

Appendix I – Microdrainage Calculations

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Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 30CC	
Date 14/01/2025 10:21 File 2025.01.14 NETWORK REV ...	Designed by FEG Checked by	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.356	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	5.788	0.027	214.4	0.002	4.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	8.606	0.107	80.4	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	7.406	0.040	185.2	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
3.000	17.024	0.033	515.9	0.005	4.00	0.0	0.600	o	100	Pipe/Conduit	
3.001	8.710	0.087	100.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.001	19.663	0.113	174.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.002	3.432	0.043	79.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.003	11.170	0.649	17.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.19	213.781	0.002	0.0	0.0	0.0	0.52	4.1	0.3
1.001	50.00	4.35	213.754	0.002	0.0	0.0	0.0	0.86	6.7	0.3
2.000	50.00	4.22	213.800	0.013	0.0	0.0	0.0	0.56	4.4	1.8
3.000	50.00	4.85	213.880	0.005	0.0	0.0	0.0	0.33	2.6	0.7
3.001	50.00	5.04	213.847	0.005	0.0	0.0	0.0	0.77	6.0	0.7
2.001	50.00	5.61	213.760	0.018	0.0	0.0	0.0	0.58	4.6	2.4
1.002	50.00	5.67	213.647	0.020	0.0	0.0	0.0	0.86	6.8	2.8
1.003	50.00	5.77	213.604	0.020	0.0	0.0	0.0	1.87	14.7	2.8

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Innovyze	Network 2020.1.3	

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.000	0.000	0.000
	User	-	100	0.002	0.002	0.002
1.001	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.013	0.013	0.013
3.000	User	-	100	0.005	0.005	0.005
3.001	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.020	0.020	0.020

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.003		214.780	212.955	212.955	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	4
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.356		

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Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 30CC	
Date 14/01/2025 10:21 File 2025.01.14 NETWORK REV ...	Designed by FEG Checked by	
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<u>Online Controls for Storm</u> <u>Orifice Manhole: 9, DS/PN: 1.002, Volume (m³): 1.3</u> Diameter (m) 0.048 Discharge Coefficient 0.600 Invert Level (m) 213.647		
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Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 30CC	
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Storage Structures for Storm

Filter Drain Manhole: 3, DS/PN: 1.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 214.0
Invert Level (m) 213.781	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 5.4	

Filter Drain Manhole: 5, DS/PN: 2.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 185.2
Invert Level (m) 213.800	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 3.3	

Filter Drain Manhole: 6, DS/PN: 3.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 515.0
Invert Level (m) 213.880	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 17.0	

Filter Drain Manhole: 8, DS/PN: 2.001

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 174.0
Invert Level (m) 213.760	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 24.0	

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Ebenezer House

Ryecroft

Newcastle ST5 2BE

Royal Oak Residential

Surface Water Design

1 in 100 30CC

Date 14/01/2025 10:21

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1 year Return Period Summary of Critical Results by Maximum Flood Volume

(Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000

Additional Flow - % of Total Flow 0.000

Hot Start (mins) 0

MADD Factor * 10m³/ha Storage 2.000

Hot Start Level (mm) 0

Inlet Coeffiecient 0.800

Manhole Headloss Coeff (Global) 0.500

Flow per Person per Day (l/per/day) 0.000

Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0

Number of Storage Structures 4

Number of Online Controls 1

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR

Ratio R 0.356

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 18.000

Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

DVD Status OFF

Analysis Timestep Fine

Inertia Status OFF

DTS Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 0, 30

US/MH

PN

Name

Storm

Return Period

Climate Change

First (X) Surgecharge

First (Y) Flood

First (Z) Overflow

Overflow Act.

Water Level (m)

1.000

3

15 Summer

1

+0%

30/15 Winter

213.800

1.001

4

15 Summer

1

+0%

30/15 Summer

213.776

2.000

5

15 Summer

1

+0%

30/15 Summer

213.845

3.000

6

15 Summer

1

+0%

100/15 Summer

213.913

3.001

7

15 Summer

1

+0%

100/15 Summer

213.868

2.001

8

15 Summer

1

+0%

30/15 Summer

213.808

1.002

9

15 Summer

1

+0%

1/15 Summer

213.776

1.003

10

15 Summer

1

+0%

213.626

Surcharged

Flooded

Half Drain

Pipe

US/MH

PN

Name

Depth (m)

Volume (m³)

Flow / Cap.

Overflow (l/s)

Time (mins)

Flow (l/s)

Status

Level Exceeded

1.000

3

-0.081

0.000

0.08

4

0.3

OK

1.001

4

-0.078

0.000

0.05

0.3

OK

2.000

5

-0.055

0.000

0.41

5

1.7

OK

3.000

6

-0.067

0.000

0.23

5

0.6

OK

3.001

7

-0.079

0.000

0.10

0.6

OK

2.001

8

-0.052

0.000

0.47

6

2.1

OK

1.002

9

0.029

0.000

0.27

1.5 SURCHARGED

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Ebenezer House	Royal Oak Residential	
Ryecroft	Surface Water Design	
Newcastle ST5 2BE	1 in 100 30CC	
Date 14/01/2025 10:21	Designed by FEG	
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Innovyze	Network 2020.1.3	

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

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
1.003	10	-0.074	0.000	0.16			2.2		OK	

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Innovyze	Network 2020.1.3	

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

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
1.003	10	-0.071	0.000	0.19				2.6	OK	

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Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	100	PIMP (%)	100
M5-60 (mm)	18.000	Add Flow / Climate Change (%)	0
Ratio R	0.356	Minimum Backdrop Height (m)	0.200
Maximum Rainfall (mm/hr)	50	Maximum Backdrop Height (m)	1.500
Maximum Time of Concentration (mins)	30	Min Design Depth for Optimisation (m)	1.200
Foul Sewage (l/s/ha)	0.000	Min Vel for Auto Design only (m/s)	1.00
Volumetric Runoff Coeff.	0.750	Min Slope for Optimisation (1:X)	500

Designed with Level Soffits

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	5.788	0.027	214.4	0.002	4.00	0.0	0.600	o	100	Pipe/Conduit	
1.001	8.606	0.107	80.4	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.000	7.406	0.040	185.2	0.013	4.00	0.0	0.600	o	100	Pipe/Conduit	
3.000	17.024	0.033	515.9	0.005	4.00	0.0	0.600	o	100	Pipe/Conduit	
3.001	8.710	0.087	100.1	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
2.001	19.663	0.113	174.0	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.002	3.432	0.043	79.8	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	
1.003	11.170	0.649	17.2	0.000	0.00	0.0	0.600	o	100	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.19	213.781	0.002	0.0	0.0	0.0	0.52	4.1	0.3
1.001	50.00	4.35	213.754	0.002	0.0	0.0	0.0	0.86	6.7	0.3
2.000	50.00	4.22	213.800	0.013	0.0	0.0	0.0	0.56	4.4	1.8
3.000	50.00	4.85	213.880	0.005	0.0	0.0	0.0	0.33	2.6	0.7
3.001	50.00	5.04	213.847	0.005	0.0	0.0	0.0	0.77	6.0	0.7
2.001	50.00	5.61	213.760	0.018	0.0	0.0	0.0	0.58	4.6	2.4
1.002	50.00	5.67	213.647	0.020	0.0	0.0	0.0	0.86	6.8	2.8
1.003	50.00	5.77	213.604	0.020	0.0	0.0	0.0	1.87	14.7	2.8

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Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.000	0.000	0.000
	User	-	100	0.002	0.002	0.002
1.001	-	-	100	0.000	0.000	0.000
2.000	User	-	100	0.013	0.013	0.013
3.000	User	-	100	0.005	0.005	0.005
3.001	-	-	100	0.000	0.000	0.000
2.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
1.003	-	-	100	0.000	0.000	0.000
				Total	Total	Total
				0.020	0.020	0.020

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
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1.003		214.780	212.955	212.955	0	0
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Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1
Number of Input Hydrographs	0	Number of Storage Structures	4
Number of Online Controls	1	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	18.000	Storm Duration (mins)	30
Ratio R	0.356		

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Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 40CC	
Date 14/01/2025 10:20 File 2025.01.14 NETWORK REV ...	Designed by FEG Checked by	
Innovyze	Network 2020.1.3	
Online Controls for Storm Orifice Manhole: 9, DS/PN: 1.002, Volume (m³): 1.3 Diameter (m) 0.048 Discharge Coefficient 0.600 Invert Level (m) 213.647		
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Ebenezer House Ryecroft Newcastle ST5 2BE	Royal Oak Residential Surface Water Design 1 in 100 40CC	
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Innovyze	Network 2020.1.3	

Storage Structures for Storm

Filter Drain Manhole: 3, DS/PN: 1.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 214.0
Invert Level (m) 213.781	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 5.4	

Filter Drain Manhole: 5, DS/PN: 2.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 185.2
Invert Level (m) 213.800	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 3.3	

Filter Drain Manhole: 6, DS/PN: 3.000

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 515.0
Invert Level (m) 213.880	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 17.0	

Filter Drain Manhole: 8, DS/PN: 2.001

Infiltration Coefficient Base (m/hr) 0.00000	Pipe Diameter (m) 0.100
Infiltration Coefficient Side (m/hr) 0.00000	Pipe Depth above Invert (m) 0.150
Safety Factor 2.0	Number of Pipes 1
Porosity 0.30	Slope (1:X) 174.0
Invert Level (m) 213.760	Cap Volume Depth (m) 0.000
Trench Width (m) 0.5	Cap Infiltration Depth (m) 0.000
Trench Length (m) 24.0	

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Ebenezer House

Ryecroft

Newcastle ST5 2BE

Royal Oak Residential

Surface Water Design

1 in 100 40CC

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1 year Return Period Summary of Critical Results by Maximum Flood Volume

(Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000

Additional Flow - % of Total Flow 0.000

Hot Start (mins) 0

MADD Factor * 10m³/ha Storage 2.000

Hot Start Level (mm) 0

Inlet Coeffiecient 0.800

Manhole Headloss Coeff (Global) 0.500

Flow per Person per Day (l/per/day) 0.000

Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0

Number of Storage Structures 4

Number of Online Controls 1

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR

Ratio R 0.356

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 18.000

Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

DVD Status OFF

Analysis Timestep Fine

Inertia Status OFF

DTS Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 0, 40

US/MH

PN

Name

Storm

Return Period

Climate Change

First (X) Surge

First (Y) Flood

First (Z) Overflow

Overflow Act.

Water Level (m)

1.000

3

15 Summer

1

+0%

30/15 Winter

213.800

1.001

4

15 Summer

1

+0%

30/15 Summer

213.776

2.000

5

15 Summer

1

+0%

30/15 Summer

213.845

3.000

6

15 Summer

1

+0%

100/15 Summer

213.913

3.001

7

15 Summer

1

+0%

100/15 Summer

213.868

2.001

8

15 Summer

1

+0%

30/15 Summer

213.808

1.002

9

15 Summer

1

+0%

1/15 Summer

213.776

1.003

10

15 Summer

1

+0%

213.626

Surcharged Flooded

Half Drain Pipe

US/MH

PN

Name

Depth (m)

Volume (m³)

Flow / Cap.

Overflow (l/s)

Time (mins)

Pipe Flow (l/s)

Status

Level Exceeded

1.000

3

-0.081

0.000

0.08

4

0.3

OK

1.001

4

-0.078

0.000

0.05

0.3

OK

2.000

5

-0.055

0.000

0.41

5

1.7

OK

3.000

6

-0.067

0.000

0.23

5

0.6

OK

3.001

7

-0.079

0.000

0.10

0.6

OK

2.001

8

-0.052

0.000

0.47

6

2.1

OK

1.002

9

0.029

0.000

0.27

1.5 SURCHARGED

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Ebenezer House	Royal Oak Residential	
Ryecroft	Surface Water Design	
Newcastle ST5 2BE	1 in 100 40CC	
Date 14/01/2025 10:20	Designed by FEG	
File 2025.01.14 NETWORK REV ...	Checked by	
Innovyze	Network 2020.1.3	

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

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
1.003	10	-0.078	0.000	0.11				1.6	OK	

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Ebenezer House	Royal Oak Residential	
Ryecroft	Surface Water Design	
Newcastle ST5 2BE	1 in 100 40CC	
Date 14/01/2025 10:20	Designed by FEG	
File 2025.01.14 NETWORK REV ...	Checked by	
Innovyze	Network 2020.1.3	

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

PN	US/MH Name	Surcharged		Flooded		Half Drain		Pipe	Status	Level Exceeded
		Depth (m)	Volume (m³)	Flow / Cap.	Overflow (l/s)	Time (mins)	Flow (l/s)	Flow (l/s)		
1.003	10	-0.074	0.000	0.16			2.2		OK	

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Ebenezer House

Ryecroft

Newcastle ST5 2BE

Royal Oak Residential

Surface Water Design

1 in 100 40CC

Date 14/01/2025 10:20

File 2025.01.14 NETWORK REV ...

Designed by FEG

Checked by

Innovyze

Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Flood Volume

(Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000

Additional Flow - % of Total Flow 0.000

Hot Start (mins) 0

MADD Factor * 10m³/ha Storage 2.000

Hot Start Level (mm) 0

Inlet Coeffiecient 0.800

Manhole Headloss Coeff (Global) 0.500

Flow per Person per Day (l/per/day) 0.000

Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0

Number of Storage Structures 4

Number of Online Controls 1

Number of Time/Area Diagrams 0

Number of Offline Controls 0

Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR

Ratio R 0.356

Region England and Wales Cv (Summer) 0.750

M5-60 (mm) 18.000

Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0

DVD Status OFF

Analysis Timestep Fine

Inertia Status OFF

DTS Status ON

Profile(s) Summer and Winter

Duration(s) (mins) 15, 30, 60, 120, 240, 360, 480, 960, 1440

Return Period(s) (years) 1, 30, 100

Climate Change (%) 0, 0, 40

US/MH

PN

Name

Storm

Return Period

Climate Change

First (X) Surge

First (Y) Flood

First (Z) Overflow

Overflow Act.

Water Level (m)

1.000

3

15 Summer

100

+40%

30/15 Winter

213.990

1.001

4

15 Summer

100

+40%

30/15 Summer

213.989

2.000

5

15 Summer

100

+40%

30/15 Summer

214.078

3.000

6

15 Summer

100

+40%

100/15 Summer

214.040

3.001

7

15 Summer

100

+40%

100/15 Summer

214.032

2.001

8

15 Summer

100

+40%

30/15 Summer

214.027

1.002

9

15 Summer

100

+40%

1/15 Summer

213.987

1.003

10

15 Summer

100

+40%

213.634

Surcharged Flooded

Half Drain Pipe

US/MH

PN

Name

Depth (m)

Volume (m³)

Flow / Cap.

Overflow (l/s)

Time (mins)

Pipe Flow (l/s)

Status

Level Exceeded

1.000

3

0.109

0.000

0.24

12

0.9

SURCHARGED

1.001

4

0.135

0.000

0.08

0.5

SURCHARGED

2.000

5

0.178

0.000

1.52

12

6.1

SURCHARGED

3.000

6

0.060

0.000

0.77

10

1.9

SURCHARGED

3.001

7

0.085

0.000

0.20

1.1

SURCHARGED

2.001

8

0.167

0.000

0.80

13

3.5

SURCHARGED

1.002

9

0.240

0.000

0.48

2.7

FLOOD RISK

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