.053</td><td>0.7</td><td>0.1</td><td>O K</td></tr><tr><td>5760 min Summer</td><td>8.042</td><td>0.042</td><td>0.6</td><td>0.1</td><td>O K</td></tr><tr><td>7200 min Summer</td><td>8.036</td><td>0.036</td><td>0.5</td><td>0.1</td><td>O K</td></tr><tr><td>8640 min Summer</td><td>8.030</td><td>0.030</td><td>0.4</td><td>0.1</td><td>O K</td></tr><tr><td>10080 min Summer</td><td>8.027</td><td>0.027</td><td>0.4</td><td>0.1</td><td>O K</td></tr><tr><td>15 min Winter</td><td>10.003</td><td>2.003</td><td>10.8</td><td>5.0</td><td>FLOOD</td></tr></tbody></table> <table><thead><tr><th>Storm Event</th><th>Rain (mm/hr)</th><th>Flooded Volume (mE)</th><th>Time-Peak (mins)</th></tr></thead><tbody><tr><td>15 min Summer</td><td>138.153</td><td>3.7</td><td>13</td></tr><tr><td>30 min Summer</td><td>90.705</td><td>3.6</td><td>21</td></tr><tr><td>60 min Summer</td><td>56.713</td><td>2.1</td><td>36</td></tr><tr><td>120 min Summer</td><td>34.246</td><td>0.0</td><td>64</td></tr><tr><td>180 min Summer</td><td>25.149</td><td>0.0</td><td>94</td></tr><tr><td>240 min Summer</td><td>20.078</td><td>0.0</td><td>124</td></tr><tr><td>360 min Summer</td><td>14.585</td><td>0.0</td><td>184</td></tr><tr><td>480 min Summer</td><td>11.622</td><td>0.0</td><td>244</td></tr><tr><td>600 min Summer</td><td>9.738</td><td>0.0</td><td>306</td></tr><tr><td>720 min Summer</td><td>8.424</td><td>0.0</td><td>366</td></tr><tr><td>960 min Summer</td><td>6.697</td><td>0.0</td><td>484</td></tr><tr><td>1440 min Summer</td><td>4.839</td><td>0.0</td><td>732</td></tr><tr><td>2160 min Summer</td><td>3.490</td><td>0.0</td><td>1088</td></tr><tr><td>2880 min Summer</td><td>2.766</td><td>0.0</td><td>1436</td></tr><tr><td>4320 min Summer</td><td>1.989</td><td>0.0</td><td>2140</td></tr><tr><td>5760 min Summer</td><td>1.573</td><td>0.0</td><td>2840</td></tr><tr><td>7200 min Summer</td><td>1.311</td><td>0.0</td><td>3656</td></tr><tr><td>8640 min Summer</td><td>1.129</td><td>0.0</td><td>4272</td></tr><tr><td>10080 min Summer</td><td>0.994</td><td>0.0</td><td>4976</td></tr><tr><td>15 min Winter</td><td>138.153</td><td>4.5</td><td>13</td></tr></tbody></table> ©1982- 2018 Innovyze						Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status	15 min Summer	10.003	2.003	10.8	5.2	FLOOD	30 min Summer	10.002	2.002	10.8	5.1	FLOOD	60 min Summer	10.001	2.001	10.8	3.6	FLOOD	120 min Summer	8.878	0.878	10.8	1.6	O K	180 min Summer	8.636	0.636	8.6	1.2	O K	240 min Summer	8.518	0.518	7.0	1.0	O K	360 min Summer	8.384	0.384	5.2	0.7	O K	480 min Summer	8.308	0.308	4.2	0.6	O K	600 min Summer	8.260	0.260	3.5	0.5	O K	720 min Summer	8.225	0.225	3.0	0.4	O K	960 min Summer	8.179	0.179	2.4	0.3	O K	1440 min Summer	8.129	0.129	1.7	0.2	O K	2160 min Summer	8.093	0.093	1.3	0.2	O K	2880 min Summer	8.074	0.074	1.0	0.1	O K	4320 min Summer	8.053	0.053	0.7	0.1	O K	5760 min Summer	8.042	0.042	0.6	0.1	O K	7200 min Summer	8.036	0.036	0.5	0.1	O K	8640 min Summer	8.030	0.030	0.4	0.1	O K	10080 min Summer	8.027	0.027	0.4	0.1	O K	15 min Winter	10.003	2.003	10.8	5.0	FLOOD	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	138.153	3.7	13	30 min Summer	90.705	3.6	21	60 min Summer	56.713	2.1	36	120 min Summer	34.246	0.0	64	180 min Summer	25.149	0.0	94	240 min Summer	20.078	0.0	124	360 min Summer	14.585	0.0	184	480 min Summer	11.622	0.0	244	600 min Summer	9.738	0.0	306	720 min Summer	8.424	0.0	366	960 min Summer	6.697	0.0	484	1440 min Summer	4.839	0.0	732	2160 min Summer	3.490	0.0	1088	2880 min Summer	2.766	0.0	1436	4320 min Summer	1.989	0.0	2140	5760 min Summer	1.573	0.0	2840	7200 min Summer	1.311	0.0	3656	8640 min Summer	1.129	0.0	4272	10080 min Summer	0.994	0.0	4976	15 min Winter	138.153	4.5	13
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20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S			
Date 25/11/2019 14:15 File SW4 - Entrance.SRCX		Designed by Paul Lavery Checked by			
Innovyze		Source Control 2018.1.1			
<u>Summary of Results for 100 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
30 min Winter	10.003	2.003		10.8	5.4 FLOOD
60 min Winter	10.000	2.000		10.8	3.0 FLOOD
120 min Winter	8.646	0.646		8.7	1.2 O K
180 min Winter	8.480	0.480		6.5	0.9 O K
240 min Winter	8.385	0.385		5.2	0.7 O K
360 min Winter	8.280	0.280		3.8	0.5 O K
480 min Winter	8.224	0.224		3.0	0.4 O K
600 min Winter	8.188	0.188		2.5	0.4 O K
720 min Winter	8.163	0.163		2.2	0.3 O K
960 min Winter	8.129	0.129		1.7	0.2 O K
1440 min Winter	8.093	0.093		1.3	0.2 O K
2160 min Winter	8.068	0.068		0.9	0.1 O K
2880 min Winter	8.054	0.054		0.7	0.1 O K
4320 min Winter	8.039	0.039		0.5	0.1 O K
5760 min Winter	8.031	0.031		0.4	0.1 O K
7200 min Winter	8.026	0.026		0.3	0.0 O K
8640 min Winter	8.022	0.022		0.3	0.0 O K
10080 min Winter	8.020	0.020		0.3	0.0 O K
Storm Event		Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	
30 min Winter		90.705	3.9	22	
60 min Winter		56.713	1.4	38	
120 min Winter		34.246	0.0	64	
180 min Winter		25.149	0.0	94	
240 min Winter		20.078	0.0	124	
360 min Winter		14.585	0.0	184	
480 min Winter		11.622	0.0	244	
600 min Winter		9.738	0.0	306	
720 min Winter		8.424	0.0	364	
960 min Winter		6.697	0.0	488	
1440 min Winter		4.839	0.0	734	
2160 min Winter		3.490	0.0	1080	
2880 min Winter		2.766	0.0	1448	
4320 min Winter		1.989	0.0	2156	
5760 min Winter		1.573	0.0	2848	
7200 min Winter		1.311	0.0	3576	
8640 min Winter		1.129	0.0	4336	
10080 min Winter		0.994	0.0	5128	
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Iesis Special Structures		Page 3																												
20 Ironmonger Lane London EC2V 8EP	Project No: SE1612 Ref: Pound Place, Angmering Proposed SW - Main Site East S																													
Date 25/11/2019 14:15 File SW4 - Entrance.SRCX	Designed by Paul Lavery Checked by																													
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<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Invert Level (m)</td> <td>8.000</td> </tr> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> </tr> <tr> <td>Infiltration Coefficient Side (m/hr)</td> <td>16.16000</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> </tr> <tr> <td>Porosity</td> <td>0.95</td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>2.0</td> <td>2.0</td> <td>0.801</td> <td>0.0</td> <td>6.8</td> </tr> <tr> <td>0.800</td> <td>2.0</td> <td>6.8</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Invert Level (m)	8.000	Infiltration Coefficient Base (m/hr)	0.00000	Infiltration Coefficient Side (m/hr)	16.16000	Safety Factor	2.0	Porosity	0.95	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	2.0	2.0	0.801	0.0	6.8	0.800	2.0	6.8			
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Summer	9.238	1.238	10.8	2.0	O K	60 min Summer	8.718	0.718	9.7	1.4	O K	120 min Summer	8.491	0.491	6.6	0.9	O K	180 min Summer	8.380	0.380	5.1	0.7	O K	240 min Summer	8.312	0.312	4.2	0.6	O K	360 min Summer	8.234	0.234	3.1	0.4	O K	480 min Summer	8.189	0.189	2.5	0.4	O K	600 min Summer	8.160	0.160	2.2	0.3	O K	720 min Summer	8.139	0.139	1.9	0.3	O K	960 min Summer	8.112	0.112	1.5	0.2	O K	1440 min Summer	8.082	0.082	1.1	0.2	O K	2160 min Summer	8.060	0.060	0.8	0.1	O K	2880 min Summer	8.048	0.048	0.6	0.1	O K	4320 min Summer	8.035	0.035	0.5	0.1	O K	5760 min Summer	8.028	0.028	0.4	0.1	O K	7200 min Summer	8.024	0.024	0.3	0.0	O K	8640 min Summer	8.021	0.021	0.3	0.0	O K	10080 min Summer	8.018	0.018	0.2	0.0	O K	15 min Winter	9.775	1.775	10.8	2.5	Flood Risk	Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)	15 min Summer	83.912	0.0	12	30 min Summer	54.206	0.0	19	60 min Summer	33.604	0.0	34	120 min Summer	20.311	0.0	64	180 min Summer	15.011	0.0	94	240 min Summer	12.078	0.0	124	360 min 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Iesis Special Structures				Page 2	
20 Ironmonger Lane London EC2V 8EP		Project No: SE1612 Ref: Pound Place, Angmering Proposed SW- Main Site East S			
Date 25/11/2019 14:15 File SW4 - Entrance.SRCX		Designed by Paul Lavery Checked by			
Innovyze		Source Control 2018.1.1			
<u>Summary of Results for 10 year Return Period (+40%)</u>					
Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Volume (mE)	Status
30 min Winter	9.049	1.049		10.8 1.8	O K
60 min Winter	8.607	0.607		8.2 1.2	O K
120 min Winter	8.383	0.383		5.2 0.7	O K
180 min Winter	8.287	0.287		3.9 0.5	O K
240 min Winter	8.231	0.231		3.1 0.4	O K
360 min Winter	8.171	0.171		2.3 0.3	O K
480 min Winter	8.137	0.137		1.8 0.3	O K
600 min Winter	8.116	0.116		1.6 0.2	O K
720 min Winter	8.101	0.101		1.4 0.2	O K
960 min Winter	8.081	0.081		1.1 0.2	O K
1440 min Winter	8.059	0.059		0.8 0.1	O K
2160 min Winter	8.043	0.043		0.6 0.1	O K
2880 min Winter	8.035	0.035		0.5 0.1	O K
4320 min Winter	8.026	0.026		0.3 0.0	O K
5760 min Winter	8.020	0.020		0.3 0.0	O K
7200 min Winter	8.017	0.017		0.2 0.0	O K
8640 min Winter	8.015	0.015		0.2 0.0	O K
10080 min Winter	8.013	0.013		0.2 0.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (mE)	Time-Peak (mins)		
30 min Winter	54.206	0.0	20		
60 min Winter	33.604	0.0	34		
120 min Winter	20.311	0.0	64		
180 min Winter	15.011	0.0	94		
240 min Winter	12.078	0.0	124		
360 min Winter	8.874	0.0	184		
480 min Winter	7.126	0.0	244		
600 min Winter	6.008	0.0	306		
720 min Winter	5.225	0.0	360		
960 min Winter	4.190	0.0	488		
1440 min Winter	3.067	0.0	728		
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5760 min Winter	1.051	0.0	2776		
7200 min Winter	0.884	0.0	3616		
8640 min Winter	0.767	0.0	4280		
10080 min Winter	0.681	0.0	5136		
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Iesis Special Structures		Page 3																												
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<u>Model Details</u> Storage is Online Cover Level (m) 10.000 <u>Cellular Storage Structure</u> <table style="margin-left: auto; margin-right: auto;"> <tr> <td>Invert Level (m)</td> <td>8.000</td> </tr> <tr> <td>Infiltration Coefficient Base (m/hr)</td> <td>0.00000</td> </tr> <tr> <td>Infiltration Coefficient Side (m/hr)</td> <td>16.16000</td> </tr> <tr> <td>Safety Factor</td> <td>2.0</td> </tr> <tr> <td>Porosity</td> <td>0.95</td> </tr> </table> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> <th>Depth (m)</th> <th>Area (m²)</th> <th>Inf. Area (m²)</th> </tr> </thead> <tbody> <tr> <td>0.000</td> <td>2.0</td> <td>2.0</td> <td>0.801</td> <td>0.0</td> <td>6.8</td> </tr> <tr> <td>0.800</td> <td>2.0</td> <td>6.8</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Invert Level (m)	8.000	Infiltration Coefficient Base (m/hr)	0.00000	Infiltration Coefficient Side (m/hr)	16.16000	Safety Factor	2.0	Porosity	0.95	Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)	0.000	2.0	2.0	0.801	0.0	6.8	0.800	2.0	6.8			
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Surface Water Drainage Proposal Checklist

This 'Surface Water Drainage Proposals Checklist' has been designed to clearly define Arun District Council's and Chichester District Council's expectations and requirements for any surface water drainage proposals, submitted for appraisal by the council's Engineers, during the planning process.

Please be aware that it is in your interest to provide all of the requested information, as this will allow the council's Engineers to quickly and efficiently review your proposals. The omission of any requested information may lead to delays in the planning process.

This document will be of help to any applicant, or drainage consultant, preparing to submit a 'Discharge of Conditions Application' relating to surface water drainage conditions. Alternatively, it can also be used earlier in the planning process, if the applicant wishes to avoid pre-commencement conditions relating to surface water drainage. The Town and Country Planning Regulations now require pre-commencement conditions to have the prior agreement of the applicant regarding their wording and use. Therefore, if you wish to avoid pre-commencement conditions, in relation to surface water drainage, you will need to submit proposals that provide the information requested in this checklist and also align with the requirements of the following documents:

'Supplementary Requirements for Surface Water Drainage Proposals'. (Arun DC)

'Supplementary Requirements for Surface Water Drainage Proposals'. (Chichester DC)

By submitting all of the information requested by this checklist you will enable the council's Engineers to determine whether your proposals follow the hierarchy for sustainable drainage and will adequately drain the site.

Please be aware that it will be difficult for the council's Engineers to undertake a timely assessment of your application if you fail to provide any of the information requested.



Surface Water Drainage Proposal Checklist

Ground Investigation Results				
Results Required	Results Provided?			
Winter groundwater monitoring results (Please refer to guidance note 1 below)	Yes	X	No	
Period of winter groundwater monitoring Note 1	From	01/10/11		
	To	01/03/2012		
Maximum recorded groundwater level	None recorded (borehole 4mbgl)		mAOD	mBGL
Winter infiltration test results Note 2	Yes	X	No	
Date of winter infiltration testing	01/03/2012			
Details of the location and depth of the infiltration testing Note 3	Yes	X	No	
Minimum infiltration rate Note 4	West: 4.49x10 ⁻³ , East: 4.3 x 10 m/s			

Guidance Notes

1. Groundwater monitoring should be undertaken during the wet winter months, (October to March) to enable the peak annual groundwater levels to be established. The extent of winter monitoring should be discussed with the council's Engineers.
2. Infiltration testing should be undertaken during the wet winter months, (October to March) and in line with BRE365, or a similar approved method. Tests should be repeated 3x, to replicate saturated ground conditions.
3. Infiltration testing should be undertaken at the location and depth of any proposed infiltration structures. This must be above the maximum recorded groundwater level in that vicinity.
4. The minimum infiltration rate obtained at the location and depth of the proposed infiltration structures should be used to inform the design of the structures.

Proposed Method of Surface Water Disposal				
Infiltration	Yes	X	No	
On-site, via soak-away structures				
If on-site infiltration is not to be used, has justification for this been provided? Note 5	Yes		No	
Attenuation (on-site) with a restricted discharge to a watercourse on, or adjacent to, the site	Yes		No	
Attenuation (on-site) with a restricted discharge to a surface water sewer on, or adjacent to, the site	Yes		No	
Attenuation (on-site) with a restricted discharge to a foul water sewer on, or adjacent to, the site	Yes		No	

Guidance Notes

5. If on-site infiltration is not being used to drain the site you will need to provide evidence that demonstrates on-site infiltration is unviable.

All rates

Drainage Design: Supporting Calculations						
Calculations Required				Calculations Provided?		
Infiltration Structures	Half-drain time for 10 year event (plus climate change allowance)	Yes	X	No		
		7.4 (worse case)		Hours		
	Half-drain time for 100 year event (plus climate change allowance)	Yes	X	No		
		10 (worse case)		Hours		
	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes	X	No		
Attenuation and Subsequent Restricted Discharge	Lowest base level of infiltration structure	11.870 2.40		mAOD mBGL		
	Has the design sought to provide treatment of potential contaminants? i.e. hydrocarbons.	Yes	X	No		
	Pre-development run-off rate calculations	Yes		No		
	Proposed discharge rate Note 6	Microdrainage		l/s		
	Calculations demonstrating that the 1 in 100 year event, plus climate change allowance can be accommodated on-site. Note 7	Yes	X	No		
	Has the design sought to provide treatment of potential contaminants? i.e. hydrocarbons.	Yes	X	No		
	If your proposed scheme incorporates any impermeable lined attenuation features we require calculations to demonstrate that appropriate resistance to floatation (due to groundwater levels) is catered for in the design	Yes		No		N/A
	If you propose discharging into or altering an ordinary watercourse; have you sought Ordinary Watercourse/Land Drainage Consent? Note 8	Yes		No		N/A
	If discharging to a watercourse, piped system or the sea, has the proposed drainage network been modelled against predicted top water levels for the 1 in 100 year storm event plus climate change allowance, within the existing system? Note 9	Yes		No		N/A

Guidance Notes

- Any proposed discharge rate must be less than, or equal to, the pre-development rate. Greenfield sites must use the mean flow rate (Q_{bar}). Additionally, if you are developing a brownfield site, we expect you to provide fully detailed plans of the existing surface water drainage arrangements on site, including impermeable areas, gullies, outfalls, pipes & diameters, manholes, etc.
- The appropriate factor of safety from the table below must be applied to your calculations to ensure your design is fully in accordance with CIRIA R156/ CIRIA C609.

Factor of Safety Table						
Size of Area to be Drained	Consequences of failure					
	No damage or inconvenience		Minor inconvenience, e.g. surface water on car park		Damage to buildings or structures or roads.	
	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75	Cv=1.0	Cv=0.75
<100 m ²	1.5	2	2	3	10	13
100m ² to 1000m ²	1.5	2	3	4	10	13
>1000m ²	1.5	2	5	6.5	10	13



8. Ordinary Watercourse/Land Drainage Consent will need to be sought, ideally in parallel with planning permission, if you propose discharging into, culverting or altering a watercourse.
9. Modelling is required to ensure that problems, such as surcharged outfalls, are addressed.

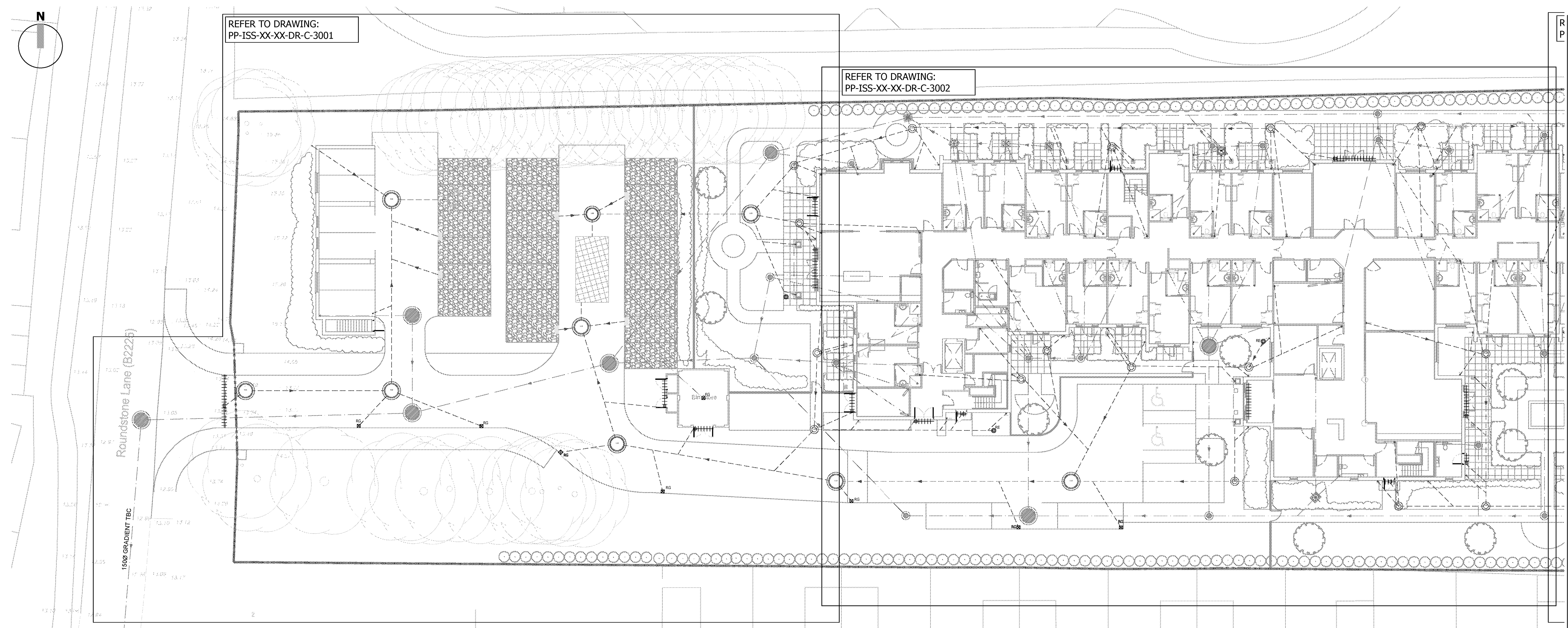
Plans/Drawings/Diagrams				
Required	Provided?			
Plan detailing the location of groundwater monitoring and infiltration testing	Yes	X	No	
Detailed drainage layout plan Note 10	Yes	X	No	
Construction detail plans Note 11	Yes	X	No	
Exceedance flow route plans Note 12	Yes		No	N/A
Impermeable area plan	Yes	X	No	
If ground levels are being raised $\geq 300\text{mm}$ above existing levels and is unavoidable, have fully detailed plans been provided, together with drainage proposals, to address any potential drainage related issues.	Yes		No	N/A
If any part of the development site is within recognised flood plain i.e. 1 in 100 & 1 in 200 year fluvial/tidal events, have plans been provided showing the extents, together with any proposals for ground raising/displacement within these areas. Note 13	Yes		No	N/A

Guidance Notes

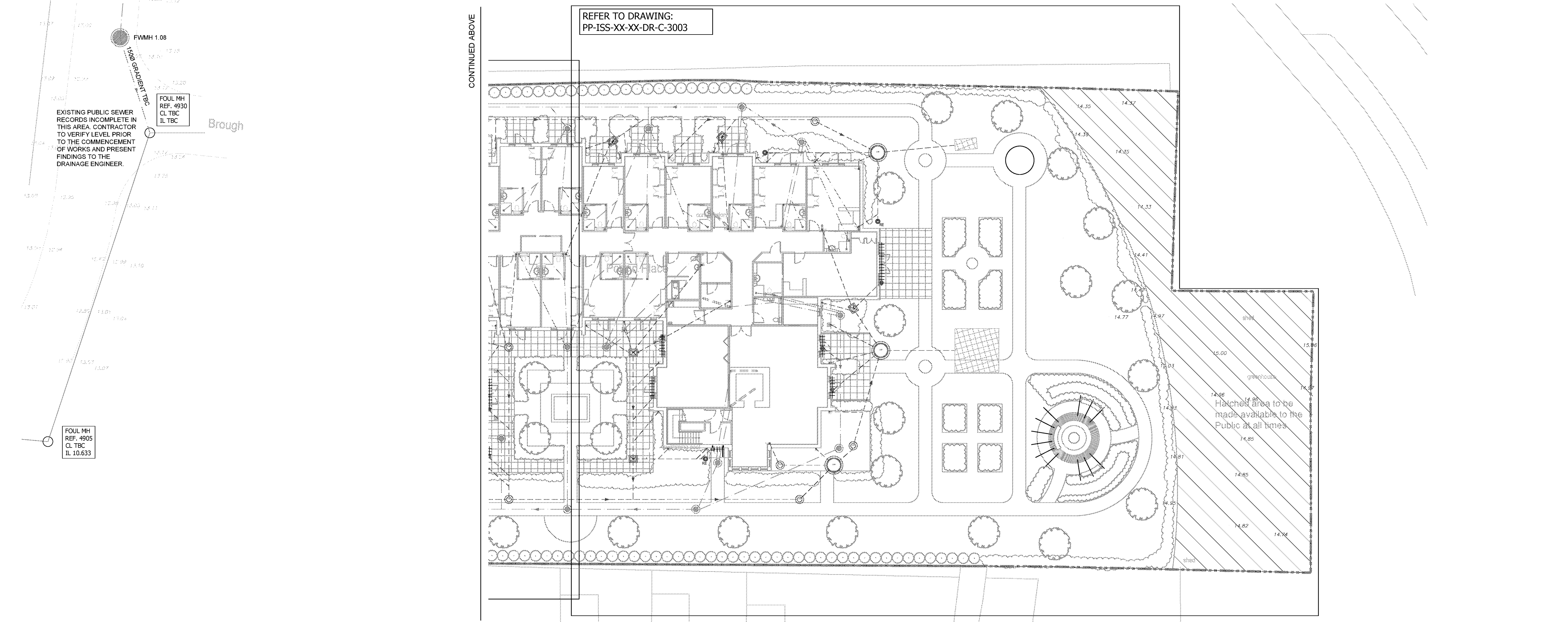
10. Drainage layout plans should include:
 - All surface water drainage pipes labelled with; diameters, pipe materials, falls and invert levels.
 - All infiltrating and attenuating structures (including permeable paving) labelled with; dimensions, invert and cover levels.
 - All manholes labelled with; cover levels, invert levels, cover types detailed.
 - All silt traps clearly labelled with sump depths.
 - Control structures with outflow rates and invert levels.
 - Proposed/existing levels of any areas subject to ground raising, together with suitable measures/detailed drawings for the associated management of surface water runoff. Please note that ground raising should be avoided unless there are exceptional circumstances.
11. Site specific construction detail plans should be supplied if your proposed drainage scheme includes any of the following elements: pipe bed and surround; infiltrating structures; attenuating structures; manholes; catch-pits/silt traps; control devices; permeable paving; headwalls.
12. Unless specifically requested by the council's drainage engineers 'Exceedance Flow Route Plans' are only required for developments of more than 5 properties.
13. Product 4 'Detailed flood risk assessment mapping data' (available from the Environment Agency) must also be provided in support. Plans/details will be required to mitigate any unavoidable loss of flood plain/storage. Please also be aware that Environment Agency approval of such proposals will also be required.

Version 2.0 (13.06.2019)

APPENDIX C



- NOTES:
1. Refer to Drgs. PP-ISS-XX-XX-DR-C-3001 to 3003 for notes on drainage.
 2. Site Layout provided by Buckle Chamberlain Partnership Ltd (1388/001 C).
 3. Ground Floor layout and Stack positions (SW & FW) taken from Buckle Chamberlain Partnership Ltd drgs provided (27-09-19).
 4. Building Foundations provided by IESIS Structures.
 5. OS Data provided Ordnance Survey Crown Copyright



P02	26.11.19	KD/TW	LAYOUT AMENDED FOLLOWING CLIENT/PLANNING COMMENTS FOR APPROVAL
P01	15.11.19	KD/TW	CLIENT/PLANNING COMMENTS FOR APPROVAL
REV	DATE	DRAWN/CHK	REVISION INFO

STATUS:

FOR APPROVAL

CLIENT:

SAVISTA DESIGN AND BUILD

PROJECT:

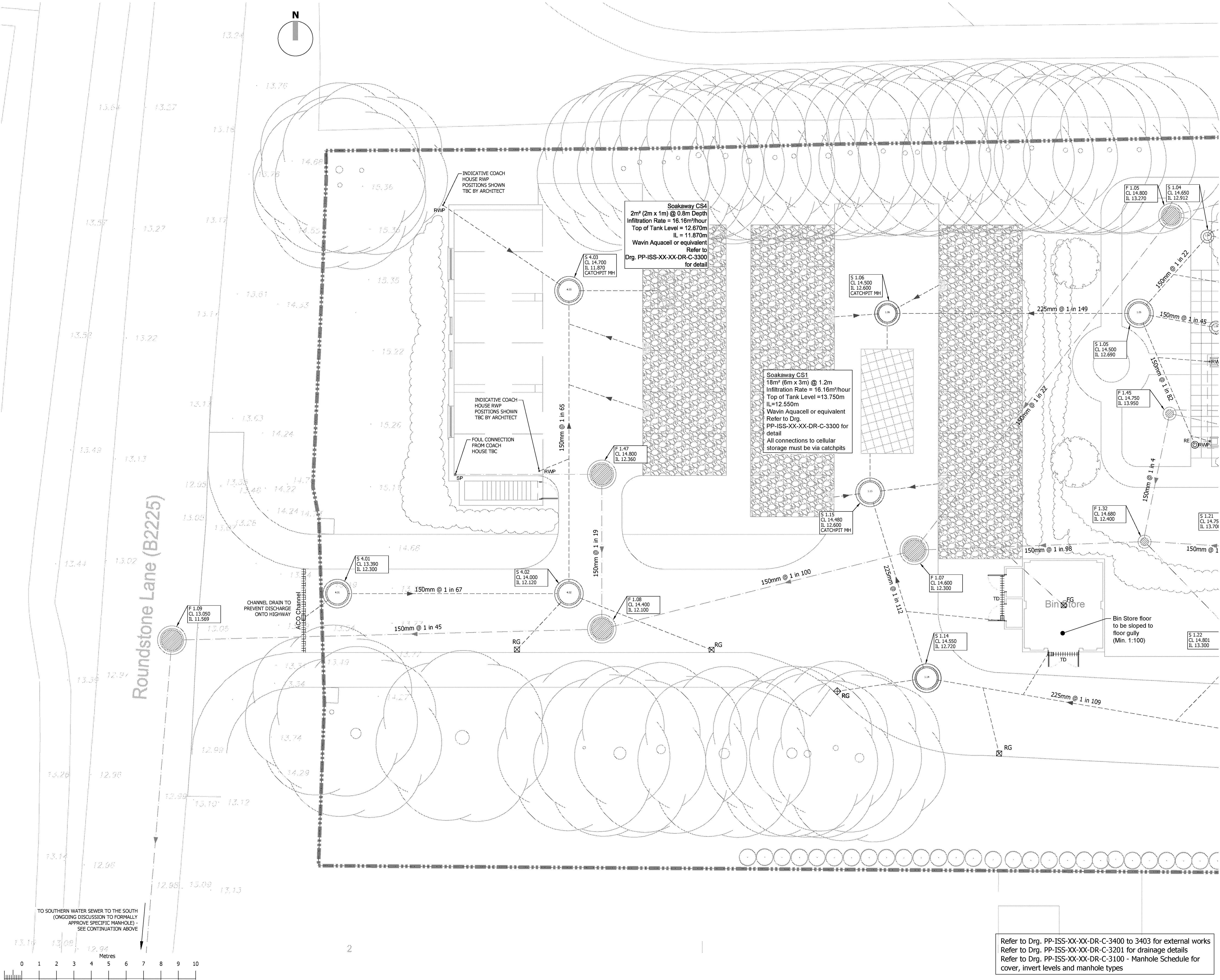
POUND PLACE
ROUNDSTONE ROAD
ANGMERING

DRAWING TITLE:

PROPOSED
FOUL AND SURFACE WATER
DRAINAGE OVERALL LAYOUT

JOB NUMBER:	SCALE AT A1:	REV. STATUS:
SE1612	1:500	S2
DRAWING NUMBER:	REVISION:	
PP-ISS-XX-XX-DR-C-3000	P02	

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- NOTES:
1. This drawing is to be read in conjunction with all other construction drawings and the client's specification.
 2. All private drainage works to be carried out in accordance with the provisions laid down in BS EN 752 & the building regulations, part H.
 3. Before commencing any sewer or drainage works, the developer's ground worker must satisfy themselves and the client that the actual levels, type and conditions of existing sewers are suitable for the proposed works.
 4. All buried concrete to be strictly in accordance with the specifications.
 5. All abandoned, buried obstructions encountered during the construction of the works are to be broken out to bed level of new drains and sewers, residual voids to be backfilled to formation level with in fully compacted layers of either Type 2 granular material (under paved areas) or suitable as dug material (under soft areas).
 6. Prior to commencement of any of the onsite drainage works, the contractor is required to check the line, level and condition of any sewers to be reused, any conflicts with existing below ground services or level differences are to be reported to the clients engineer immediately.
 7. Insitu concrete to be benchings of foul manholes to be Class 4 conditions; ie min. cement content of 350kg/m³ sulphate resisting portland cement, and max. free water ratio of 0.45 and 20mm n.s aggregate with granolithic topping.
 8. All private drainage to be laid to levels shown using flexibly jointed pipes, either up to BS 4600 and BS 5481 or vitrified clayware to BS EN 295, clay to be used under slabs.
 9. Generally pipes to have granular bed & surround in accordance with manufacturers recommendations, ensuring adequate protection with respect to depth and location.
 10. Private manholes to be constructed using concrete box sections, circular rings to BS 5911, engineering special purpose bricks where less than 1.2m deep, all with 150mm concrete surround. Size and construction to comply with the construction details and requirements of SFA 7, BS EN 752 and approved document, part H. Covers to be ductile, class B125 to pedestrian areas, class C250 to car park areas and D400 to all other areas.
 11. Access panels are to be provided to rainwater and soil vent pipes, a max. 600 above finished ground level. Refer to GA for locations denoted rwp* & svp*
 12. Care must be taken to ensure private manholes, rodding eyes, etc. are not positioned within the curtilage of any neighbouring property, public highway, footway or verge.
 13. Flat lateral connection to be 135° 'Y' junctions (ie 45° oblique junctions) relative to main run.
 14. All existing 'live' manhole and inspection chamber covers affected by the new works are to be reset to the appropriate finished level & slope.
 15. All pipes with less than 600mm cover and situated under the building to be concrete cased.
 16. All levels in metres (m) unless specified otherwise, datum relative to survey drawing.
 17. Manholes in paved areas to have recessed cover & frame, these to be orientated to minimise cut blocks.
 18. Note all rwp/svp positions and sizes to be confirmed by architect, refer to architects drawings for positions of rainwater pipes and soil vent pipes.
 19. All road gully connections to be 150mm dia. laid no flatter than 1:80 u.n.o. all roof drainage connections to be 100mm dia. laid no flatter than 1:40 u.n.o.
 20. All existing runs must be kept in an operative state with the minimum of disruption during replacement or when making a new connection.
 21. A suitable method statement must be submitted to the contracts administrator officer prior to the commencement of any works.
 22. At all times access must be maintained to all roads and footpaths.
 23. Where pipes cross each other with less than 100mm separation pipes to be enclosed in concrete as per drainage detail. See Drg. PP-ISS-XX-XX-DR-C-3201
 24. For background references refer to drg PP-ISS-XX-XX-DR-C-3000.

GENERAL LEGEND:

- Site boundary
- Proposed Soakaway
- Proposed Permeable Paving

GRAVITY SEWER LEGEND:

- Proposed Surface Water drain
- Proposed Foul Water drain

MANHOLE LEGEND:

- Proposed Surface Water Inspection Chamber
- Proposed Surface Water Manhole
- Proposed Foul Water Inspection Chamber
- Proposed Foul Water Manhole
- Proposed Rectangular Surface Water Manhole
- Proposed Rectangular Foul Water Manhole

ACO

- Linear Drain
- Threshold Drain
- Rodding Eye
- Road Gully
- Floor Gully
- Shower Gully
- Rain water down pipe
- Soil Vent Pipe
- Cellular Storage

P02	26.11.19	KD/TW	LAYOUT AMENDED FOLLOWING CLIENT PLANNING COMMENTS FOR APPROVAL
P01	15.11.19	KD/TW	FOR APPROVAL
REV	DATE	DRAWN/CHK	REVISION INFO

STATUS:

CLIENT:
SAVISTA DESIGN AND BUILD

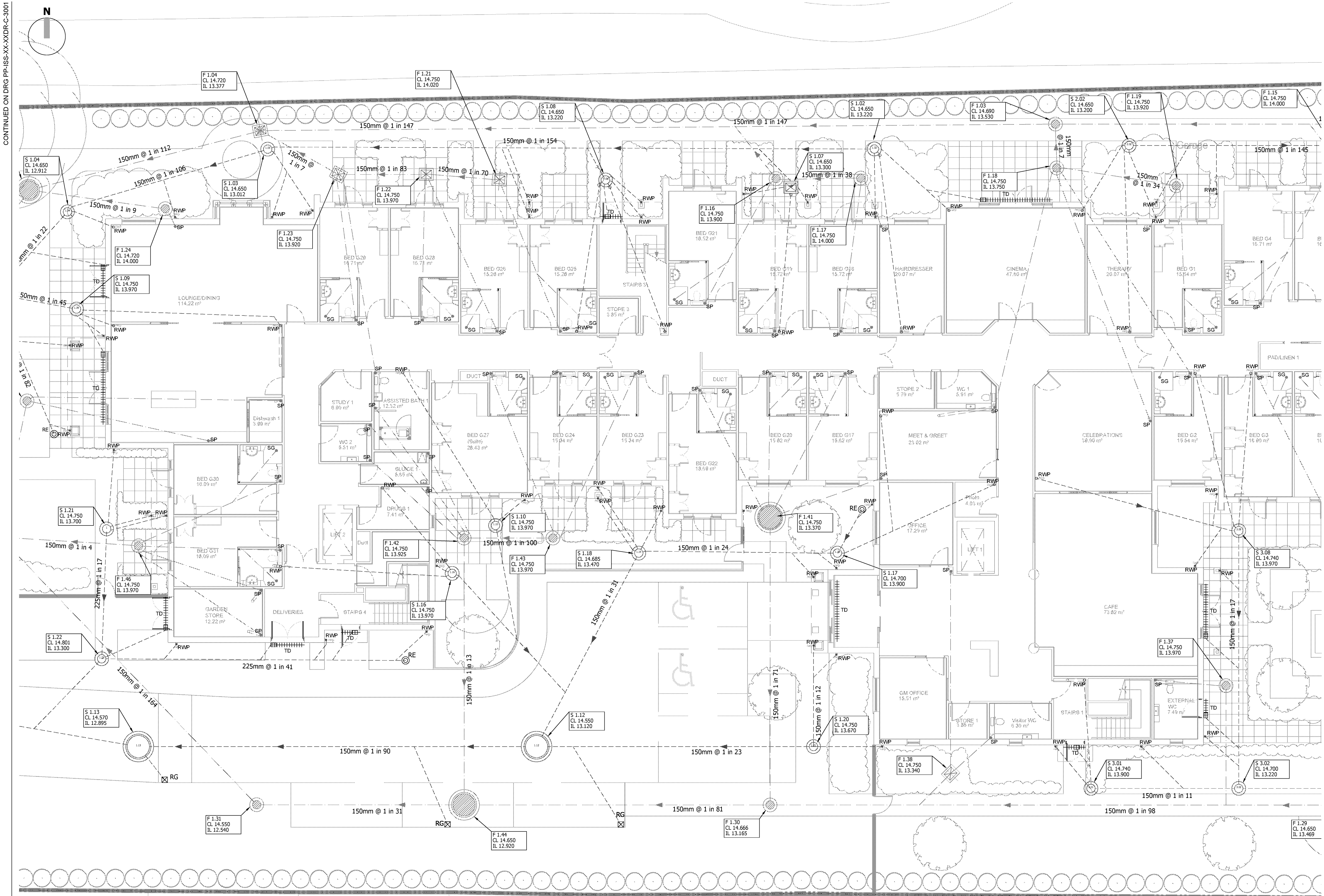
PROJECT:
**POUND PLACE
ROUNDSTONE ROAD
ANGMERING**

DRAWING TITLE:
**PROPOSED
DRAINAGE LAYOUT
SHEET 1 OF 3**

JOB NUMBER:	SCALE AT A1:	REV. STATUS:
SE1612	1:100	S2
DRAWING NUMBER:	REVISION:	
PP-ISS-XX-XX-DR-C-3001	P02	

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Refer to Drg. PP-ISS-XX-XX-DR-C-3400 to 3403 for external works
Refer to Drg. PP-ISS-XX-XX-DR-C-3201 for drainage details
Refer to Drg. PP-ISS-XX-XX-DR-C-3100 - Manhole Schedule for cover, invert levels and manhole types



- NOTES:
- This drawing is to be read in conjunction with all other construction drawings and the client's specification.
 - All private drainage works to be carried out in accordance with the provisions laid down in BS EN 752 & the building regulations, part H.
 - Before commencing any sewer or drainage works, the developer's ground worker must satisfy themselves and the client that the actual levels, type and conditions of existing sewers are suitable for the proposed works.
 - All buried concrete to be strictly in accordance with the specifications.
 - All abandoned, buried obstructions encountered during the construction of the works are to be broken out to bed level of new drains and sewers, residual voids to be backfilled to formation level with in fully compacted layers of either Type 2 granular material (under paved areas) or suitable as dug material (under soft areas).
 - Prior to commencement of any of the onsite drainage works, the contractor is required to check the line, level and condition of any sewers to be reused, any conflicts with existing below ground services or level differences are to be reported to the clients engineer immediately.
 - Institute concrete to benchings of foul manholes to be Class 4 conditions; ie min. cement content of 350kg/m³ sulphate resisting portland cement, and max. free water ratio of 0.45 and 20mm n.s aggregate with granolithic topping.
 - All private drainage to be laid to levels shown using flexibly jointed pipes, either upvc to BS 4660 and BS 5481 or vitrified clayware to BS EN 295, clay to be used under slabs.
 - Generally pipes to have granular bed & surround in accordance with manufacturers recommendations, ensuring adequate protection with respect to depth and location.
 - Private manholes to be constructed using concrete box sections, circular rings to BS 5911, engineering/special purpose bricks where less than 1.2m deep, all with 150mm concrete surround. Size and construction to comply with the construction details and requirements of SFA 7, BS EN 752 and approved document part H. Covers to be ductile, class B125 to pedestrian areas, class C250 to car park areas and D400 to all other areas.
 - Access panels are to be provided to rainwater and soil vent pipes, a max. 600 above finished ground level. Refer to GA for locations denoted 'rwp' & 'svp'.
 - Care must be taken to ensure private manholes, rodding eyes, etc. are not positioned within the curtilage of any neighboring property, public highway, footway or verge.
 - Flat lateral connection to be 135° 'Y' junctions (ie 45° oblique junctions) relative to main run.
 - All existing 'live' manhole and inspection chamber covers affected by the new works are to be reset to the appropriate finished level & slope.
 - All pipes with less than 600mm cover and situated under the building to be concrete cased.
 - All levels in metres (m) unless specified otherwise, datum relative to survey drawing.
 - Manholes in paved areas to have recessed cover & frame, these to be orientated to minimise cut blocks.
 - Note all rwp/svp positions and sizes to be confirmed by architect, refer to architects drawings for positions of rainwater pipes and soil vent pipes.
 - All road gully connections to be 150mm dia, laid no flatter than 1:80 u.n.o., all roof drainage connections to be 100mm dia, laid no flatter than 1:40 u.n.o.
 - All existing runs must be kept in an operative state with the minimum of disruption during replacement or when making a new connection.
 - A suitable method statement must be submitted to the contracts administrator officer prior to the commencement of any works.
 - At all times access must be maintained to all roads and footpaths.
 - Where pipes cross each other with less than 100mm separation pipes to be encased in concrete as per drainage detail. See Drg. PP-ISS-XX-XX-DR-C-3201.
 - For background references refer to drg PP-ISS-XX-XX-DR-C-3000.

GENERAL LEGEND:

- Site boundary
- Proposed Soakaway
- Proposed Permeable Paving

GRAVITY SEWER LEGEND:

- Proposed Surface Water drain
- Proposed Foul Water drain

MANHOLE LEGEND:

- Proposed Surface Water Inspection Chamber
- Proposed Surface Water Manhole
- Proposed Foul Water Inspection Chamber
- Proposed Foul Water Manhole
- Proposed Rectangular Surface Water Manhole
- Proposed Rectangular Foul Water Manhole

ACO

- Linear Drain
- Threshold Drain
- Rodding Eye
- Road Gully
- Floor Gully
- Shower Gully
- Rain water down pipe
- Soil Vent Pipe
- Cellular Storage

P02	26.11.19	KD/TW	LAYOUT AMENDED FOLLOWING CLIENT COMMENTS
P01	15.11.19	KD/TW	FOR APPROVAL
REV	DATE	DRAWN/CHK	REVISION INFO
STATUS:			

FOR APPROVAL

CLIENT:
SAVISTA DESIGN AND BUILD

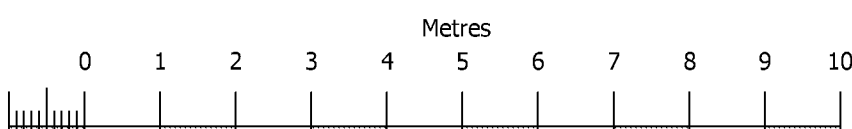
PROJECT:
**POUND PLACE
ROUNDSTONE ROAD
ANGMERING**

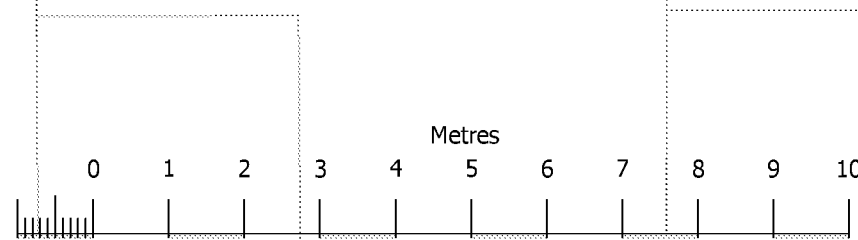
DRAWING TITLE:
**PROPOSED
DRAINAGE LAYOUT
SHEET 2 OF 3**

JOB NUMBER:	SCALE AT A1:	REV. STATUS:
SE1612	1:100	S2
DRAWING NUMBER:		REVISION:
PP-ISS-XX-XX-DR-C-3002		P02

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Refer to Drg. PP-ISS-XX-XX-DR-C-3400 to 3403 for external works
Refer to Drg. PP-ISS-XX-XX-DR-C-3201 for drainage details
Refer to Drg. PP-ISS-XX-XX-DR-C-3100 - Manhole Schedule for cover, invert levels and manhole types

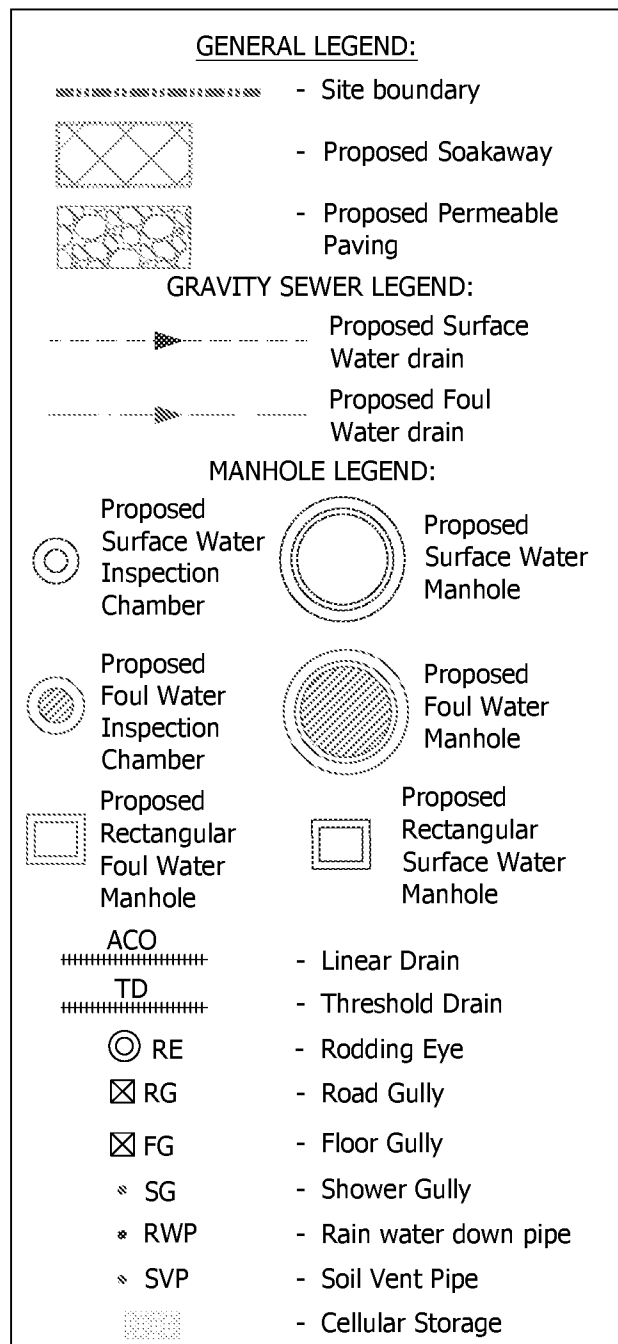




Refer to Drg. PP-ISS-XX-XX-DR-C-3400 to 3403 for external works
Refer to Drg. PP-ISS-XX-XX-DR-C-3201 for drainage details
Refer to Drg. PP-ISS-XX-XX-DR-C-3100 - Manhole Schedule for
cover, invert levels and manhole types

NOTES:

1. This drawing is to be read in conjunction with all other construction drawings and the client's specification.
2. All work is to be carried out in accordance with the provisions laid down in BS EN 752 & the building regulations, part H.
3. Before commencing any sewer or drainage works, the developer's ground worker must satisfy themselves and the client that the actual ground conditions of existing sewers are suitable for the proposed works.
4. All buried concrete to be strictly in accordance with the specifications.
5. All buried concrete to be constructed in accordance with the specifications. The construction of the works are to be broken out to bed level of new drains and sewers, residual voids to be backfilled to formation level with concrete to BS 4581. Any concrete to be laid on top of (under paved areas) or suitable as dug material (under soft areas).
6. Prior to commencement of any of the onsite drainage works, the contractor is required to check the line, level and condition of any existing drains and sewers, and to comply with existing below ground services or level differences are to be reported to the clients engineer immediately.
7. Instill concrete to benchings of four manholes to be Class 4 conditions; i.e. min. cement content of 360kg/m³ sulphate resisting Portland cement, max. free water ratio of 0.45 and 20mm n.s.s. aggregate.
8. All private drainage to be laid in levels shown using flexibly jointed pipes, either upvc to BS 4660 and BS 5481 or vitrified clayware to BS 5911 and BS 5912.
9. Generally pipes to have granular bed & surround in accordance with manufacturers recommendations, ensuring adequate protection with geotextiles and geotextile wrapped bedding.
10. Private manholes to be constructed using concrete box sections, circular rings to BS 5911, engineering/special purpose bricks where less than 1.2m deep, all with 150mm concrete surround. Size and construction to comply with the construction details and requirements of SFA 7, BS EN 752 and approved document part H. Covers to be ductile, class B125 to pedestrian areas, class C250 for car park areas and above ground.
11. Access panels are to be provided to rainwater and soil vent pipes, a core above finished ground level. Refer to GA for locations.
12. All manholes to be constructed to 1000mm dia. and 0.7m deep.
13. Care must be taken to ensure private manholes, rodding eyes, etc. are not positioned within the proximity of any neighbouring property.
14. All manholes to be constructed to 1000mm dia. and 0.7m deep.
15. Flat lateral connection to be 135° 'Y' junctions (ie 45° oblique junctions) relative to main run.
16. All existing 'live' manhole and inspection chamber covers affected by the new works are to be reset to the appropriate finished level & slope.
17. All pipes with less than 600mm cover and situated under the building or car park are to be replaced with 1000mm dia. pipes.
18. All levels in metres (m) unless specified otherwise, datum relative to survey drawing.
19. Manholes in paved areas to have recessed cover & frame. These are to be constructed to the appropriate finished level & slope.
20. Note all r/w/p/s/ spon sizes and sizes to be confirmed by architect. Refer to architects drawings for positions of rainwater pipes and soil vent pipes.
21. All road gully connections to be 150mm dia. laid no flatter than 1:80 u.p.s. all roof drainage connections to be 100mm dia. laid no flatter than 1:40 u.p.s.
22. All roof drainage must be kept in an operative state with the minimum of disruption during replacement or when making a new connection.
23. A suitable method statement must be submitted to the contracts manager prior to the commencement of any roof drainage works.
24. At all times access must be maintained to all roads and footpaths.
25. Where pipes cross each other with less than 100mm separation pipes to be encased in concrete as per drainage detail. See Drg.
26. For background references refer to DR PP-155-XX-XX-DR-C-3000.



P02	26.11.19	KD/TW	LAYOUT AMENDED FOLLOWING CLIENT COMMENTS
P01	15.11.19	KD/TW	FOR APPROVAL
REV	DATE	DRAWN/CHK	REVISION INFO
STATUS:			

FOR APPROVAL

CLIENT:

SAVISTA DESIGN AND BUILD

PROJECT:
POUND PLACE
ROUNDSTONE ROAD
ANGMERING

DRAWING TITLE:

PROPOSED
DRAINAGE LAYOUT
SHEET 3 OF 3

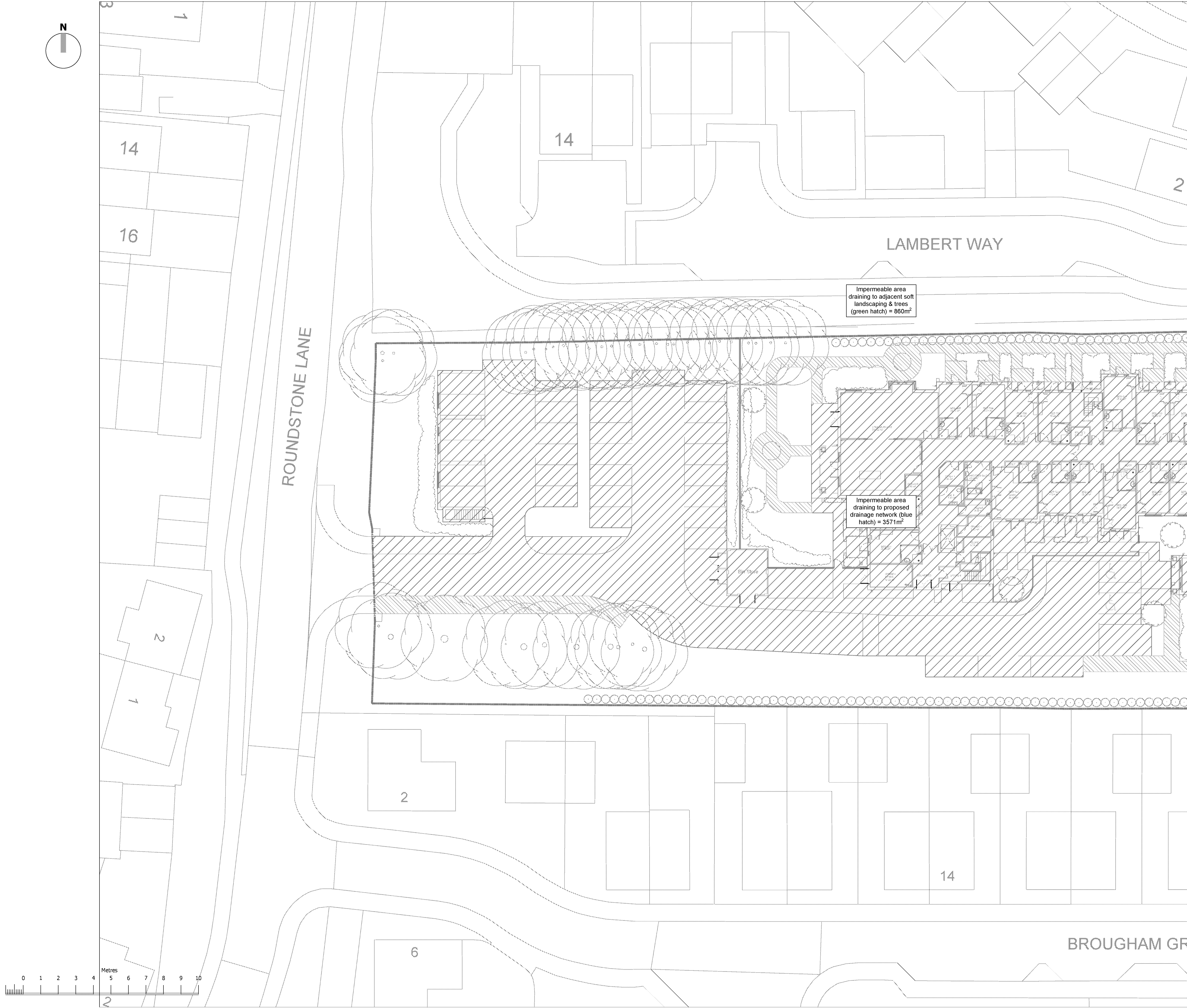
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SE1612	1:100	S2
DRAWING NUMBER:		REVISION:
PP-ISS-XX-XX-DR-C-3003		P02

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CONTINUED ON DRG PP-ISS-XX-XX-DR-C-3501

- NOTES:
- 1. Site plan provided by Architect.

iesi

STRUCTURES

P01 22.11.19 PL/TW FOR INFORMATION

REV	DATE	DRAWN/CHK	REVISION INFO
STATUS:			
FOR APPROVAL			
CLIENT:			
SAVISTA DESIGN AND BUILD			
PROJECT:			
POUND PLACE ROUNDSTONE ROAD ANGMERING			
DRAWING TITLE:			
PROPOSED IMPERMEABLE AREAS SHEET 1 OF 2			
JOB NUMBER:		SCALE AT A1:	REV. STATUS:
SE1612		1:200	S2
DRAWING NUMBER:		REVISION:	
PP-ISS-XX-XX-DR-C-3500		P01	
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APR 15/2020 COUNCIL A/15/19/002

NOTES:
1. Site plan provided by Architect.

P01 22.11.19 PL/TW FOR INFORMATION
REV DATE DRAWN/CHK REVISION INFO
STATUS:

FOR APPROVAL

CLIENT:
SAVISTA DESIGN AND BUILD

PROJECT:
POUND PLACE
ROUNDSTONE ROAD
ANGMERING

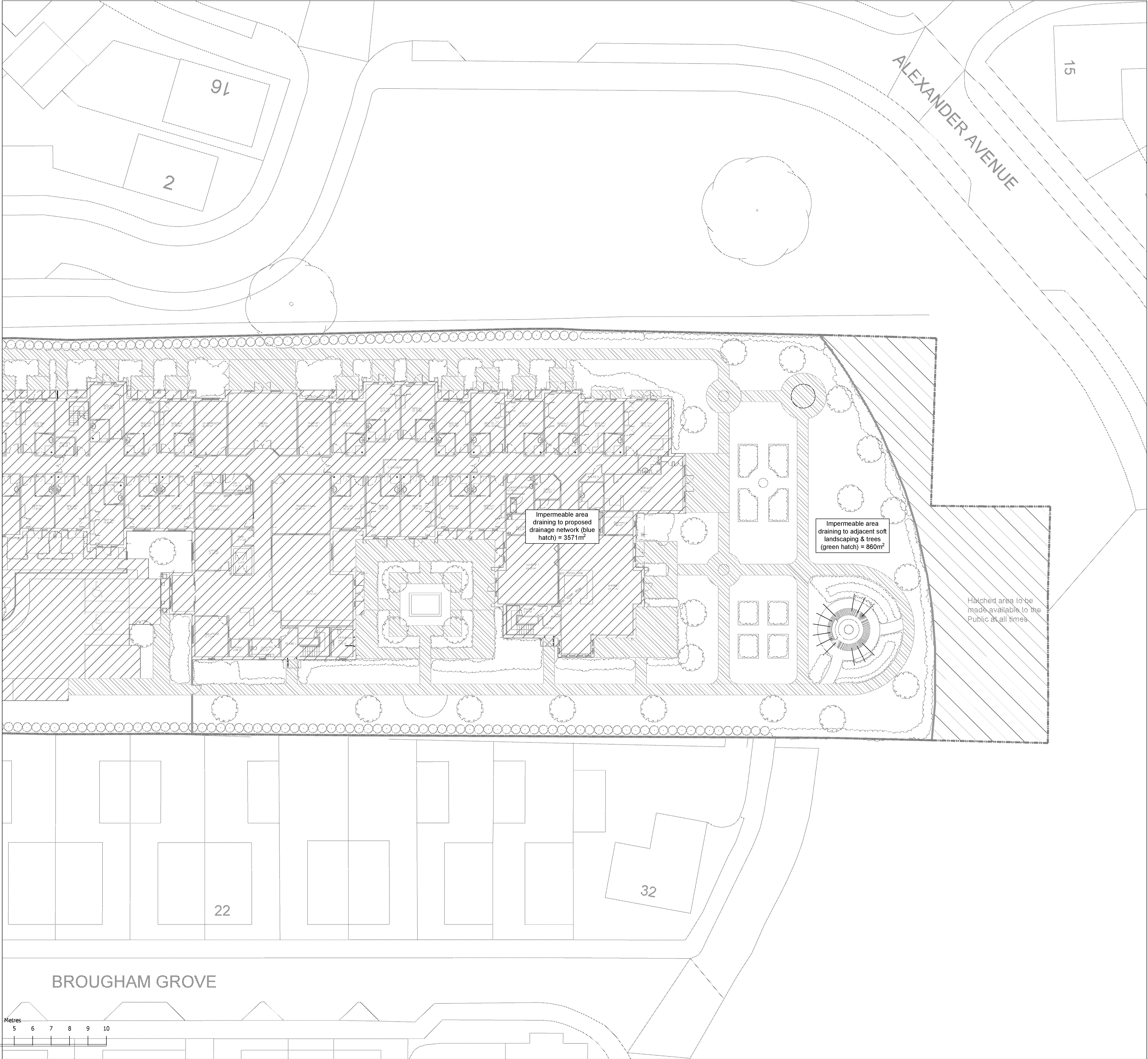
DRAWING TITLE:
PROPOSED
IMPERMEABLE AREAS
SHEET 2 OF 2

JOB NUMBER: SE1612 SCALE AT A1: 1:200 REV. STATUS: S2

DRAWING NUMBER: PP-ISS-XX-XX-DR-C-3501 REVISION: P01

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