

Amber Willard
Arun District Council
Maltravers Road
Littlehampton
West Sussex
BN17 5LF

23rd June 2026
Our Ref: D2380
Planning Ref: BN/64/26/PL

Dear Amber,

RE: HILL VIEW, EASTERGATE LANE, EASTERGATE PO20 3SJ

We write in response to the Arun District Council drainage consultee comments (18th June) in relation to the above planning application. BP Civils is responding on the applicant's behalf, as their appointed civil engineering consultant, assisting in flood risk and drainage matters in respect of this application.

Comments raised relate specifically to Standard 3 of the National Standards for SuDS. This response seeks to address the points raised.

The latest national surface water flood risk modelling mentioned by the consultee was released after the drainage strategy report was written. As such, at the time of writing, the surface water flood risk mapping extracts from Flood Map for Planning, contained within the report, were current.

The surface water flood maps and modelling do not consider positive drainage features or the effects of infiltration. These maps are, essentially, a surface analysis, comparing rainfall simulations and topography. The site drains naturally, with infiltration occurring, therefore ponding would not likely occur.

Upon review of the recently updated surface water mapping on Flood Map for Planning, the commentary in respect of surface water flood risk detailed with the submitted drainage strategy report is still relevant. The extents on site identified as being at risk of surface water flooding still correspond with the localised low point on site, and do not represent a wider surface water flow route with wider third party constraints or impacts. The significant change to the surface water flood risk mapping on Flood Map for Planning is that climate change mapping is now provided. The climate change layers demonstrate an increased outward footprint of the area identified as being at risk of surface water flooding, but still corresponds with the localised low point on site and does not represent a wider surface water flow route with wider implications. As such, the proposed surface water drainage system would not be depleted of storage as a result. The extents identified as being at risk of surface water flooding will be managed through the proposed development of the site and do not represent a wider surface water flood risk.

Updated surface water flood risk mapping extracts are contained within **Appendix A**.

The consultee also comments on the surface water drainage calculations submitted, and acknowledges that these demonstrate that no flooding occurs on the highest design criteria considered – the 1% AEP with a climate change allowance of 45%. Allowance is also made in the calculations for the potential impacts of urban creep (10%).

As the system has been designed to accommodate the 1% AEP event with climate change event, evidently there is capacity within the system for lesser modelled storm events, such as the 3.3% AEP event. The calculations already submitted confirm that no flooding occurs for the various simulations provided, including the 3.3% AEP event.

The current calculations submitted provide a graph for the greatest design storm considered (1% AEP event + 45%CC) which demonstrates hydraulic performance and can be used to identify half drain time compliance.

Additional calculations are provided (**Appendix B**) specifically for the 3.3% AEP event to provide the graph for this simulation. These calculations confirm that half drain times do not exceed 24-hours for any of the infiltration features proposed (infiltrating permeable paving and/or soakaways).

In respect of the comment raised concerning Plot 2's drained area, we believe that this comment infact relates to Plot 3. Only the rear of Plot 3's roof will drain to the soakaway within the rear garden of Plot 3. As demonstrated on drawing PL400 Rev. P2 (Conceptual Drainage Strategy) which was contained within the submitted drainage strategy report, this area totals 24.54m², excluding urban creep (0.003Ha as shown as the 'Catchment Area (ha)' within the calculations prepared). The additional areas – 13.77m² and 11.99m² – drain to the soakaways within Plot 2 and Plot 4's rear gardens. This is evident from the area totals as per the submitted calculations.

The permeable paving is modelled with a slope of 1:80, which exceeds the longitudinal fall of the proposed permeable roads. As such, the impact of permeable paving slopes is already considered within the calculations submitted. The site is in a wider area which is considered flat, and as such, prevailing falls would not significantly impact upon storage volumes as would be the case on, for example, a steeply sloping site.

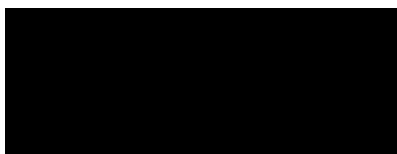
The root protection areas conflicting with the alignment of the proposed road are to be of a specialised construction type to specifically cater for the constraint. Traditional construction would result in a potentially detrimental impact upon the trees over which the road is constructed, which is why the proposed tree-root construction exists to mitigate this. Minimal excavation takes place with this construction, with the road construction, broadly speaking, sitting on top of natural ground within minimal surface removal undertaken. As the consultee acknowledges, this type of construction does not include a depth of stone storage in the same form as traditional permeable paving, it instead relies on a granular infill arrangement of a reinforced cellular confinement system. The root protection construction is considered a free-draining construction, mimicking natural drainage conditions and does not present an increased risk of flooding at the site. The cellular confinement system is available in 75 – 200mm arrangements to cater for different vehicle loading types.

Additional comments were raised in respect of Standards 5 (Amenity) and 6 (Biodiversity), albeit no objection was raised concerning either standard. In relation to these two points, the proposed SuDS Pods/Planters have been included on the drainage drawing. Please refer to revision P3 of drawing PL400 (**Appendix C**).

We trust that this response addresses the points raised by the drainage consultee, meaning the current objection can be removed.

Should you wish to discuss any point in further detail, please do not hesitate to contact me.

Yours sincerely,



Stuart Burnett
Associate Director, BP Civils

APPENDIX A

Datasets

Surface water

[Hide](#)

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

Present day

[Hide](#)

☒ Present day

☐ 2061 to 2125

Annual likelihood of flooding

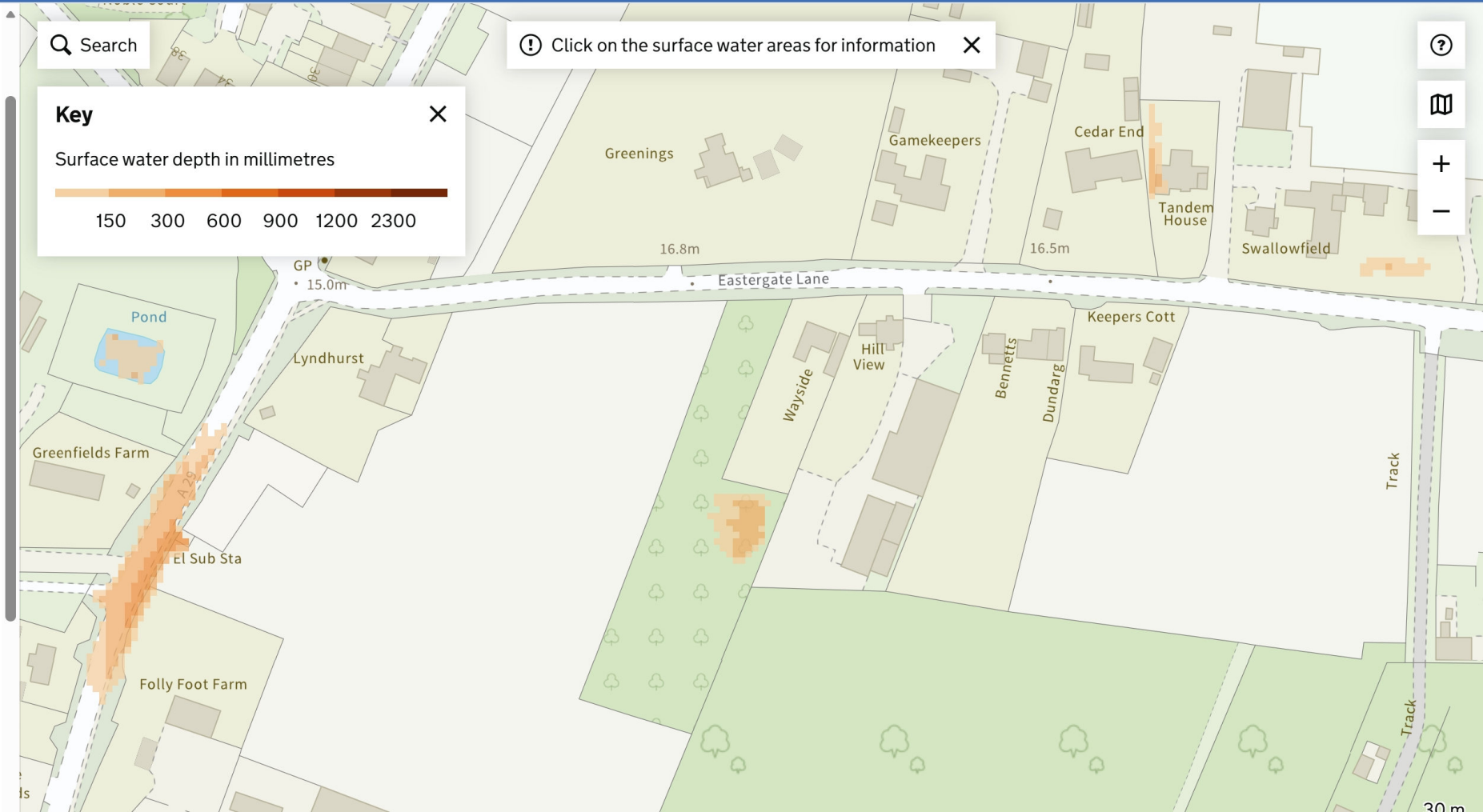
1 in 30

[Hide](#)

☒ 1 in 30

☐ 1 in 100

☐ 1 in 1000



Datasets

Surface water

[Hide](#)

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

Present day

[Hide](#)

☒ Present day

☐ 2061 to 2125

Annual likelihood of flooding

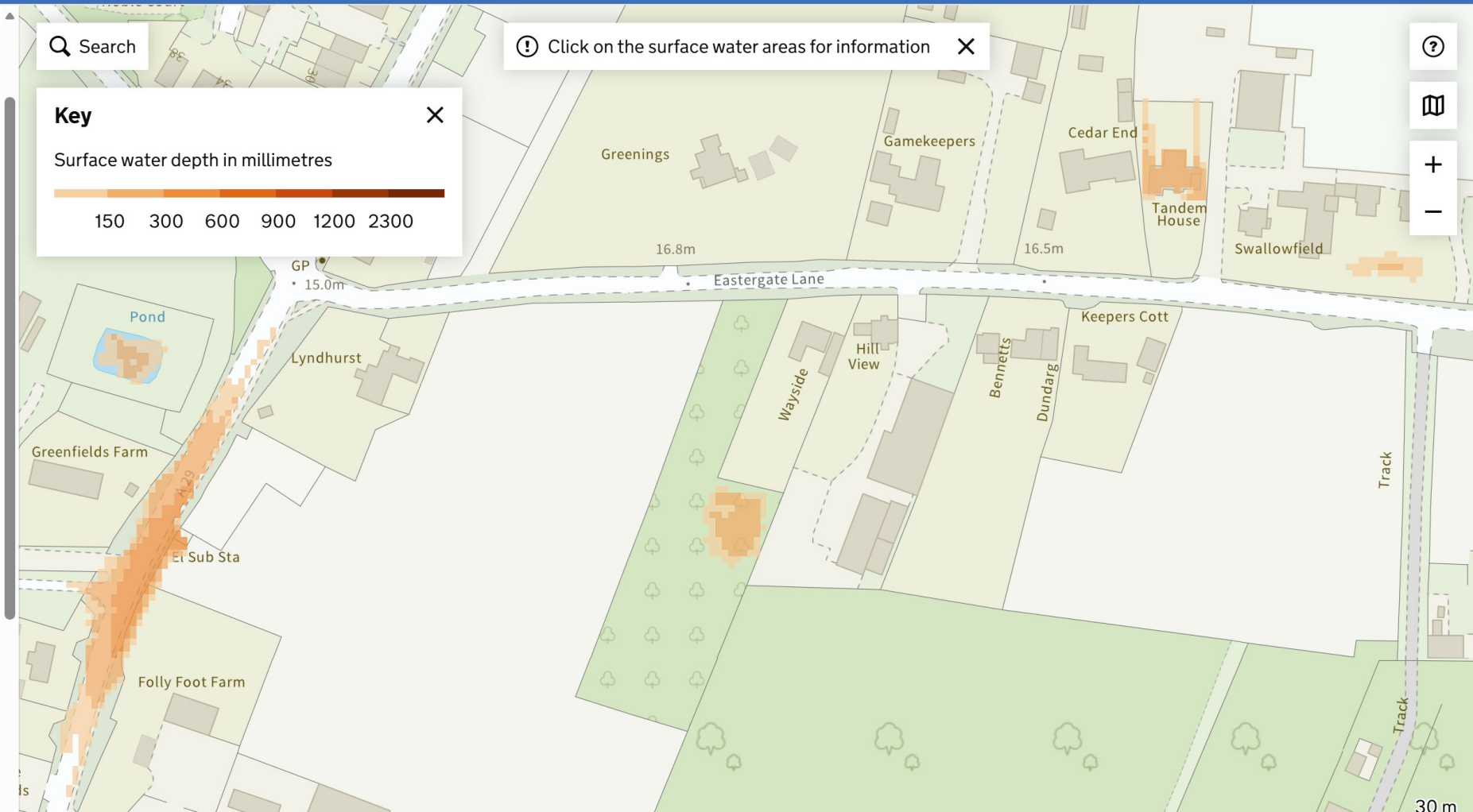
1 in 100

[Hide](#)

☐ 1 in 30

☒ 1 in 100

☐ 1 in 1000



Datasets

Surface water

[Hide](#)

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

Present day

[Hide](#)

☒ Present day

☐ 2061 to 2125

Annual likelihood of flooding

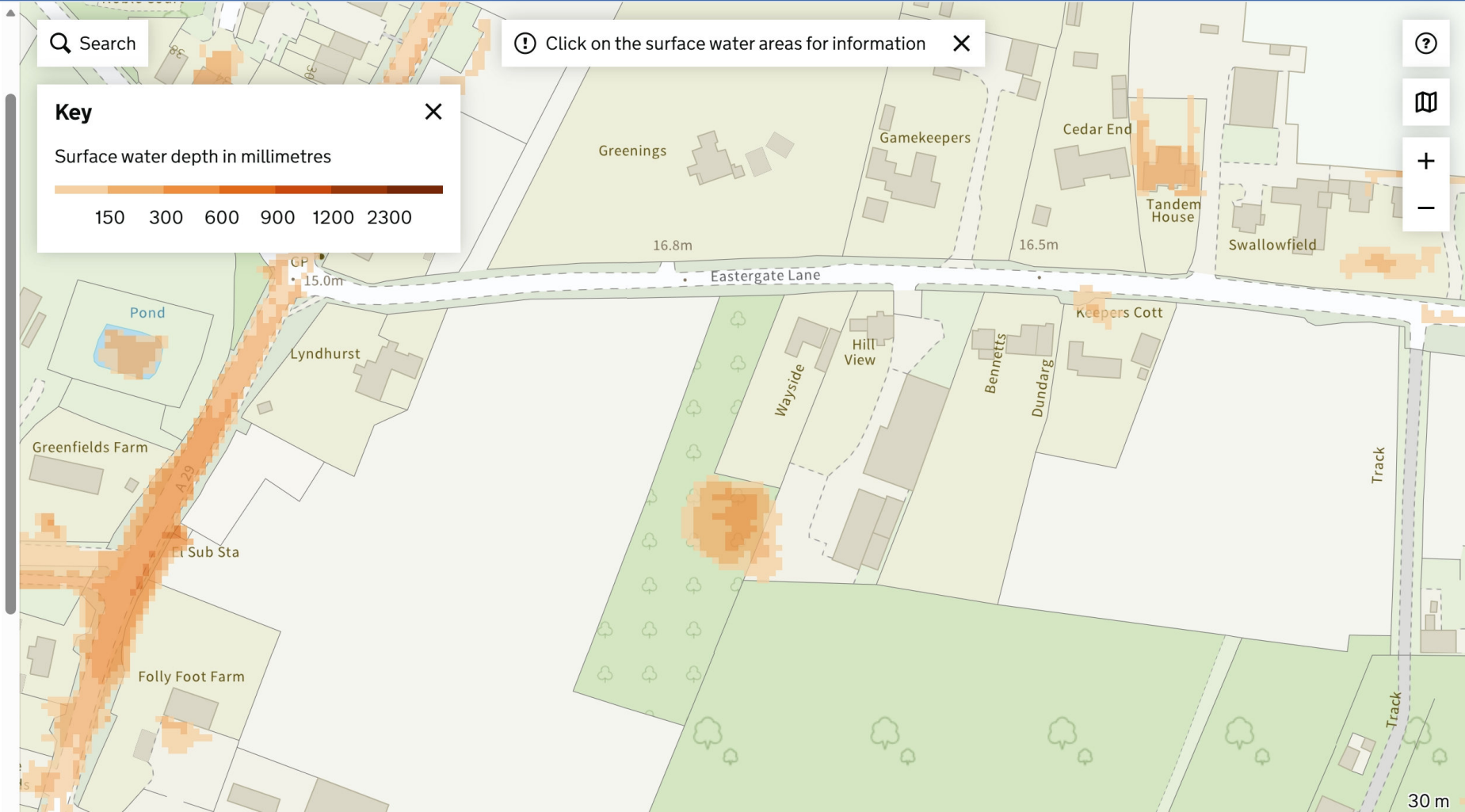
1 in 1000

[Hide](#)

☐ 1 in 30

☐ 1 in 100

☒ 1 in 1000



Datasets

Surface water

[Hide](#)

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

2061 to 2125

[Hide](#)

☐ Present day

☒ 2061 to 2125

Annual likelihood of flooding

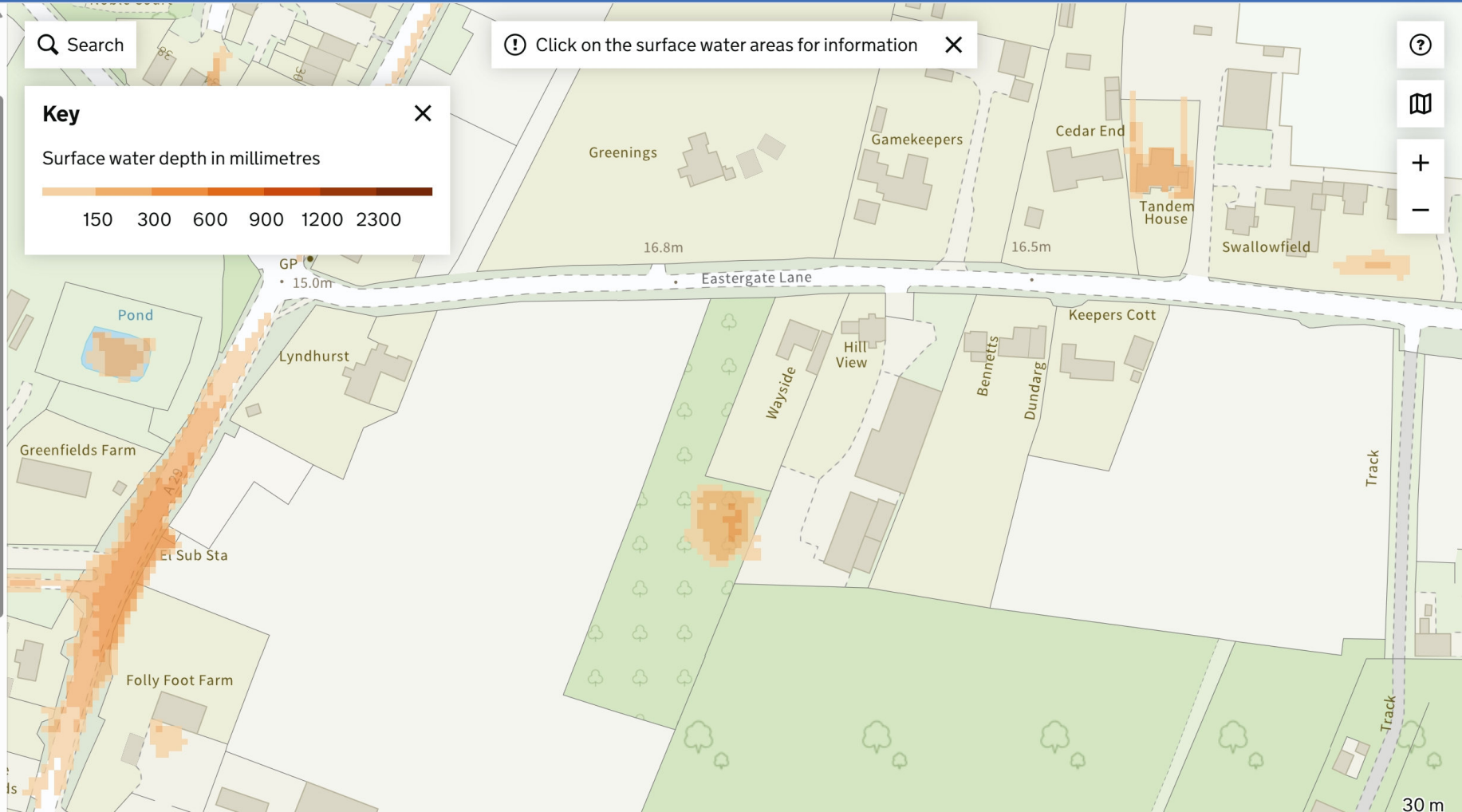
1 in 30

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☐ 1 in 100

☐ 1 in 1000



Datasets

Surface water

Hide

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

2061 to 2125

Hide

☐ Present day

☒ 2061 to 2125

Annual likelihood of flooding

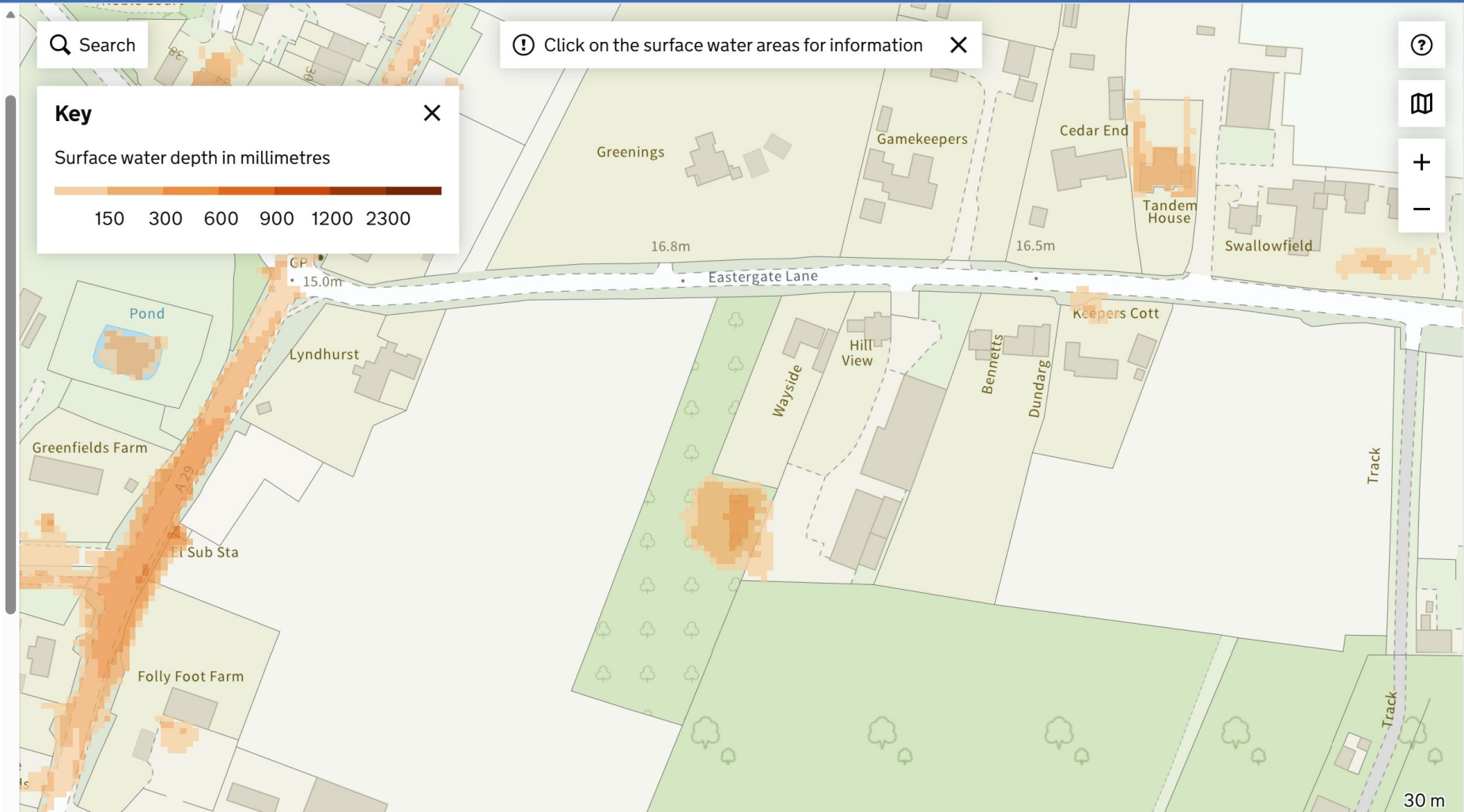
1 in 100

Hide

☐ 1 in 30

☒ 1 in 100

☐ 1 in 1000



Datasets

Surface water

[Hide](#)

☐ Flood zones 2 and 3

☒ Surface water

☐ None

Climate change

2061 to 2125

[Hide](#)

☐ Present day

☒ 2061 to 2125

Annual likelihood of flooding

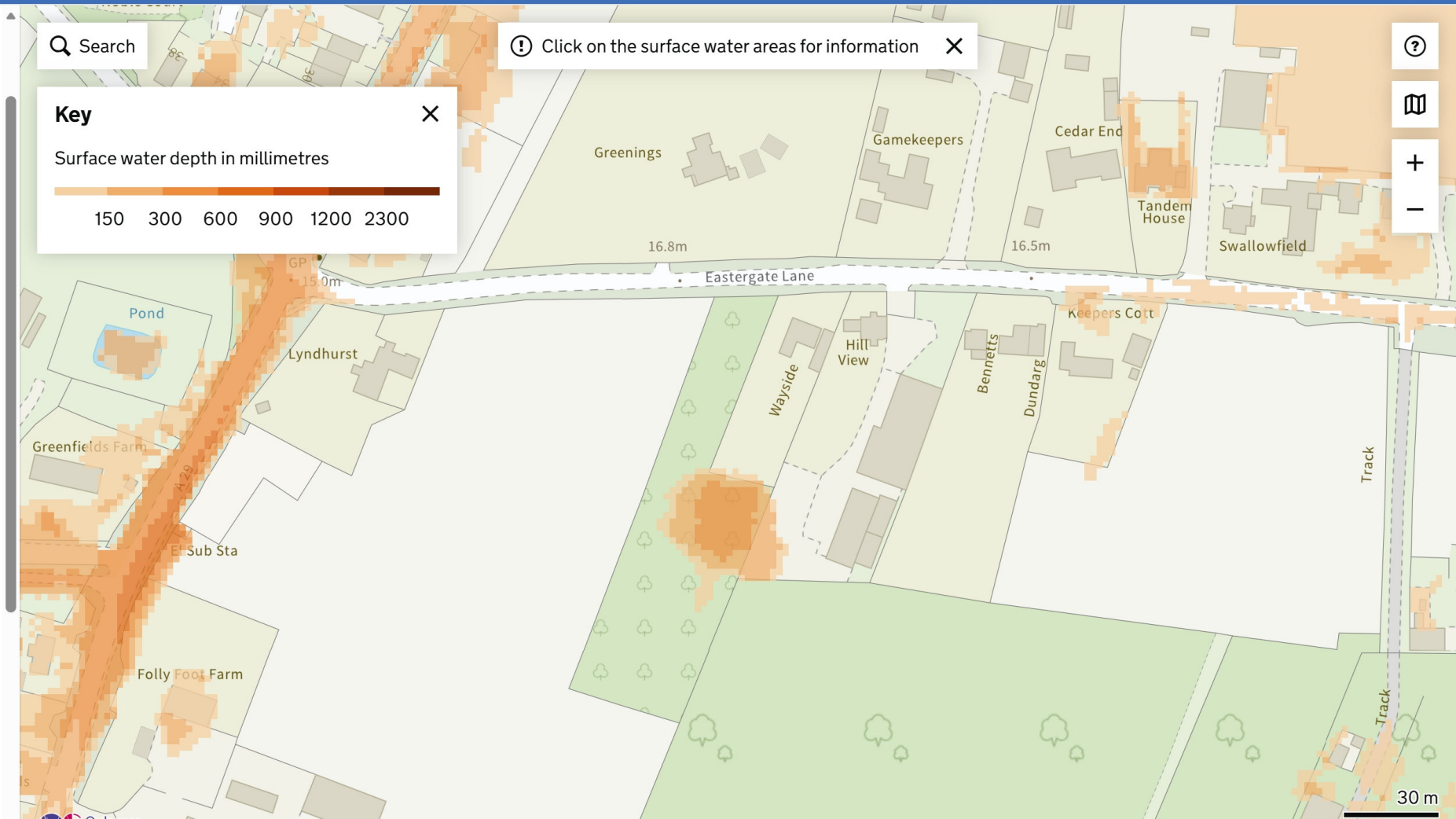
1 in 1000

[Hide](#)

☐ 1 in 30

☐ 1 in 100

☒ 1 in 1000



APPENDIX B

PLOT 1 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S1	0.000	100	Unknown	16.850	16.150	0.600	494850.735	106059.962
S2	0.000	450	Unknown	16.850	16.075	0.675	494850.735	106054.895
S3	0.000	450	Unknown	16.850	16.000	0.750	494852.410	106048.522
S6	0.000	100	Unknown	16.850	16.150	0.600	494862.625	106059.962
S7	0.000	450	Unknown	16.850	16.000	0.750	494862.625	106048.522
S4	0.009	450	Unknown	16.850	15.850	0.850	494857.706	106048.522
S5	0.000	150	Unknown	16.850	15.800	0.900	494857.706	106043.522

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S1	16.150	S2	16.075	Circ	100	5.067	68	0.600	0.600	0.675
1.001	S2	16.075	S3	16.000	Circ	100	6.590	88	0.600	0.675	0.750
1.002	S3	16.000	S4	15.900	Circ	100	5.297	53	0.600	0.750	0.850
2.000	S6	16.150	S7	16.000	Circ	100	11.440	76	0.600	0.600	0.750
2.001	S7	16.000	S4	15.900	Circ	100	4.918	49	0.600	0.750	0.850
1.003	S4	15.850	S5	15.800	Circ	150	5.000	100	0.600	0.850	0.900

Outfall Details

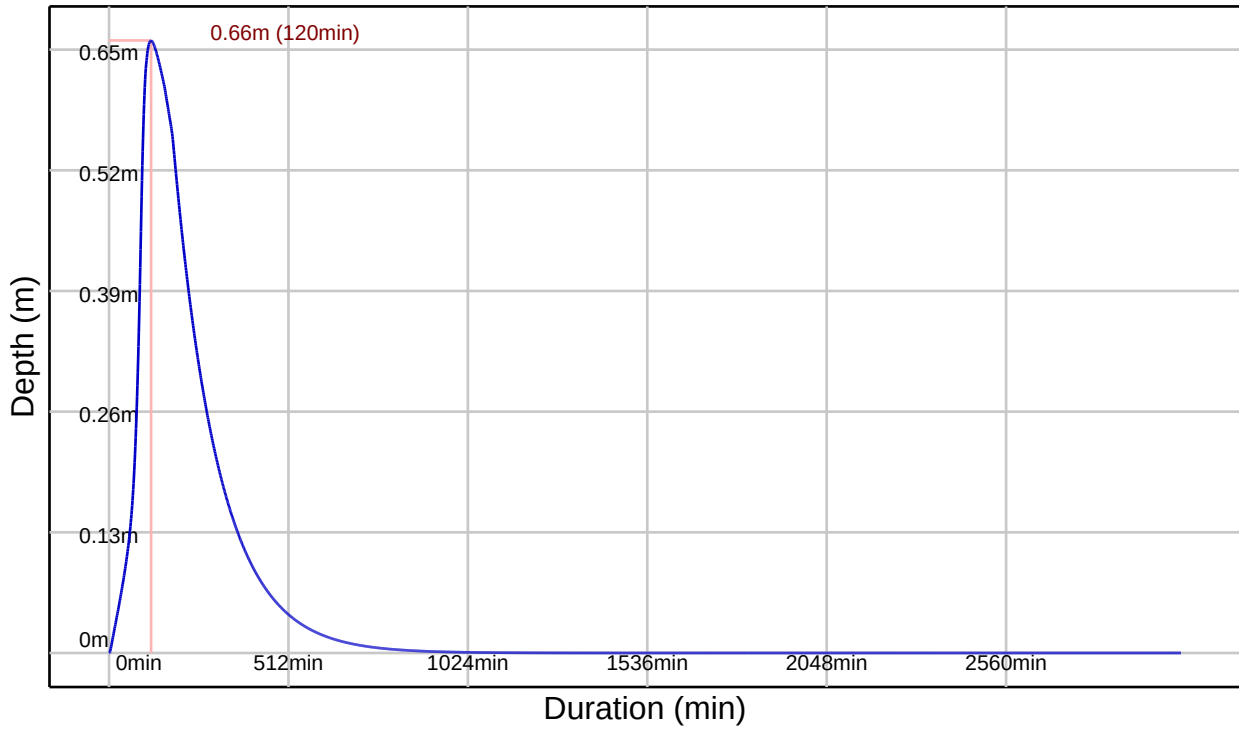
Outfall Manhole S5 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S5

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.250	0.800	95.00	3.999	3.799	3.039	0.00000000	0.36000000	2.00

Plot 1 Soakaway at S5 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):

30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S1	15 min Winter	0	16.150	0.000	0.000		OK
S2	15 min Winter	0	16.075	0.000	0.000		OK
S3	15 min Winter	0	16.000	0.000	0.000		OK
S6	15 min Winter	0	16.150	0.000	0.000		OK
S7	15 min Winter	0	16.000	0.000	0.000		OK
S4	180 min Summer	121	15.910	0.060	0.314		OK
S5	180 min Summer	120	15.910	0.660	0.243		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	0	S1	S2	0.000	0.000	0.000	0.000	OK
1.001	15 min Winter	0	S2	S3	0.000	0.000	0.000	0.000	OK
1.002	180 min Summer	121	S3	S4	0.005	0.000	0.000	0.000	OK
2.000	15 min Winter	0	S6	S7	0.000	0.000	0.000	0.000	OK
2.001	180 min Summer	121	S7	S4	0.005	0.000	0.000	0.000	OK
1.003	180 min Summer	121	S4	S5	0.085	0.602	1.464	0.083	OK

PLOT 2 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S26	0.001	100	Unknown	16.825	16.125	0.600	494834.722	106021.972
S27	0.000	450	Unknown	16.916	16.025	0.791	494837.962	106030.379
S28	0.004	450	Unknown	16.700	15.925	0.675	494829.807	106033.522
S29	0.006	450	Unknown	16.683	15.750	0.783	494828.018	106028.881
S30	0.000	150	Unknown	16.700	15.700	0.850	494823.352	106030.679

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S26	16.125	S27	16.025	Circ	100	9.009	90	0.600	0.600	0.791
1.001	S27	16.025	S28	15.925	Circ	100	8.740	87	0.600	0.791	0.675
1.002	S28	15.925	S29	15.800	Circ	100	4.974	40	0.600	0.675	0.783
1.003	S29	15.750	S30	15.700	Circ	150	5.000	100	0.600	0.783	0.850

Outfall Details

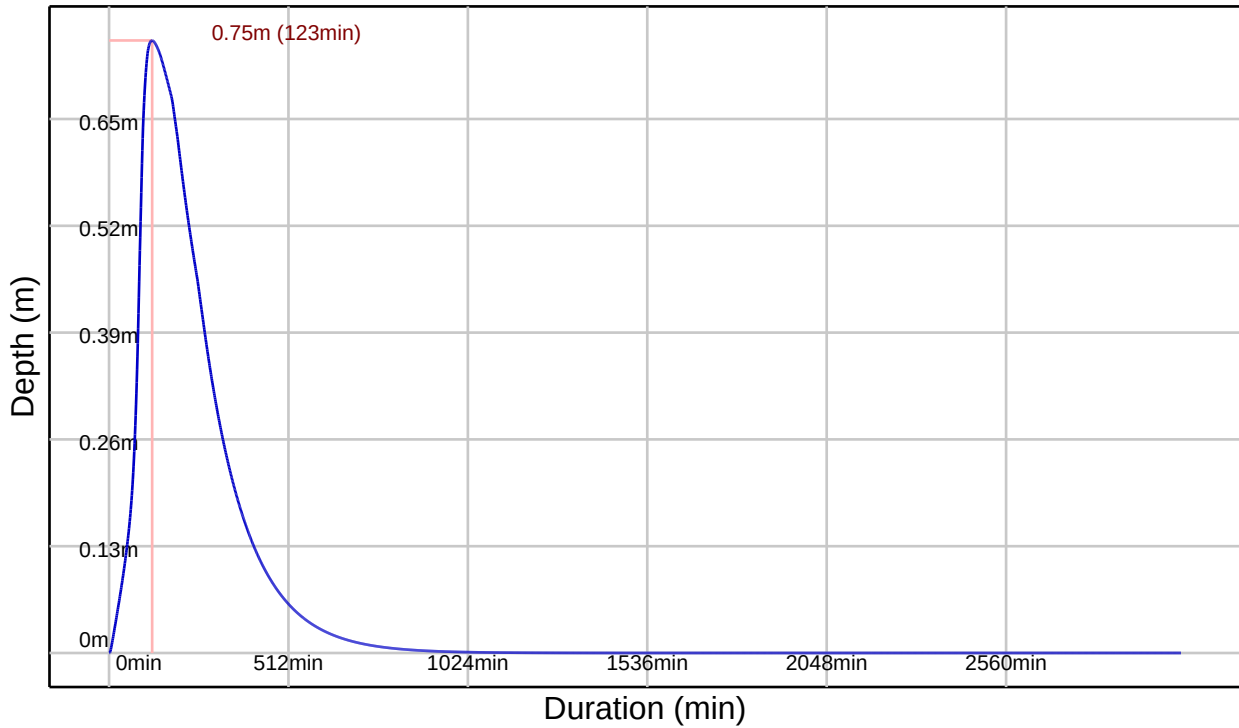
Outfall Manhole S30 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S30

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.300	0.800	95.00	4.000	3.800	3.040	0.00000000	0.36000000	2.00

Plot 2 Soakaway at S30 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):

30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S26	15 min Summer	8	16.146	0.021	0.643		OK
S27	15 min Summer	9	16.046	0.021	0.626		OK
S28	180 min Summer	122	16.046	0.121	0.188		Surcharged
S29	180 min Summer	123	16.046	0.296	0.368		Surcharged
S30	180 min Summer	123	16.046	0.746	0.369		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S26	S27	0.021	0.529	0.634	0.100	OK
1.001	180 min Summer	122	S27	S28	0.060	0.263	0.220	0.034	OK
1.002	120 min Summer	77	S28	S29	0.100	0.850	1.227	0.128	Surcharged
1.003	30 min Summer	23	S29	S30	0.150	0.825	4.829	0.272	Surcharged

PLOT 3 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S24	0.003	450	Unknown	16.700	15.700	0.850	494825.325	106021.896
S25	0.000	150	Unknown	16.700	15.550	1.000	494820.660	106023.694

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S24	15.700	S25	15.550	Circ	150	5.000	33	0.600	0.850	1.000

Outfall Details

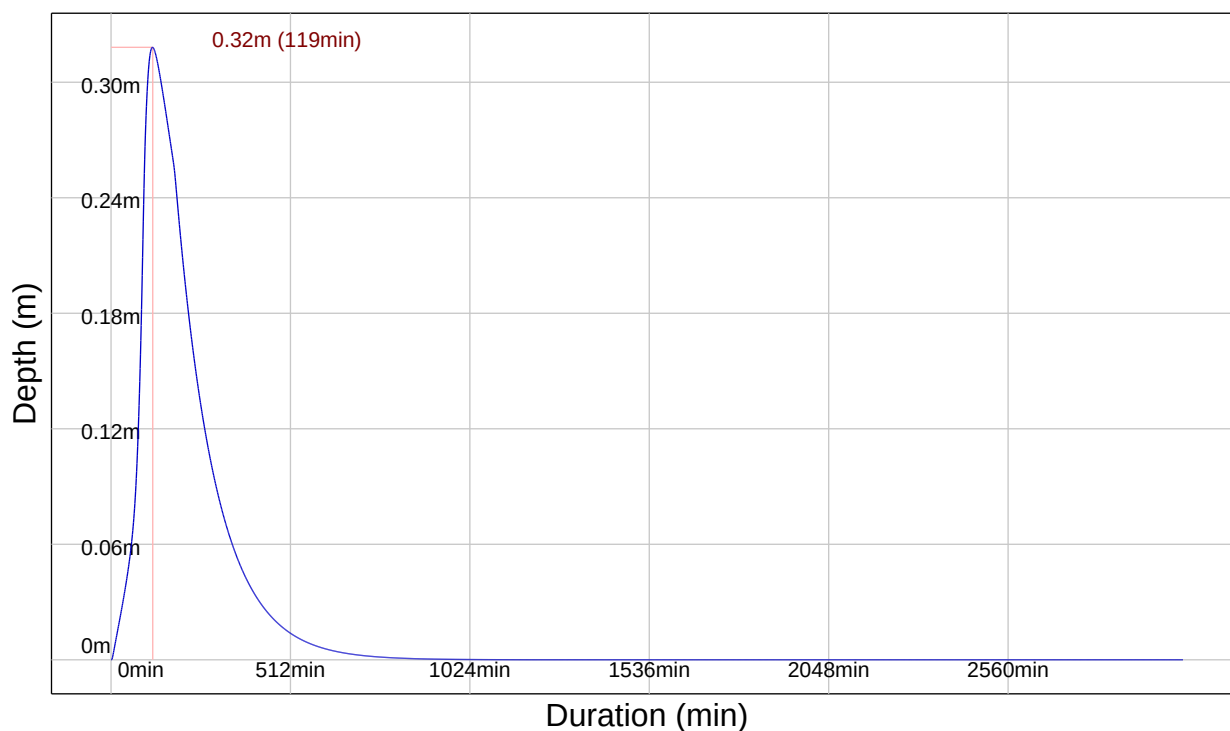
Outfall Manhole S25 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S25

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.300	0.400	95.00	2.500	2.375	0.950	0.00000000	0.36000000	2.00

Plot 3 Soakaway at S25 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

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Manhole Flood Risk Freeboard: 0.300m

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Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S24	15 min Summer	8	15.722	0.022	1.314		OK
S25	180 min Summer	118	15.618	0.318	0.113		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	180 min Summer	117	S24	S25	0.037	0.636	0.452	0.015	OK

PLOT 4 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S19	0.002	100	Unknown	16.825	16.125	0.600	494832.239	106015.533
S20	0.000	450	Unknown	16.825	16.025	0.700	494829.037	106007.224
S21	0.000	450	Unknown	16.700	15.925	0.675	494820.882	106010.367
S22	0.006	450	Unknown	16.700	15.750	0.800	494822.672	106015.011
S23	0.000	150	Unknown	16.700	15.700	0.850	494818.006	106016.809

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S19	16.125	S20	16.025	Circ	100	8.904	89	0.600	0.600	0.700
1.001	S20	16.025	S21	15.925	Circ	100	8.740	87	0.600	0.700	0.675
1.002	S21	15.925	S22	15.800	Circ	100	4.976	40	0.600	0.675	0.800
1.003	S22	15.750	S23	15.700	Circ	150	5.000	100	0.600	0.800	0.850

Outfall Details

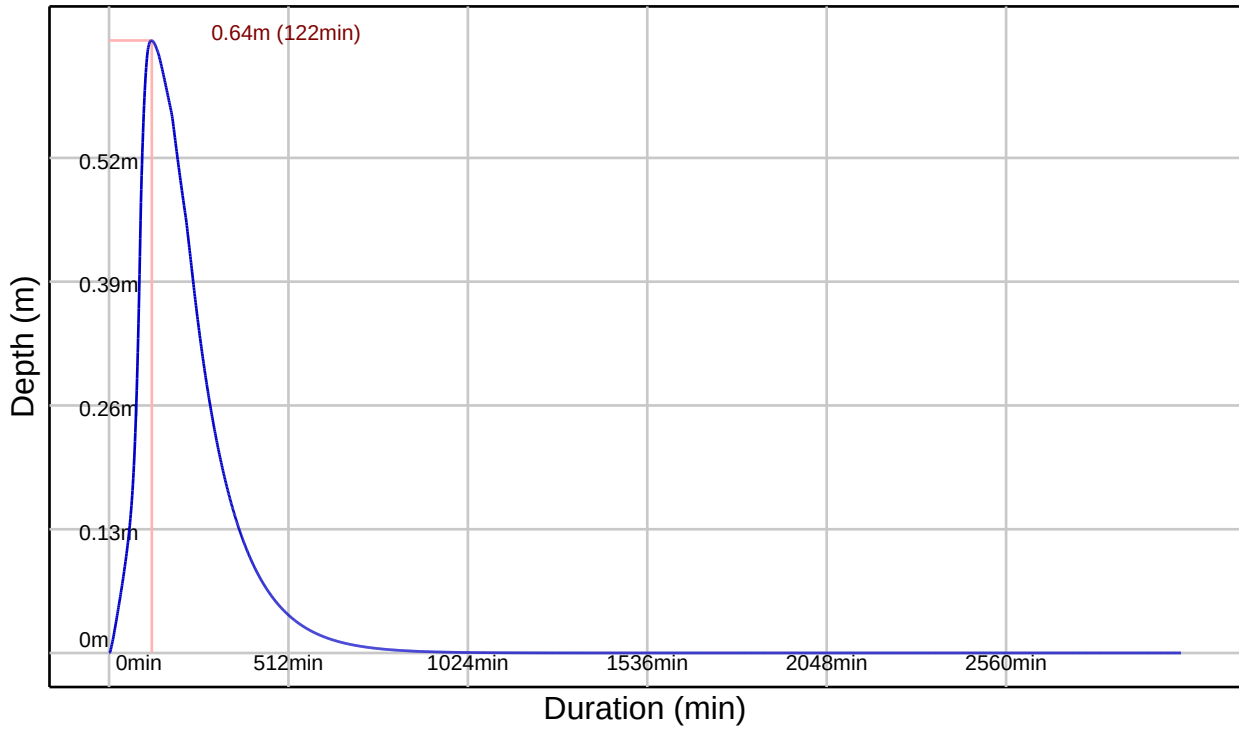
Outfall Manhole S23 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S23

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.300	0.800	95.00	3.000	2.850	2.280	0.00000000	0.36000000	2.00

Plot 4 Soakaway at S23 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S19	15 min Summer	8	16.148	0.023	0.738		OK
S20	15 min Summer	9	16.048	0.023	0.718		OK
S21	180 min Summer	122	15.944	0.019	0.057		OK
S22	180 min Summer	121	15.943	0.193	0.277		Surcharged
S23	180 min Summer	121	15.943	0.643	0.274		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Summer	8	S19	S20	0.023	0.538	0.728	0.114	OK
1.001	15 min Summer	9	S20	S21	0.021	0.615	0.726	0.113	OK
1.002	180 min Summer	122	S21	S22	0.059	0.540	0.252	0.026	OK
1.003	60 min Winter	46	S22	S23	0.150	0.625	1.714	0.097	Surcharged

PLOT 7 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S45	0.000	100	Unknown	16.100	15.600	0.400	494766.201	106007.166
S46	0.000	450	Unknown	16.100	15.500	0.500	494762.763	105998.083
S41	0.000	100	Unknown	16.100	15.600	0.400	494784.850	106000.107
S42	0.000	450	Unknown	16.367	15.500	0.767	494781.412	105991.024
S43	0.014	450	Unknown	16.294	15.400	0.744	494776.612	105992.841
S44	0.000	150	Unknown	16.107	15.375	0.582	494775.025	105988.648

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S45	15.600	S46	15.500	Circ	100	9.712	97	0.600	0.400	0.500
1.001	S46	15.500	S43	15.400	Circ	150	14.808	148	0.600	0.450	0.744
2.000	S41	15.600	S42	15.500	Circ	100	9.712	97	0.600	0.400	0.767
2.001	S42	15.500	S43	15.400	Circ	150	5.132	51	0.600	0.717	0.744
1.002	S43	15.400	S44	15.375	Circ	150	4.483	179	0.600	0.744	0.582

Outfall Details

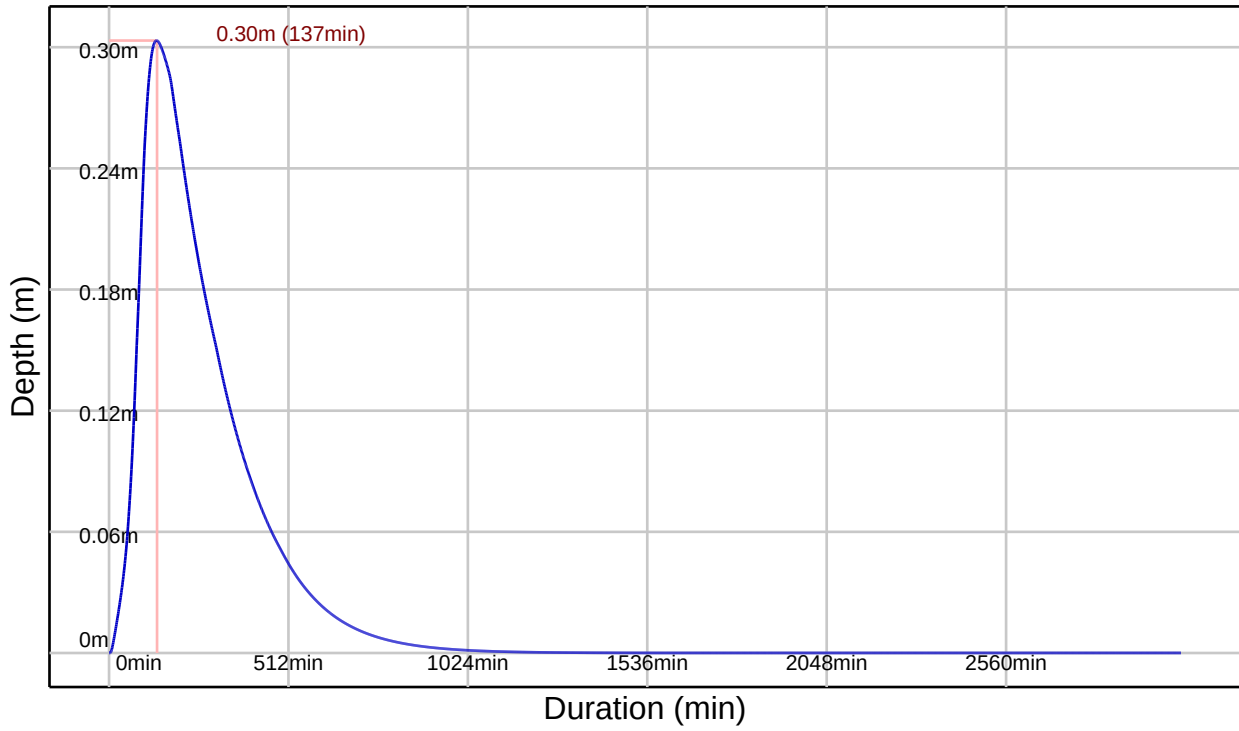
Outfall Manhole S44 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S44

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.350	0.400	95.00	12.012	11.412	4.565	0.00000000	0.36000000	2.00

Plot 7 Soakaway at S44 (30Yr 180Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S45	180 min Summer	128	15.654	0.054	0.000		OK
S46	180 min Winter	136	15.653	0.153	0.001		Surcharged
S41	180 min Winter	136	15.653	0.053	0.000		OK
S42	180 min Winter	136	15.653	0.153	0.001		Surcharged
S43	180 min Winter	136	15.653	0.253	0.392		Surcharged
S44	180 min Winter	136	15.653	0.303	0.392		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	180 min Summer	151	S45	S46	0.077	0.008	0.048	0.008	OK
1.001	180 min Summer	149	S46	S43	0.150	0.004	0.072	0.005	Surcharged
2.000	180 min Winter	182	S41	S42	0.077	0.005	0.024	0.004	OK
2.001	180 min Summer	184	S42	S43	0.150	0.003	0.056	0.002	Surcharged
1.002	30 min Summer	19	S43	S44	0.150	0.621	5.369	0.407	Surcharged

PLOT 8 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S51	0.000	100	Unknown	16.000	15.500	0.400	494778.391	105978.475
S52	0.000	450	Unknown	16.138	15.400	0.638	494774.903	105969.964
S47	0.000	100	Unknown	16.000	15.500	0.400	494758.245	105986.096
S48	0.000	450	Unknown	16.229	15.400	0.729	494754.991	105977.501
S49	0.014	450	Unknown	16.000	15.225	0.625	494763.911	105974.125
S50	0.000	150	Unknown	16.000	15.175	0.675	494762.147	105969.465

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S51	15.500	S52	15.400	Circ	100	9.197	92	0.600	0.400	0.638
1.001	S52	15.400	S49	15.275	Circ	100	11.753	94	0.600	0.638	0.625
2.000	S47	15.500	S48	15.400	Circ	100	9.190	92	0.600	0.400	0.729
2.001	S48	15.400	S49	15.275	Circ	100	9.537	76	0.600	0.729	0.625
1.002	S49	15.225	S50	15.175	Circ	150	4.983	100	0.600	0.625	0.675

Outfall Details

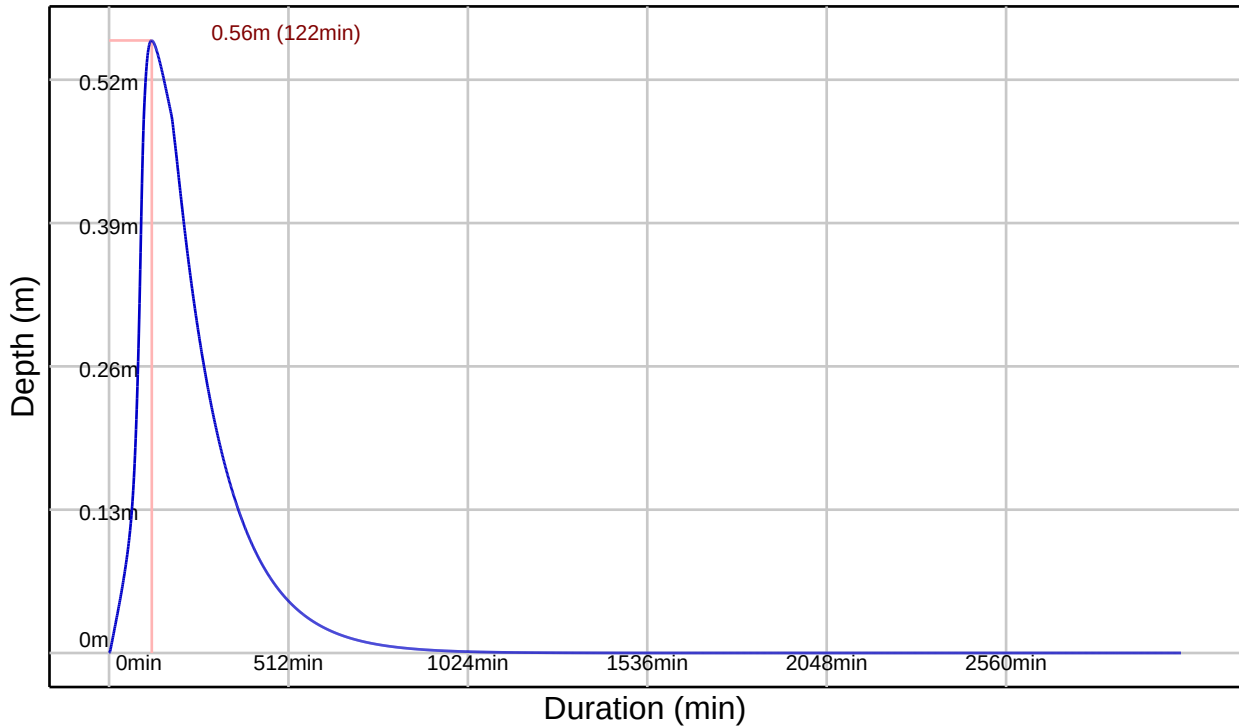
Outfall Manhole S50 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S50

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
14.775	0.800	95.00	8.000	7.600	6.080	0.00000000	0.36000000	2.00

Plot 8 Soakaway at S50 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S51	15 min Winter	0	15.500	0.000	0.000		OK
S52	15 min Winter	0	15.400	0.000	0.000		OK
S47	15 min Winter	0	15.500	0.000	0.000		OK
S48	15 min Winter	0	15.400	0.000	0.000		OK
S49	180 min Summer	122	15.331	0.106	0.492		OK
S50	180 min Summer	122	15.331	0.556	0.497		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	0	S51	S52	0.000	0.000	0.000	0.000	OK
1.001	180 min Summer	122	S52	S49	0.028	0.000	0.000	0.000	OK
2.000	15 min Winter	0	S47	S48	0.000	0.000	0.000	0.000	OK
2.001	180 min Summer	122	S48	S49	0.028	0.000	0.000	0.000	OK
1.002	180 min Summer	122	S49	S50	0.128	0.689	2.398	0.135	OK

PLOT 9 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S53	0.000	100	Unknown	16.300	15.800	0.400	494763.903	105945.917
S54	0.000	450	Unknown	16.326	15.700	0.526	494767.227	105955.147
S55	0.000	450	Unknown	16.154	15.600	0.454	494758.369	105958.337
S58	0.000	100	Unknown	16.300	15.800	0.400	494762.356	105939.629
S59	0.000	450	Unknown	15.951	15.700	0.151	494759.814	105932.573
S60	0.000	450	Unknown	15.999	15.550	0.349	494750.321	105935.992
S56	0.017	450	Unknown	16.086	15.350	0.586	494753.921	105945.988
S57	0.000	150	Unknown	16.119	15.300	0.669	494749.217	105947.683

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S53	15.800	S54	15.700	Circ	100	9.810	98	0.600	0.400	0.526
1.001	S54	15.700	S55	15.600	Circ	100	9.415	94	0.600	0.526	0.454
1.002	S55	15.600	S56	15.400	Circ	100	13.125	66	0.600	0.454	0.586
2.000	S58	15.800	S59	15.700	Circ	100	7.500	75	0.600	0.400	0.151
2.001	S59	15.700	S60	15.550	Circ	100	10.090	67	0.600	0.151	0.349
2.002	S60	15.550	S56	15.400	Circ	100	10.625	71	0.600	0.349	0.586
1.003	S56	15.350	S57	15.300	Circ	150	5.000	100	0.600	0.586	0.669

Outfall Details

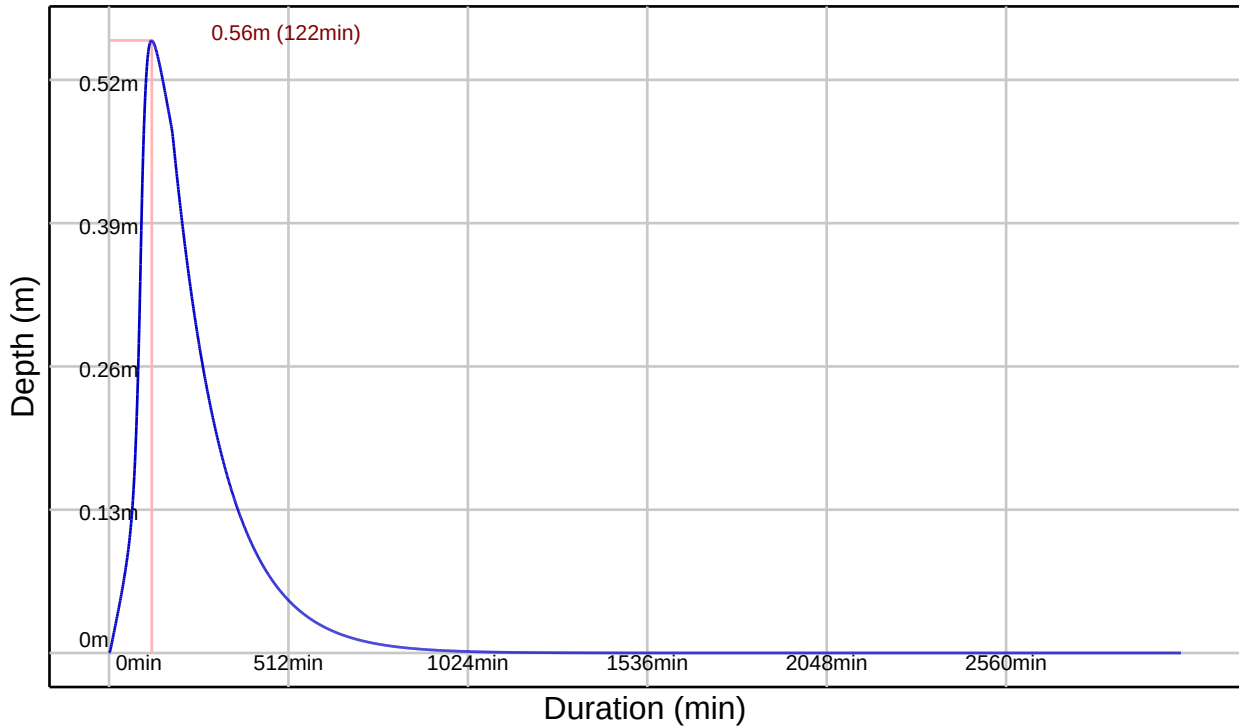
Outfall Manhole S57 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S57

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
14.775	0.800	95.00	10.000	9.500	7.600	0.00000000	0.36000000	2.00

Plot 9 Soakaway at S57 (30Yr 180Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S53	15 min Winter	0	15.800	0.000	0.000		OK
S54	15 min Winter	0	15.700	0.000	0.000		OK
S55	15 min Winter	0	15.600	0.000	0.000		OK
S58	15 min Winter	0	15.800	0.000	0.000		OK
S59	15 min Winter	0	15.700	0.000	0.000		OK
S60	15 min Winter	0	15.550	0.000	0.000		OK
S56	15 min Summer	8	15.430	0.080	8.427		OK
S57	180 min Summer	122	15.331	0.556	0.601		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	15 min Winter	0	S53	S54	0.000	0.000	0.000	0.000	OK
1.001	15 min Winter	0	S54	S55	0.000	0.000	0.000	0.000	OK
1.002	15 min Summer	8	S55	S56	0.015	0.000	0.000	0.000	OK
2.000	15 min Winter	0	S58	S59	0.000	0.000	0.000	0.000	OK
2.001	15 min Winter	0	S59	S60	0.000	0.000	0.000	0.000	OK
2.002	15 min Summer	8	S60	S56	0.015	0.000	0.000	0.000	OK
1.003	15 min Summer	8	S56	S57	0.075	0.943	8.363	0.472	OK

SOAKAWAY 1 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S14	0.023	708x354	Unknown	16.692	15.962	0.580	494850.430	106067.466
S13	0.000	1200	Unknown	16.757	15.922	0.685	494845.846	106063.711
S15	0.005	708x354	Unknown	16.817	16.387	0.280	494830.419	106008.865
S8	0.000	450	Unknown	16.880	16.130	0.600	494832.391	106009.739
S16	0.006	708x354	Unknown	16.814	16.384	0.280	494833.188	106016.128
S9	0.000	450	Unknown	16.875	16.078	0.648	494835.197	106017.019
S17	0.006	708x354	Unknown	16.817	16.387	0.280	494836.000	106023.410
S10	0.000	450	Unknown	16.885	16.026	0.709	494838.003	106024.299
S18	0.010	708x354	Unknown	16.742	16.312	0.280	494832.737	106034.086
S11	0.000	1200	Unknown	17.034	15.720	1.164	494841.764	106034.055
S12	0.000	150	Unknown	17.026	15.500	1.376	494849.478	106035.032

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S14	15.962	S13	15.922	Circ	150	5.926	150	0.600	0.580	0.685
1.001	S13	15.922	S11	15.720	Circ	150	29.935	148	0.600	0.685	1.164
2.000	S15	16.387	S8	16.130	Circ	150	2.157	8	0.600	0.280	0.600
2.001	S8	16.130	S9	16.078	Circ	150	7.802	150	0.600	0.600	0.648
3.000	S16	16.384	S9	16.078	Circ	150	2.198	7	0.600	0.280	0.648
2.002	S9	16.078	S10	16.026	Circ	150	7.802	150	0.600	0.648	0.709
4.000	S17	16.387	S10	16.026	Circ	150	2.192	6	0.600	0.280	0.709
2.003	S10	16.026	S11	15.956	Circ	150	10.456	150	0.600	0.709	0.928
5.000	S18	16.312	S11	15.720	Circ	150	9.027	15	0.600	0.280	1.164
1.002	S11	15.720	S12	15.500	Circ	150	7.776	35	0.600	1.164	1.376

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
Road 1 Permeable Paving	S14	41.934	16.692	15.962	0.00000000	2.00	494845.564	106064.670
Plot 4 Driveway	S15	4.767	16.817	16.387	0.00000000	2.00	494834.495	106010.009
Plot 3 Driveway	S16	5.356	16.814	16.384	0.00000000	2.00	494838.538	106016.792
Plot 2 Driveway	S17	5.043	16.817	16.387	0.00000000	2.00	494839.296	106024.872
Driveway	S18	8.848	16.742	16.312	0.00000000	2.00	494841.136	106034.367

Outfall Details

Outfall Manhole S12 : Infiltration Tank

Flow Control Details

Controls within Manhole S11

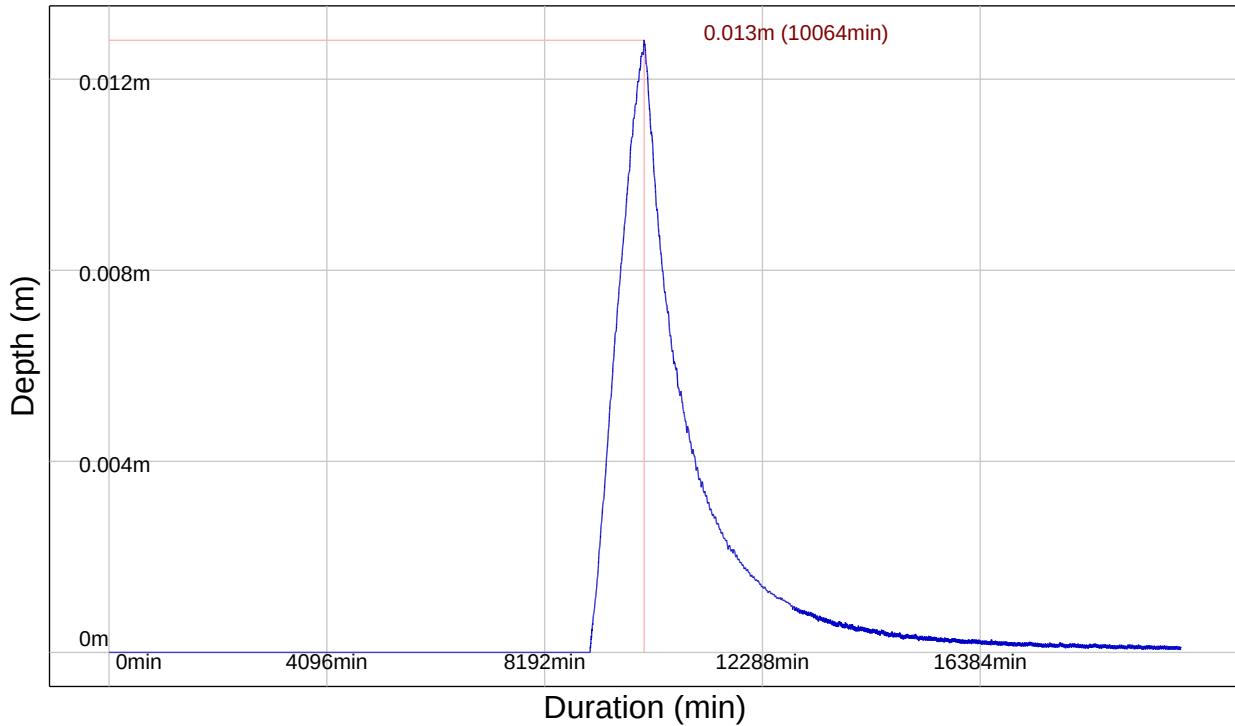
Orifice Control

Invert Offset (m)	Orifice Diameter (m)	Discharge Coeff
0.786	0.020	0.600

Tank Structure at Manhole S12

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.250	0.400	95.00	2.997	2.847	1.139	0.36000000	0.36000000	2.00

Soakaway 1 at S12 (30Yr 10080Min Summer)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	2.18	30Yr 720Min Winter	5.227	0.00	2.71
30Yr 15Min Summer	82.428	0.00	2.17	30Yr 960Min Summer	4.113	0.00	2.74
30Yr 30Min Winter	54.802	0.00	2.02	30Yr 960Min Winter	4.113	0.00	2.73
30Yr 30Min Summer	54.802	0.00	2.02	30Yr 1440Min Summer	2.943	0.00	2.77
30Yr 60Min Summer	34.866	0.00	2.12	30Yr 1440Min Winter	2.943	0.00	2.76
30Yr 60Min Winter	34.866	0.00	2.11	30Yr 2160Min Summer	2.120	0.00	2.79
30Yr 120Min Winter	21.301	0.00	2.23	30Yr 2160Min Winter	2.120	0.00	2.79
30Yr 120Min Summer	21.301	0.00	2.24	30Yr 2880Min Summer	1.689	0.00	2.80
30Yr 180Min Summer	15.787	0.00	2.33	30Yr 2880Min Winter	1.689	0.00	2.80
30Yr 180Min Winter	15.787	0.00	2.32	30Yr 4320Min Summer	1.248	0.00	2.80
30Yr 240Min Summer	12.667	0.00	2.42	30Yr 4320Min Winter	1.248	0.00	2.80
30Yr 240Min Winter	12.667	0.00	2.41	30Yr 5760Min Summer	1.024	0.00	2.79
30Yr 360Min Winter	9.194	0.00	2.53	30Yr 5760Min Winter	1.024	0.00	2.79
30Yr 360Min Summer	9.194	0.00	2.54	30Yr 7200Min Summer	0.887	0.00	2.81
30Yr 480Min Summer	7.295	0.00	2.62	30Yr 7200Min Winter	0.887	0.00	2.81
30Yr 480Min Winter	7.295	0.00	2.62	30Yr 8640Min Summer	0.794	0.00	2.82
30Yr 600Min Summer	6.080	0.00	2.68	30Yr 8640Min Winter	0.794	0.00	2.82
30Yr 600Min Winter	6.080	0.00	2.68	30Yr 10080Min Winter	0.726	0.00	2.73
30Yr 720Min Summer	5.227	0.00	2.71	30Yr 10080Min Summer	0.726	0.00	2.72

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S14	10080 min Summer	10025	16.517	0.555	0.097		Flood Risk
S13	10080 min Summer	9997	16.516	0.593	0.032		Flood Risk
S15	10080 min Summer	10055	16.513	0.127	0.057		OK
S8	10080 min Summer	10201	16.516	0.386	0.075		Surcharged
S16	10080 min Summer	10060	16.517	0.133	0.000		OK
S9	10080 min Summer	10060	16.515	0.437	0.064		Surcharged
S17	10080 min Summer	10054	16.514	0.127	0.057		OK
S10	10080 min Summer	10054	16.517	0.491	0.000		Surcharged
S18	10080 min Summer	10049	16.517	0.205	0.128		Flood Risk
S11	10080 min Summer	10016	16.516	0.796	0.176		Surcharged
S12	10080 min Summer	10062	15.263	0.013	0.024		OK

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Winter	54	S14	S13	0.150	0.474	1.036	0.072	Surcharged
1.001	30 min Summer	28	S13	S11	0.150	0.088	0.773	0.053	Surcharged
2.000	10080 min Summer	10054	S15	S8	0.138	0.245	0.499	0.008	OK
2.001	8640 min Winter	7562	S8	S9	0.150	0.109	0.346	0.024	Surcharged
3.000	10080 min Summer	10060	S16	S9	0.142	0.166	0.578	0.009	OK
2.002	360 min Summer	271	S9	S10	0.150	0.391	1.044	0.072	Surcharged
4.000	10080 min Summer	10054	S17	S10	0.138	0.094	0.470	0.006	OK
2.003	120 min Summer	115	S10	S11	0.150	0.531	2.953	0.205	Surcharged
5.000	8640 min Summer	7614	S18	S11	0.150	0.050	0.368	0.008	Surcharged
1.002	10080 min Summer	10060	S11	S12	0.003	0.269	0.026	0.001	OK

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Road 1 Permeable Paving	10080 min Summer	10043	16.516	0.554	0.012			OK
Plot 4 Driveway	10080 min Summer	10061	16.515	0.128	0.001			OK
Plot 3 Driveway	10080 min Summer	10028	16.516	0.131	0.032			OK
Plot 2 Driveway	10080 min Summer	10061	16.515	0.128	0.002			OK
Driveway	10080 min Summer	10073	16.516	0.203	0.022			OK

SOAKAWAY 2 CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S31	0.000	100	Unknown	16.575	16.075	0.400	494840.774	105985.501
S32	0.000	450	Unknown	16.575	15.800	0.675	494841.396	105995.571
S37	0.000	100	Unknown	16.575	16.075	0.400	494828.088	105985.959
S73	0.013	708x354	Unknown	16.581	16.151	0.280	494816.366	105982.272
S38	0.000	450	Unknown	16.575	16.000	0.475	494821.376	105986.373
S33	0.013	450	Unknown	16.700	15.550	1.000	494822.021	105996.820
S39	0.000	100	Unknown	16.275	15.775	0.400	494802.844	105989.243
S72	0.010	708x354	Unknown	16.434	16.004	0.280	494810.174	105982.255
S40	0.000	450	Unknown	16.502	15.650	0.752	494812.841	105985.485
S34	0.000	450	Unknown	16.714	15.500	1.064	494817.218	105997.129
S35	0.009	450	Unknown	16.475	15.440	0.885	494809.027	106000.208
S36	0.000	150	Unknown	16.790	15.375	1.265	494811.859	106007.607

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S31	16.075	S32	15.800	Circ	100	10.090	37	0.600	0.400	0.675
1.001	S32	15.800	S33	15.600	Circ	100	19.415	97	0.600	0.675	1.000
2.000	S37	16.075	S38	16.000	Circ	100	6.725	90	0.600	0.400	0.475
3.000	S73	16.151	S38	16.000	Circ	150	6.475	43	0.600	0.280	0.425
2.001	S38	16.000	S33	15.550	Circ	150	10.466	23	0.600	0.425	1.000
1.002	S33	15.550	S34	15.500	Circ	150	4.814	96	0.600	1.000	1.064
4.000	S39	15.775	S40	15.650	Circ	100	10.680	85	0.600	0.400	0.752
5.000	S72	16.004	S40	15.650	Circ	150	4.188	12	0.600	0.280	0.702
4.001	S40	15.650	S34	15.500	Circ	150	12.440	83	0.600	0.702	1.064
1.003	S34	15.500	S35	15.440	Circ	150	8.750	146	0.600	1.064	0.885
1.004	S35	15.440	S36	15.375	Circ	150	7.922	122	0.600	0.885	1.265

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
Plot 5 Driveway	S73	8.105	16.581	16.151	0.36000000	2.00	494819.551	105984.234
Plot 6 Driveway	S72	7.090	16.434	16.004	0.36000000	3.00	494815.203	105991.826

Outfall Details

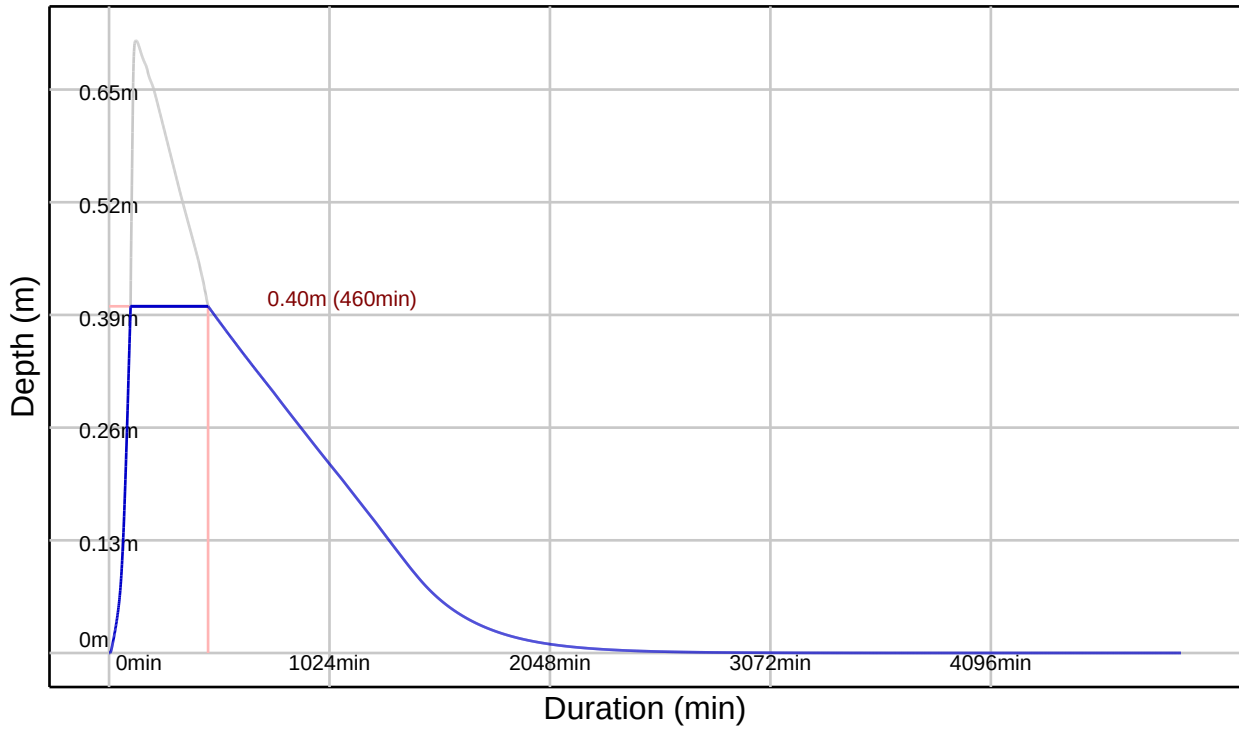
Outfall Manhole S36 : Infiltration Tank

Flow Control Details

Tank Structure at Manhole S36

Tank Invert (m)	Tank Height (m)	Porosity Ratio (%)	Area (m2)	Effective Area (m2) Area x Porosity Ratio	Max Storage (m3) Effective Area x Height	Infil Base (m/hr)	Infil Side (m/hr)	Safety Factor
15.350	0.400	95.00	16.000	15.200	6.080	0.03600000	0.03600000	2.00

Soakaway 2 at S36 (30Yr 180Min Winter)



Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	-0.10
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	-0.10
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	-0.28	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	-0.28	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	-0.23	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	-0.25	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	-0.21	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	-0.17	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	-0.17	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	-0.16	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	-0.12	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	-0.14	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	-0.12	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	-0.12	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	-0.12	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	-0.11	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	-0.10	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S31	15 min Winter	0	16.075	0.000	0.000		OK
S32	180 min Winter	124	16.057	0.257	0.000		Surcharged
S37	15 min Winter	0	16.075	0.000	0.000		OK
S73	30 min Summer	24	16.172	0.020	1.029		OK
S38	180 min Winter	125	16.057	0.057	0.188		OK
S33	180 min Winter	125	16.057	0.507	0.783		Surcharged
S39	180 min Winter	124	16.056	0.281	0.010		Flood Risk
S72	180 min Winter	126	16.055	0.051	1.022		OK
S40	180 min Winter	125	16.056	0.406	1.054		Surcharged
S34	180 min Winter	125	16.057	0.557	1.053		Surcharged
S35	180 min Winter	125	16.057	0.617	0.397		Surcharged
S36	180 min Winter	125	16.057	0.707	0.120		Surcharged

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Summer	47	S31	S32	0.050	0.000	0.000	0.000	OK
1.001	60 min Winter	62	S32	S33	0.100	0.008	0.060	0.010	Surcharged
2.000	180 min Winter	125	S37	S38	0.028	0.000	0.000	0.000	OK
3.000	180 min Winter	124	S73	S38	0.033	0.605	0.371	0.014	OK
2.001	180 min Winter	125	S38	S33	0.103	0.191	0.371	0.010	OK
1.002	30 min Summer	26	S33	S34	0.150	0.805	5.832	0.323	Surcharged
4.000	2160 min Winter	1696	S39	S40	0.100	0.007	0.051	0.008	Surcharged
5.000	180 min Winter	126	S72	S40	0.101	0.611	0.435	0.008	OK
4.001	60 min Winter	43	S40	S34	0.150	0.131	0.714	0.037	Surcharged
1.003	15 min Summer	21	S34	S35	0.150	0.618	6.301	0.430	Surcharged
1.004	15 min Summer	12	S35	S36	0.150	0.907	10.340	0.645	Surcharged

Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Plot 5 Driveway	30 min Summer	24	16.192	0.041	2.804			OK
Plot 6 Driveway	180 min Winter	131	16.048	0.044	1.240			OK

ROAD 2 PERMEABLE PAVING CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S64	0.042	708x354	Unknown	16.611	15.882	0.580	494787.986	106018.737
S65	0.000	1200	Unknown	16.669	15.800	0.719	494796.253	106014.690

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S64	15.882	S65	15.800	Circ	150	9.204	113	0.600	0.580	0.719

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
Road 2 Permeable Paving	S64	71.395	16.611	15.881	0.03600000	3.00	494800.175	106012.184

Outfall Details

Outfall Manhole S65 : Free Discharge

Flow Control Details

Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S64	60 min Summer	42	15.925	0.044	3.127		OK
S65	60 min Summer	42	15.842	0.042	3.126		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Summer	42	S64	S65	0.043	0.744	3.126	0.188	OK

Permeable Paving Storage

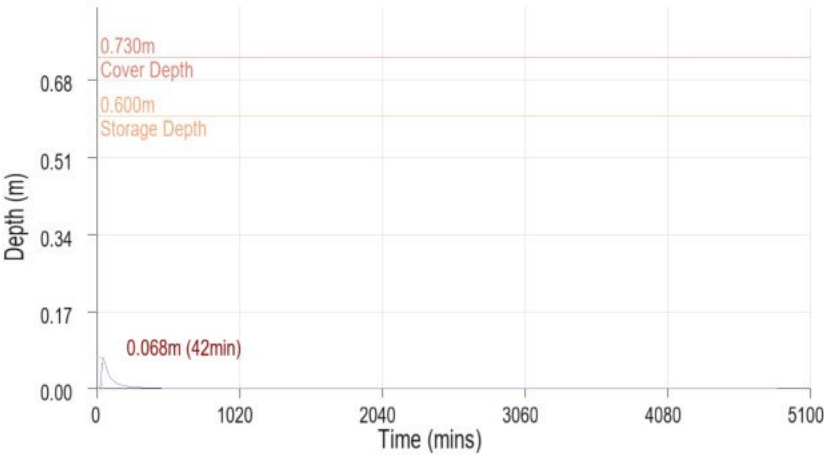
Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Road 2 Permeable Paving	60 min Summer	42	15.949	0.068	4.237			OK

Storage Curve

Show results for: 30Yr 60Min Summer

Export to CSV

Road 2 Permeable Paving assigned to Manhole S64 (30Yr 60Min Summ



ROAD 3 PERMEABLE PAVING CALCULATIONS

Network Details

Manhole Schedule

Manhole	Catchment Area (ha)	Size (mm)	Type	CL (m)	IL (m)	Depth To Soffit (m)	Easting (m)	Northing (m)
S61	0.029	708x354	Unknown	16.045	15.315	0.580	494767.985	105989.691
S74	0.000	1350	Type C	16.211	15.235	0.826	494779.038	105985.377

Pipe Schedule

Pipe Number	US Manhole	US IL (m)	DS Manhole	DS IL (m)	Shape	Dimension (mm)	Length (m)	Gradient (1:x)	Roughness (mm)	US Depth To Soffit (m)	DS Depth To Soffit (m)
1.000	S61	15.315	S74	15.235	Circ	150	11.865	148	0.600	0.580	0.826

Permeable Paving Schedule

Permeable Paving	Assigned Manhole	Effective Storage Volume (m3)	CL (m)	IL (m)	Storage Infil Rate (m/hr)	Safety Factor	Easting (m)	Northing (m)
Road 3 Permeable Paving	S61	51.360	16.045	15.315	0.03600000	3.00	494777.606	105988.199

Outfall Details

Outfall Manhole S74 : Free Discharge

Flow Control Details

Simulation Settings

FEH2022 (point): Filename=FEH_Point_Descriptors_494846_106034_v5_0_1.xml

Summer (Cv: 1.00), Winter (Cv: 1.00)

Global Time of Entry: 5.0 mins

Durations (mins): 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080

Return Periods (yrs) + Climate Change: (30, +0%)

Manhole Flood Risk Freeboard: 0.300m

Simulated Rainfall Events

Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %	Storm	Average Intensity (mm/hr)	Runoff Continuity %	Flow Continuity %
30Yr 15Min Winter	82.428	0.00	0.00	30Yr 720Min Winter	5.227	0.00	0.00
30Yr 15Min Summer	82.428	0.00	0.00	30Yr 960Min Summer	4.113	0.00	0.00
30Yr 30Min Winter	54.802	0.00	0.00	30Yr 960Min Winter	4.113	0.00	0.00
30Yr 30Min Summer	54.802	0.00	0.00	30Yr 1440Min Summer	2.943	0.00	0.00
30Yr 60Min Summer	34.866	0.00	0.00	30Yr 1440Min Winter	2.943	0.00	0.00
30Yr 60Min Winter	34.866	0.00	0.00	30Yr 2160Min Summer	2.120	0.00	0.00
30Yr 120Min Winter	21.301	0.00	0.00	30Yr 2160Min Winter	2.120	0.00	0.00
30Yr 120Min Summer	21.301	0.00	0.00	30Yr 2880Min Summer	1.689	0.00	0.00
30Yr 180Min Summer	15.787	0.00	0.00	30Yr 2880Min Winter	1.689	0.00	0.00
30Yr 180Min Winter	15.787	0.00	0.00	30Yr 4320Min Summer	1.248	0.00	0.00
30Yr 240Min Summer	12.667	0.00	0.00	30Yr 4320Min Winter	1.248	0.00	0.00
30Yr 240Min Winter	12.667	0.00	0.00	30Yr 5760Min Summer	1.024	0.00	0.00
30Yr 360Min Winter	9.194	0.00	0.00	30Yr 5760Min Winter	1.024	0.00	0.00
30Yr 360Min Summer	9.194	0.00	0.00	30Yr 7200Min Summer	0.887	0.00	0.00
30Yr 480Min Summer	7.295	0.00	0.00	30Yr 7200Min Winter	0.887	0.00	0.00
30Yr 480Min Winter	7.295	0.00	0.00	30Yr 8640Min Summer	0.794	0.00	0.00
30Yr 600Min Summer	6.080	0.00	0.00	30Yr 8640Min Winter	0.794	0.00	0.00
30Yr 600Min Winter	6.080	0.00	0.00	30Yr 10080Min Winter	0.726	0.00	0.00
30Yr 720Min Summer	5.227	0.00	0.00	30Yr 10080Min Summer	0.726	0.00	0.00

Simulation Results

Return Period (yrs) + Climate Change (%):
30yr+0%

Manholes

Manhole	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Status
S61	60 min Summer	42	15.357	0.042	2.584		OK
S74	60 min Summer	42	15.277	0.042	2.583		Outfall

Conduits

Pipe No.	Critical Storm	Peak (mins)	US Manhole	DS Manhole	Flow Depth (m)	Max Velocity (m/s)	Max Flow (l/s)	Flow / Capacity	Status
1.000	60 min Summer	42	S61	S74	0.042	0.639	2.583	0.178	OK

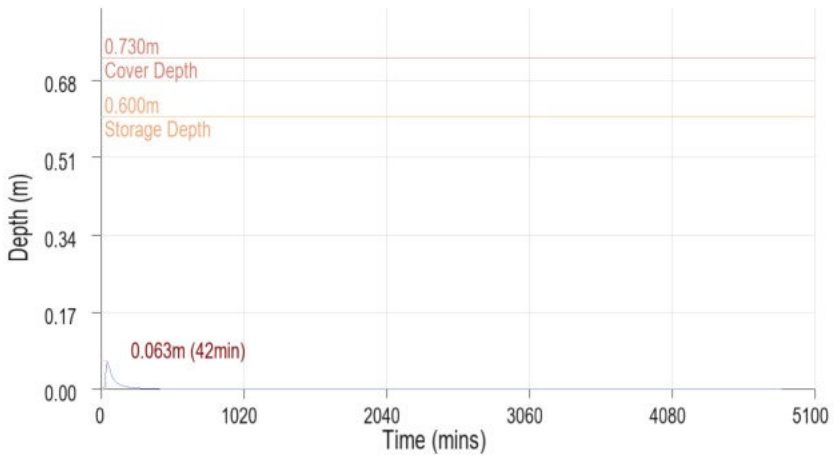
Permeable Paving Storage

Permeable Paving	Critical Storm	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Flood (m3)	Surface Runoff (m3)	Status
Road 3 Permeable Paving	60 min Summer	42	15.378	0.063	2.880			OK

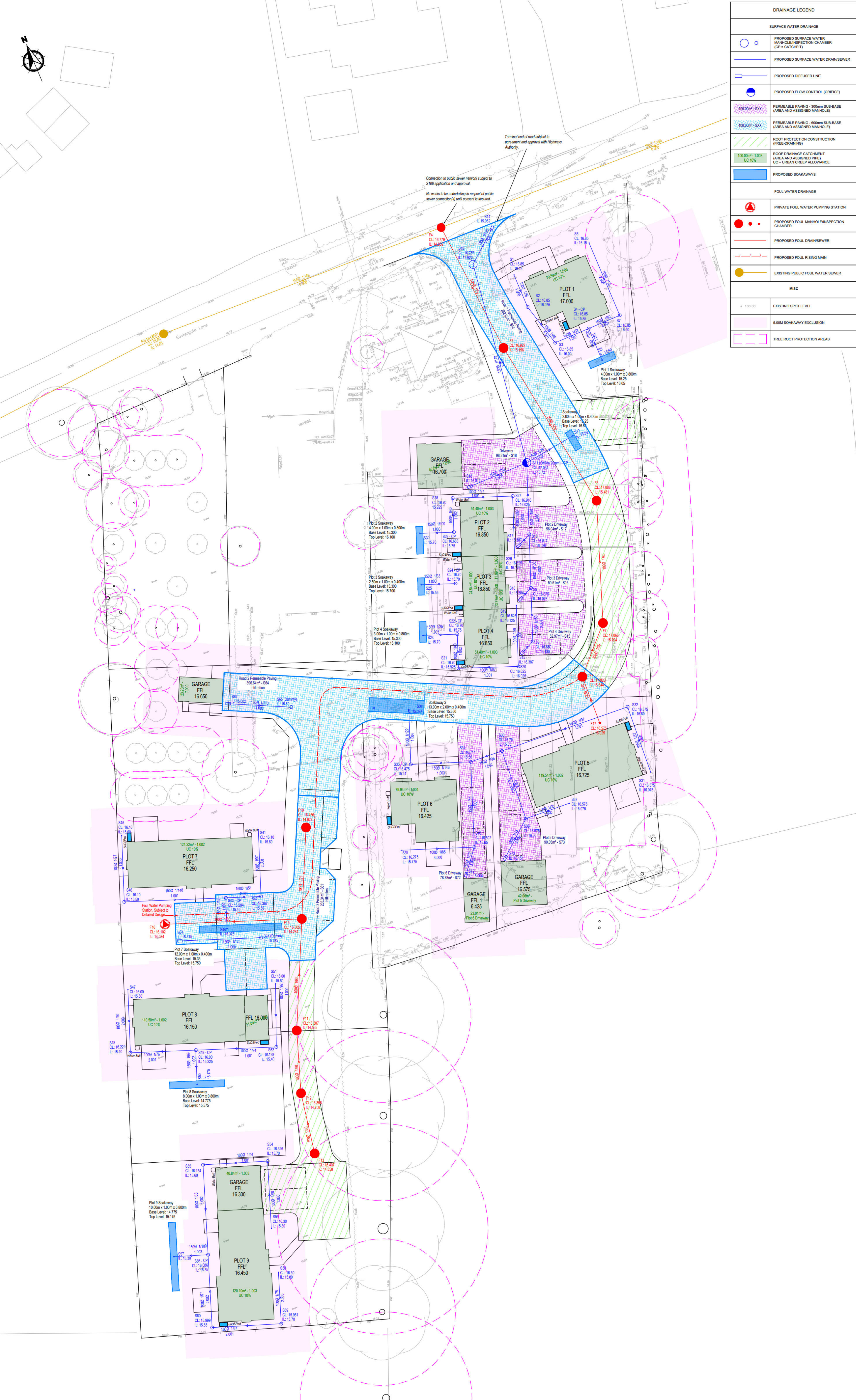
Show results for: 30Yr 60Min Summer

Export to CSV

Road 3 Permeable Paving assigned to Manhole S61 (30Yr 60Min Summ



APPENDIX C



DRAINAGE LEGEND	
SURFACE WATER DRAINAGE	
	PROPOSED SURFACE WATER MANHOLE/INSPECTION CHAMBER (CP = CATCHPIT)
	PROPOSED SURFACE WATER DRAINSEWER
	PROPOSED DIFFUSER UNIT
	PROPOSED FLOW CONTROL (ORIFICE)
	PERMEABLE PAVING - 300mm SUB-BASE (AREA AND ASSIGNED MANHOLE)
	PERMEABLE PAVING - 600mm SUB-BASE (AREA AND ASSIGNED MANHOLE)
	ROOT PROTECTION CONSTRUCTION (FREE-DRAINING)
	ROOF DRAINAGE CATCHMENT (AREA AND ASSIGNED PIPE) UC = URBAN CREEP ALLOWANCE
	PROPOSED SOAKAWAYS
FOUL WATER DRAINAGE	
	PRIVATE FOUL WATER PUMPING STATION
	PROPOSED FOUL MANHOLE/INSPECTION CHAMBER
	PROPOSED FOUL DRAINSEWER
	PROPOSED FOUL RISING MAIN
	EXISTING PUBLIC FOUL WATER SEWER
MISC	
	EXISTING SPOT LEVEL
	5.00M SOAKAWAY EXCLUSION
	TREE ROOT PROTECTION AREAS

- NOTES**
1. This drawing is to be read in conjunction with all other BP Civils drawings, and with all relevant Architect's and Engineer's drawings and specification. Any discrepancies found are to be reported immediately to the Engineer.

2. BP Civils accepts no responsibility for inaccuracies in data provided by third parties such as topographic surveys or Ordnance Survey mapping.

3. Do not scale, work to figured dimensions only. All dimensions are in millimeters unless noted otherwise and all levels are in metres from the topographic survey datum.

4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain. The main contractor is responsible for checking all information on site prior to work commencing and taking due care whilst undertaking the works.

5. All dimensions to be checked on site. All details and dimensions are dimensionally drawn exact. Figured dimensions must be used for setting out and detailing. BP Civils logos and company information must be removed from copies if information is re-used.

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8. The client shall ensure that all licences, consents and approvals required to implement the works are in place prior to commencing construction.

RESIDUAL HAZARDS		
In addition to the hazards/risks normally associated with the type of work detailed on this drawing, note the following:		
1. Buried services. Contractor to refer to record drawings and use CAT to locate existing services and undertake necessary precautions and investigation prior to excavating.		
2. Working in live traffic. Contractor to ensure traffic management is designed, erected and maintained to protect the workforce and the public. Contractor to undertake necessary precautions and ensure suitable traffic management is in place prior to commencement.		
3. Working in live sewers. Contractor to ensure operatives are familiar and competent with the dangers of working in live sewers.		
4. Excavations close to existing structures. Contractor to prepare method statement to ensure stability of existing structure.		
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved risk assessment and method statement		
P3	23/06/26	SuDS pods and water butts added
P2	05/05/26	Soakaways reassessed further to additional testing
P1	15/08/25	Revised layout
P.	27/06/25	Original Issue
Rev.	Date	Amendments

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Drawing Status
PLANNING
NOT FOR CONSTRUCTION

Client
Eastmere Paddocks Ltd

Project
Hill View,
Eastergate Lane

Drawing Title
Conceptual Drainage Strategy

Scale
1:250

Date
Jun, '25

Drawn By
SPB

Checked By
MJA

Project No
D2380

Drawing Code
000-BPC-WD-ZZ-D-C

Drawing No.
PL400

Rev.
P3